

UNIVERSITY OF EDUCATION WINNEBA

**EXAMINING STUDENTS' SATISFACTION WITH SCHOOL MEALS UNDER THE
FREE SHS POLICY**

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DEDICATION

I dedicate this work to the Almighty God for his wonderful provision through this course. I again dedicate in piece to my Parents (Mr. and Mrs. Andoh) and my lovely Husband (Mr. Perry Nartey) for their support both materially and spiritually.



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ABSTRACT

It has been acknowledged from numerous studies that students who consume nutritious meals before taking an academic task are more effective in increasing their cognitive performance and enhanced examination achievement. No study has taken into consideration different categorization of schools (specifically senior high schools) in order to see the similarities and difference in meals serve at different schools and the factors that account for. The main purpose of this study was to investigate students' satisfaction with school meals under the Free SHS policy. Stratified sampling was used to categorized the schools into A and B. Subsequently purposive sampling was used to select 404 respondents from the category "A" and "B" schools . Interviews and questionnaire were used to collect data and analysed with SSPS version 23. In the process of finding out specific meals served at the selected schools, it astonishingly emerged that all the schools use the same menu for breakfast, lunch and supper. On quantity of meals served the following was recorded 84%, 67%, 60%, and 59% respectively from the schools. (Presec, legon,Ghanata, WASS and Aquinas) indicating their dissatisfaction of meals served at their dining halls. Five-point Likert Scale for quality was used to assess the sensory qualities (i.e. colour, taste, texture, and flavour) and quantity of meals served to students that is Very dissatisfied=1, dissatisfied=2, neutral/normal=3, satisfied=4, and very satisfied=5. Mean and standard deviation were used to estimate the average rating and the degree of variability for each property. Presec, Legon and Aquinas, recorded a mean of 3.63, 3.23, for colour, taste, texture, and flavour recorded 2.93, 3.23, 2.99 and 3.19, 3.15, and 3.02, respectively, can be approximated to 3 which signifies "fair". In conclusion, meals served to students both in category A and B schools do not have any significant variation, hence depicting the fact that meals serve at various senior high schools are the same regardless of the pedigree.

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CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

Students' satisfaction with food service plays a significant role in the overall quality of life of a student in senior high schools. Therefore, food service directors at second cycle institutions need to be knowledgeable regarding the trends in providing for students' meals that meet standard nutritional requirements (Gramling, et al., 2009).

To start with, a Senior High School is a second cycle education which is the next level of education one go through immediately after basic education. Institutions which offer second cycle education are known as second cycle institutions which can either be senior high or vocational/ technical school, comprised of boarding and non-boarding (day) in Ghana (Koufie, 2016). According to the United Nations Educational Scientific and Cultural Organisation (UNESCO), well-managed boarding schools provide good nutrition, hygiene, sanitation, a balance daily routine of personal care, sports and recreation and study habits that children introduce to their own homes and families and to their lives as adults (UNESCO, 2005).

Koufie (2016) observed that students in non-boarding institutions stay with either their parents or guardians and spend about six hours each working day in school, while their counterparts in the boarding system are directly under the care and monitoring of teachers who ensure their nutritional, emotional, academic, and physical wellbeing are catered for. Numerous studies have outlined the relationship between nutrition and academic achievement as well as students' behaviour, yet authorities in both health and educational sectors in Ghana give little attention to

nutrition, in spite of the massive poor academic performance in schools (Ampofo & Osei-Owusu, 2015). Students in these institutions are mostly within the age group of 15-19 years, with some younger or older than the required age (Ampofo & Osei-Owusu, 2015). The aforesaid age group are adolescent who need nutritious meals to boost their immune system and improve their cognitive skills (Koufie, 2016).

However, majority of adolescents in developing countries enter adolescence malnourished, making them more vulnerable to disease and early death and nutrient deficiencies (MO-NUPA, 2011). Some dietary patterns are consistently observed among adolescents and put them at risk of unhealthy eating: the consequence of snacking, usually on energy-dense but otherwise nutrient poor items: meal skipping, irregular eating pattern; and a wide use of fast food for meals and snacks. Other eating behaviours generally recognized as common among adolescents are eating away from home, and low intake of fruits and vegetables (Forthing, et al., 1993). As stated earlier, these adolescents are mostly in second cycle institution and majority of them exhibit these unhealthy eating habits (Koufie, 2016). Due to poor eating habits, students in boarding institutions are often given easy to prepare dishes such as gari, shito, sardine, etcetera by their parents or guardians to augment the three-square meals provided by the school (Koufie, 2016). At this stage of the life cycle, what is consumed is greatly influenced by: peers, mass media, social and cultural norms, lack of nutrition knowledge while the influence of the family tends to decline (Forthing, 1991; Johnston & Haddad, 1996; Spear, 1996). This can lead to poor quality diets which are low in calories and most essential nutrients. A study by Vermeersch & Kremer (2014), revealed that poor diet affects academic performance, hence there is a need to pay critical attention to the nutrition of students in second cycle institutions.

There are typically three methods for understanding the relationships between health and education (Kazianga, de Walque et al., 2009). The first thing that affects childhood education and success at school is food and wellbeing. Poor diet impacts children's cognitive function and thus reduces the ability of children to engage in school learning. Additionally, children with malnutrition are unable to go to school consistently and, in effect, are poorly educated. Thirdly, hungry children have trouble concentrating and doing complex tasks than well-nourished children (Kazianga, de Walque et al., 2009).

Before the advent of school feeding for all senior high school students under the Free Senior High School (SHS) programme, the provision of food for students especially those in the boarding was predicated on their school's fees. And since school fees differ from one school to the other, a cursory observation has shown that the quality of food also differ among schools. In a study conducted in Opoku Ware SHS by Koufie, (2016), it emerged that meals provided at the dining hall for the students, contained all the important food groups, though the students were dissatisfied with the quality and quantity, while a similar study in Upper West by Bigson, et al., (2019) indicated that meals provided for students do not meet the recommended nutrient intake. Koufie (2016), also found out that inadequate and unreliable government subvention was a major constraint in the provision of adequate meals in boarding institutions in the country. It was also revealed that, students purchased other foods such as *kenkey*, *banku*, rice and beans whilst in school to supplement the meals provided at the dining hall.

Currently meals at senior high schools are given to both boarding and non-boarding students and the source of funding is solely from government's coffers since all secondary schools are no more paying school fees under the Free SHS policy (Abdul-Rahaman, et al., 2018).

School feeding programmes are highly context-specific and the services of each group must be tailored according to demographics, geography and other factors within and outside schools (Heim et al, 2011). This is why the development and implementation of school feeding programs poses a wide variety of challenges (Heim et al, 2011). According to Heim et al., (2011), to deliver a successful school feeding program, countries must decide whether school feeding is the most effective program possible to reach the needy children in their countries, identify program goals and outcomes, evaluate the kind of food that will be served in schools.

Considering the fact that meals provided pre-FSHS era are inadequate as posited by Koufie, (2016), this study deems it prudent to assess the current form of meals provided to students in Senior High Schools and simultaneously examine their satisfaction with the meals provided under the FSHS programme.

1.1 Problem Statement

It has been acknowledged from numerous studies that students who consume nutritious meals before taking an academic task are more effective in increasing their cognitive performance and enhanced examination achievement (Ampofo & Osei-Owusu, 2015). Students also get more energy and can concentrate better and focus more on learning goals and tasks (Ampofo & Osei-Owusu, 2015). In a comprehensive systematic literature review, Oniago (2010) established that, the intellectual, physical, and emotional development of students are impaired by hunger and malnutrition, hence, food provided to students must equally meet a standardized quality and quantity criteria. Additionally, Koufie (2016) observed that studies on school meals and school feeding programmes are analysed from a school-specific perspective which is inadequate for policy purposes. No study has taken into consideration different categorization of schools (specifically senior high schools) in order to see the similarities and difference in meals serve at different schools and the factors that account for it, alongside students' satisfaction with the meals provided. According to Brownson, Royer, Ewing, & McBride, (2006) research is not only to identify gaps in existing studies but also to inform and throw more light on a particular phenomenon for policy decision making. Therefore this study therefore deems it prudent to assess students' satisfaction with school meals, with special focus on different categories of schools.

1.2 Objectives of the Study

1.2.1 Main Objective

The main purpose of this study was to investigate students' satisfaction with school meals under the Free SHS policy.

1.2.2 Specific Objectives

In pursuit of the main objective, the following specific objectives were designed to guide the study.

- 1) To assess the specific meals served in the category “A” and “B” schools
- 2) To examine the perceived influence of taste, flavour, colour, texture and quantity on students' food choices.
- 3) To compare satisfaction level among students in “A” and “B” schools
- 4) To assess the existing management practices that promote students' satisfaction of meals.

1.3 Research Question

The study will provide answers to the following research questions.

- 1) What is the perceived influence of taste, flavour, colour, texture and quantity on students' food choices?
- 2) What is the satisfaction level among study category A and B schools?
- 3) What measures are put in place by management to promote students' satisfaction of school meals.

1.4 Significance of the Study

Results from this study will help bring an understanding to the factors influence students' level of satisfaction of school meals and how relevant stakeholders can improve the present status of meals served to students under the school feeding programme.

It will help educate students on the nutritional value of every meal, so that they will not be overly focused on the sensory qualities, and the quantity of meals that is served in their respective dining halls since most of these students are adolescent who preferred dietary patterns which put them at risk of unhealthy eating: the consequence of snacking, usually on energy-dense but otherwise nutrient poor items: meal skipping, irregular eating pattern; and a wide use of fast food for meals and snacks and a lot of energy-giving food in order to stay active and healthy.

Furthermore, the study will immensely help management of the schools to ensure proper supervision of meals prepared by kitchen staff of the Senior High Schools.

1.5 Scope of the Study

The study was a comparative study between two category "A" schools namely: Presbyterian Senior High School and St. Thomas Aquinas School and two category "B" schools consisting of Ghanata Senior High School and West African Senior High School. Hence, all the primary information were solicited from these four (4) schools. Additionally, the study would have love to broaden the scope of this study by adding more schools or different categories of schools but due to resource and time constraints, the study was limited to the above-mentioned schools in the Greater Accra Region. For instance, the initial purpose of the study was to investigate the issue

between category A and C schools however, it was difficult to get the consent of schools under category C hence the study settled for category B.

1.6 Organisation of the Study

The study is organized into five main chapters.

The first chapter presents the introduction which contains the background of the study, the problem statement, objectives, relevance of the study, and the organisation of the study.

The second chapter focused on the review of theoretical and empirical literature relating to the subject matter of the study. The theoretical section would explain certain key theories that underpin the relationship between students' satisfaction of school meals, source of meals and academic performance. The empirical section reviewed various researchers' findings in previous studies

Chapter three presents the research methodology which touches on the approaches and procedures used in meeting the research objectives which focused on analysing students' satisfaction of school meals in different categories of schools.

Chapter four focused on the findings and analyses. Under this chapter, the results gathered from the field were presented and discussed.

Chapter five which is the final chapter presents the summary of the entire work, discuss the conclusion and recommendations, and provide suggestions for future studies.

CHAPTER TWO

LITERATURE REVIEW

2.0. Introduction

The previous chapter expounded on the background of the study and simultaneously outlined the study objectives that guide the study. This particular chapter covers the review of literature; both theoretical and empirical. Firstly, the chapter commences with a conceptual review which bring into focus the nutritional needs of adolescent in high schools and the concept of dietary diversity. This is followed by the theoretical review which elaborates on the theory that underpins students' satisfaction with school meals while the empirical review touched on the specific meals serve at various high schools, the effect of sensory qualities of food and its impact on students' food choices, and practices that promote students' satisfaction.

2.1 Conceptual Review

2.1.1 Nutritional and Dietary Needs of the Adolescent

The period of adolescence is a time of very rapid growth and high demands for nutrients and energy, hence the need for them to be well fed. Therefore, school feeding is equally critical and beneficial to the adolescent group which are commonly found in high schools. The rapid growth period starts at the age of 10 or 11 for girls and at the age of 12 or 13 for boys and continues for about 2.5 years (Story & Neumark-Sztainer, 2005). Adolescents need high intakes of calories, vitamins and minerals, especially iron, calcium, vitamins A, C and D. During this time, boys and girls begin to reach puberty (gaining sex characteristics to mature into men and women) and nutritional needs start to differ, although good nutrition is essential for both sexes to grow into healthy adults. Energy needs of adolescents are influenced by activity level, basal metabolic rate,

and increased requirements to support pubertal growth and development. Basal metabolic rate is closely associated with the amount of lean body mass. Adolescent males have higher caloric requirements since they experience greater increases in height, weight, and lean body mass than females (Story & Steitz, 1992).

One-day dietary recall data from the third National Health and Nutrition Examination Survey (NHANES III), 1988-94 showed a mean energy intake of 1793 calories/day for females ages 12-19 and 2843 calories/day for males ages 12-19 (Troiano, Briefel, Carroll, & Bialostosky, 2000). Using CSFII data, Subar and colleagues (Subar *et al*, 1998) showed the top 10 sources of energy food consumed among teens were milk, breads, cakes/cookies/donuts, beef, cereal, soft drinks, cheese, chips, sugar, and chicken. In NHANES III, beverages provided 21% of energy intake, with soft drinks alone providing 8% caloric intake among adolescents. The adolescent growth spurt is sensitive to energy and nutrient deprivation. Chronically low energy intakes can lead to delayed puberty or growth retardation (Pugliese *et al*, 1983; Lifshitz, 1988) Insufficient energy intake may occur because of restrictive dieting, inadequate monetary resources to purchase food, or secondary to other factors such as substance abuse or chronic illness.

Foods that contribute the most carbohydrate to the diets of adolescents include (in descending order) yeast bread, soft drinks, milk, ready-to-eat cereal, and foods such as cakes, cookies, quick breads, donuts, sugars, syrups, and jams (Subar *et al*, 1998) Major sources of total and saturated fat intakes among adolescents include milk, beef, cheese, margarine, and foods such as cakes, cookies, donuts, and ice cream (Subar *et al*, 1998). Milk for instance, provides the greatest amount of calcium in the diets of adolescents, followed by cheese, ice cream and frozen yogurt

(Subar *et al.*, 1998). The most common dietary sources of iron in diets of adolescents included ready-to-eat cereal, bread, and beef.

The top five dietary sources of vitamin A in the diets of adolescents are ready-to-eat cereal, milk, carrots, margarine, and cheese. Beta-carotene, a precursor of vitamin A, is most commonly consumed by teens in carrots, tomatoes, spinach and other greens, sweet potatoes, and milk (Subar *et al.*, 1998). On average, adolescents who use tobacco and other substances have poorer quality diets and consume fewer fruits and vegetables, which are primary sources of vitamin C. Adolescents are also noted of their excessively unhealthy foods and drinks, adolescents also do not consume enough nutritious foods. Numerous studies have found that adolescents do not eat nutritious foods.

In one study, only 2% of children were found to meet the dietary nutrient required (Story & Neumark-Sztainer, 2005). These eating habits, if not corrected, can continue well into adulthood (Shaw, 1998; DeBate, Topping, & Sargent, 2001). Adolescents who eat with their families generally consume more nutritious meals throughout the day, compared to those who eat alone or with friends (Story & Neumark-Sztainer, 2005). According to Delisle *et al.*, (2004), iron, zinc, calcium and vitamin A are key deficiencies among adolescents. The health status of an individual in general depends largely on his/her nutritional status which intend is being influence by eating pattern, lifestyles factors, and infection in few cases, past malnutrition, low body nutrient stores and teenage pregnancies.

2.1.2 The Concept of Dietary Diversity

Dietary diversity refers to the number of foods consumed across and within food groups over a reference time period (Ruel, 2003). Dietary diversity is basically a qualitative measure of food consumption that reflects households and institutions access to a variety of foods, and is also a proxy for nutrient adequacy of the diet of individuals (FAO, 2011). Dietary diversity (DD) relates to nutrient adequacy (coverage of basic needs in terms of macro and micro nutrients) and to diet variety/balance, which are two of the main components of diet quality. DD is thought to reflect the adequate intake of essential nutrients either at the household level (HDD), in which case it can be measured by a HDD score (HDDS) or by a Food Consumption Score (FCS), or at the individual level (IDD), in which case it can be measured by an IDD score (IDDS) (UNSCN, 2008).

A study in Iran used a dietary diversity score adapted from the DQI-R to consider dietary adequacy amongst adolescents aged 10 to 18 years old showed that the dietary diversity score correlated well with the mean adequacy ratio for 12 nutrients ($r = 0.42$, $P < 0.001$) and that there was a statistically significant correlation between the nutrient adequacy ratios of most nutrients with the dietary diversity score (Mirmiran et al., 2004). Hence, dietary diversity has long been recognized by nutritionists as a key element of high-quality diets. Increasing the variety of foods across and within food groups is recommended by most dietary guidelines, in the United States (U.S. Department of Agriculture Human Nutrition Information Service 1992) as well as internationally (WHO/FAO, 1996), because it is thought to ensure adequate intake of essential nutrients and thus to promote good health. Additionally, with the current recognition that dietary factors are associated with increased risks of chronic diseases, dietary recommendations promote

increased dietary diversity along with reducing intake of selected nutrients such as fat, refined sugars, and salt (Ruel *et al*, 2002).

2.1.3 Dietary Pattern and Nutritional Status of Adolescents

Several studies mostly in developed countries outlined that adolescents engaged in unhealthy dietary patterns such as snacking, skipping meals, low intake of fruits and vegetables, milk and dairy products, as they strive to establish themselves as adults in society. According to the National Adolescent School Health Survey (US Dept. Health and Human Services, 1989), more than 50% of the respondents missed breakfast, 90% snack, with only 39% reported eating nutritious snacks. A study in Austria (Nowak & Speare, 1996) indicated inadequate intake of fruits, vegetables and dairy products among adolescents. In the USA, adolescents frequently had intake of vitamin A, vitamin E, calcium, magnesium and zinc below recommended levels (Johnson *et al*, 1994). In Nigeria, for example, it was reported that street foods contributed 21% (boys) and 29% (girls) of adolescents' energy intake, 50% of dietary protein, 64% of calcium, and almost 60% of vitamin A (Oguntona & Kanye, 1995)

According to Gursoy *et al*, (2008), a psychosocial factor that affects almost all of the students is the “taste and sensory perception of food”. The second noticeable factor is the “health and nutritious value of food”. The time conserved and the convenience in the preparation of food is one of the lifestyle factors that affect more than half of the students. The cost of the food was also found to have an effect. Among the third group of factors categorized as “media”, the leading factor is advertisement, effective in one third of the students. Among boys and girls, there was no statistical difference in the type of meal skipped.

2.2 Theoretical Review and Conceptual Framework

This particular study is anchored on the American theoretical perspective developed by Parasuraman, Zeithaml, and Berry, (1988), “SERVQUAL” scale for measuring service quality as cited by Chanaka, & Achchuthan, (2014). The word “SERVQUAL” was coined by abbreviating two words together – Service Quality. Service quality concept have focused on three issues: what is service quality; what causes service quality problems; and what can service organizations do to improve quality.

Conversely, Lai (2004) emphasized that “the SERVQUAL model provides a theoretical basis for exploring the relationship between service quality and customer satisfaction and expectations play a significant role in customer satisfaction”. Jones, Taylor, Becherer, & Halstead, (2003) however observed that, “when expectations are met or exceeded, customers report higher levels of satisfaction.” There are extant studies that have investigated the concept of satisfaction on service setting and these studies observed that customer satisfaction can be assessed based on the customer’s satisfaction attitude on various attributes of the product or service (Chanaka, & Achchuthan, 2014; Lai, 2004; Jones, Taylor, Becherer, & Halstead, 2003). Customer satisfaction depends on a variety of factors, including perceived service quality, customers’ mood, emotions, social interactions, and other experience-specific subjective factors.

Moreover, Parasuraman, Zeithaml, & Berry, (1985) developed a service quality model to demonstrate that consumers' perceptions of quality are influenced by separate gaps occurring in organizations. However, they listed ten determinants of service quality that can be generalized to

any type of service. The ten dimensions include tangibility, reliability, responsiveness, competence, access, courtesy, communication, credibility, security and understanding.

In addition, these ten dimensions were then regrouped in the well-known five dimensions in the SERVQUAL model which include tangibility, assurance, reliability, responsiveness, and empathy. These five dimensions are defined as follows: tangibility refers to those physical facilities, equipment, and appearance of personnel; assurance which refers to knowledge and courtesy of employees and their ability to convey trust and confidence; reliability is the ability of the service driver to perform the promised service dependably and accurately; responsiveness as the willingness to help customers and to provide prompt services; and empathy which refers to caring, individualized attention the firm provides its customers.

Similarly, the concept of satisfaction also applies to students in this study when it comes to their satisfaction with the meals provided them at the school dining hall. However, this study will adopt four of the five dimensions namely tangibility, assurance, responsiveness, and empathy. Meals are always provided hence the concept of reliability has been excluded. Therefore, the independent variable is the service quality provided by the school kitchen with indicators such as tangibility, assurance, responsiveness, and empathy. The dependent variable is student satisfaction which is based on the services provided by the school kitchen. The theoretical framework is presented in figure 2.1 below.

& Singer, 2006; Heung & Gu, 2012; Liu & Jang, 2009; Namkung & Jang, 2007; Ryu & Han, 2011). Andaleeb & Caskey (2007) however, stressed the need to conduct foodservice studies among different high schools since they are made up adolescents with varied assessment and satisfaction level of school meals.

Adolescence is a range of years during which the individual grows from a child to an adult (Runyan, 1976). Psychologists identify this period as a stage during which the individual attempts to develop an understanding of himself and to find a way of relating to the adult world. The nutritionist, however, views this period as a time for significant growth in a physical sense rather than the psychological growth involved in the development of self-identity (McWilliams, 1975; Hurlock, 1978). According to McWilliams (1975), adults become very concerned about the adolescent period because behaviour patterns at this time are different from other times in the life of the individual. For instance, for many adolescents, the peer group is the dominant influence on thought and behaviour and therefore, most teenagers' food habits are influenced by the peer group. (Runyan,1976). Again, Hamilton and Whitney, (1988), identified adolescence as a well-known time of rebellion which extends to all aspects of life styles including feeding. Mead, (1943), noted that adolescents demonstrate their independence by refusing to eat what is good for them. Lavik, (1981), also showed that this period is one of increasing social activity. This often leads adolescents in boarding schools to reject foods they consider to be monotonous or unpalatable and can be a cause for strikes or demonstrations.

In a study by Jung, Lee, and Oh (2009) in 6 middle schools in South Korea, they observed differences in the satisfaction on school meal service which was based on eating places and gender. Additionally, Jung, Lee, and Oh (2009) again observed that the variety of menu offered

and service speed highly influenced school foodservice satisfaction among students regardless of their schools. Their study therefore suggested the need for school meals to be served in different methods for students. Furthermore, their study also proposed the need to improve and reduce waiting time in queue in order to make students happier.

In a similar study in Ghana, Mensah and Appietu (2019) investigated the determinants of dining hall meals on students' satisfaction and its overall impact on students' patronage of dining hall meals in two senior high schools. Generally, it emerged that less than half of the students were satisfied with dining hall meal experiences. On specificity, students were satisfied with the presentation of food and food serving bowls and containers in the dining hall. However, the nutritional content of meals, friendliness of kitchen staff and the quantity of food per meal received the lowest evaluation. Furthermore, tastiness, quantity, variety and time for eating were the main predictors of overall satisfaction of dining hall meal experiences of students (Mensah and Appietu, 2019).

Again, Mensah and Appietu, (2019) posited that “just like the commercial foodservice sector, in the context of secondary school boarding dining hall eating experiences, students exhibited the typical behaviour of diners who patronize restaurant dining and other institutional college dining where customers demonstrate switching behavior when dissatisfied with their dining experiences. In these cases, students reacted to their dissatisfaction with dining hall meal experiences by reducing the frequency at which they ate from the dining halls as well as depending more on their personal stored food. Boarders' reaction to dissatisfaction is also shown by the frequency at which they buy food from vendors in the schools.”

2.3.2 Food Menu and Students' Satisfaction

Kim and Lee (2003), revealed that there are several factors that influence students' satisfaction with school meals at senior high schools, and one of such important factors is the menu of food served. In a study by Murimi, Chrisman, McCollum & McDonald (2016), they underscore the importance of engaging students in menu preparation and selection. In a similar study by Ababio, Taylor, Swainson & Daramola (2015) in the Ashanti region of Ghana, it emerged that some students complained of food allergy and intolerance, hence the need for students' consultation in menu construction since their satisfaction is largely influence by the menu designed for the school. Furthermore, in a quest to controlling food hazards or safety risks in food provision, Ababio, Taylor, Swainson & Daramola (2015) again suggested the need to improving quality and variety of school meals since it could reduce students' dependence on other sources of food and help in controlling food safety risks. Analogously, a cross sectional and descriptive survey by Bigson, Essuman, Boadu and Otoo (2019) in some selected schools in the Upper West region and the Central region of Ghana, it came to the fore that the menu of meals provided to students is very limited in terms of the variety of meals provided to students in a week. However, these school meals had the needed food nutrients even though the average daily nutritional values do not meet recommended nutrient intake value. The study recommended that government should consult experts in food and nutrition in each region to redraw menu which has nutritional benefits from locally grown foods.

Nevertheless, a study by Adigbo (1993) on food habits, nutrition knowledge and nutrient intakes of adolescent students in selected boarding schools in Ghana revealed that meals served in the dining halls of all the schools studied did not meet the energy requirements of the adolescents and the menu of food provided to students is quiet rigid. The study proceeded further that even

when the respondents supplemented the dining hall meals with extras from elsewhere, the calories obtained were still below the FAO recommended nutrient intakes, especially for the 16 to 18year old males. The weights of the majority of this age group was below that of Jellifes' reference group.

The findings Adigbo (1993) strongly urge school authorities to ensure that meals provided for students are well prepared and served in sufficient quantities. There is also no doubt that nutrition knowledge of adolescents should be improved in order that they would make proper food choices. Food vendors on the school campuses must be screened and supervised so that food bought is wholesome.

In a case study by Ormorh (2014) on meals preparation pattern of boarding schools and its impacts on the health status of students in Zabzugu Senior High School, it was revealed that students were happy with the menu of meals provided them. However, some breakfast meals were identified as being too light to be taken without any pastry. The study identified that daily three-square meals provided were prepared under fairly good hygienic environment and condition and those meals were served at regular intervals. The study however identified cooks' occasional negligence on some basic hygienic practices such as how to avoid wiping sweat with napkins, regular hands washing. The researcher, in view of the findings concluded that students were generally safe from foodborne diseases while in school however, regular and effective in-service training for the kitchen staff is paramount in maintaining food safety practices in the school in question.

2.3.3 Perceived Influence of Sensory Qualities and Quantity of Food Serve on Students Satisfaction

In her study – “analysis of the factors that determine food acceptability”, Maina (2018) disclosed that food acceptability directly relates to the interaction food has with the consumer at a given moment in time. And that, customer characteristics and sensory characteristics of food do influence food acceptability. Under sensory characteristics, the study extensively discusses the influence of aroma, appearance, taste, and texture on food acceptability. For instance, it confirms that food texture controls the belief about satiation effects of beverage or foods which ultimately influence food acceptance at a particular time period. On aroma, the study revealed that aroma acts as a signal of the presence of edible or inedible food even before the consumer sees the food. Hence aroma is a key sensory quality that influence food acceptability. Taste refers to the proximal sense that requires direct contact of food with stimuli on the tongue to determine the quality of the ingested food. The basic tastes such as umami, sour, sweet, bitter and salty are important in signaling nutrient-rich foods. Sweet taste infers high concentration of carbohydrates, specifically monosaccharaides, while salty and savory tastes are associated with proteins and electrolytes (Romagny, Ginon, & Salles, 2017). Bitter and sour tastes, on the other hand, are associated with unripe fruits or foods that may be harmful when ingested. When food is ingested, its taste provides the consumer with crucial information about its quality and thus its acceptability. While most consumers believe that they are not easily fooled, their sense of taste is often deceived by their sense of sight. This is because every human being has his or her expectations of how particular foods should look like. When the color of food is different from what consumers expect, the consumer believes the food will taste different. With regard to Endrizzi, Torri, Corollaro, Demattè, Aprea, Charles, and Gasperi, (2015), consumers use visual

cues to judge the quality of food they are meant to eat. Colour normally forms the first element realized in the appearance of a food product. Therefore, food appearance is an important factor determining the selection and acceptability of food products beyond the simple initiation of a meal (Serhan and Serhan, 2019).

With regard to the "feel good" factor, Maina (2018) explains that consumers are more inclined to accept foods that satisfy their need in terms of enjoyment as opposed to those they consider to be less tasty. In addition, consumer characteristics such as knowledge, innovativeness, attitude, belief, and perception of particular food products and their impact on food acceptability.

A study by Murimi et al (2016), revealed that students demonstrated a priority for aesthetics of their food presentation over that of healthy choices, revealing a challenge for food service directors to present school food in an attractive manner and to ensure the food tastes good. If students are going to taste the food, the food's appearance should be an important factor to all food service staff wanting to increase participation in the school meal programs. Additionally, government funded school lunch programs are required to design a wellness plan providing nutrition education, and the findings from this study indicate that such a program was not identified as a source of nutrition knowledge by the students which could be targeted in nutrition education efforts.

In brief, the process through which an individual accepts or rejects food is considered to be of a multi-dimensional nature. There are three critical factors that determine food acceptability. They include consumer characteristics, sensory characteristics, and enjoyment of food. Sensory characteristics of food such as taste, texture, aroma, and appearance have distinct and influential

effects on food acceptability. Therefore, a sensory attribute of food is considered the key area in which food manufacturers can successfully use to differentiate their products. Consumer characteristics which affect food acceptability include knowledge, innovativeness, attitude, belief, and perception of particular food products. Lastly, the 'feel good' factor is also an essential determinant of food acceptability (Maina, 2018).

2.3.4 Management Practices that Promote Students' Satisfaction of Meals

Though various management of the school feeding programme are not directly involved in the provision of the meals that is served on students tables, their activities in ensuring wholesome food items are supplied, kitchen staff conform to hygienic practices among others are very critical to the over sustenance of the programme and the quality of meals that are served to students in senior high schools. In a study by Akabanda et al (2017), it emerged that the activities of food-handlers pose a great deal of food safety risks to the consumers if the food-handlers do not have much knowledge on food safety practices. Findings from their studies indicate that institutional food-handlers in Ghana had satisfactory knowledge in the areas of food safety, general and personal hygiene, cleaning and sanitation procedures. However, this did not translate into strict food hygiene practices. Therefore, continuous food safety education and stringent supervision from management of the school feeding programme and school heads is very paramount.

2.4 Conclusion

The literature review has covered important topics in nutrition in meals available to students in senior high schools. It also discussed the determinants of food satisfaction among students in senior high school with special focus on the sensory qualities of food, menu, and management

activities to promoting quality food availability to students. The chapter also threw light on the theory that underpins service provision and satisfaction. The next chapter elaborates on the methodology that is employed in examining students' satisfaction with school meals under the free SHS programme.



CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Research Design

This study adopted a survey research design in investigating students' satisfaction with school meals. According to Cresswell (2003), survey research designs are techniques in quantitative research in which researchers administer a survey to a sample or to the entire population of people to describe the attitudes, opinions, behaviours, or characteristics of the population. In this procedure, survey researchers collect quantitative, numbered data using questionnaires (e.g., mailed questionnaires) or interviews (e.g., one-on-one interviews) and statistically analyze the data to describe trends about responses to questions and to test research questions or hypotheses. Hence this approach was adopted in gathering information from students on their opinions and satisfaction level of the food they are being served at school.

3.1 Target Population

As stated in the scope of the study, four (4) schools comprising of Presbyterian Senior High School, St. Thomas Aquinas, Ghanata Senior High School, and West African Senior High School. As at the time data was being collected, it was only the final year students that were present on campus. Hence the population of the study is the sum of all final year students in the four institutions. Available data from the schools' administration indicate that, the final year students from the aforementioned institutions are 1500, 1300, 850, and 750 respectively. Therefore, the population of the study is 4400 final year students.

3.2. Sample Size

Based on a target population of 4400, a suitable sample size was computed using the Yamane's formula. Yamane's formula was calculated using a confidence interval of 95% and a precision level (error) of 0.05 (Yamane, 1967). The formula is stated as:

$$n = \frac{N}{1+N(e)^2} \quad \text{Eqn(1)}$$

Note: Where, n = the sample =?

N = the population size = 4400

e = the error of 5 percentage points = 0.05

Substituting the values into Eqn(1) gives;

$$n = \frac{4400}{1 + 4400(0.05)^2}$$

$$n = 366.67 \approx 367$$

Adding a 10% anticipated non-response rate gives a final sample size of $36.7 + 367 = 404$ approximately.

Therefore, the sample size for the study is 404 students. In addition, information was also solicited from the matrons from each selected school.

3.3 Sampling Technique

Purposive sampling was used in selecting the schools under each category. This sampling approach was used because it is one of the cost-effective and time-effective sampling method which help the researcher to select a sample frame or respondents that are in line with the research objective. After the precise sample size has been determined, stratified sampling

technique was used in selecting students from the various schools. This approach was used to ensure fair representation of students from each school. However, when it comes to the selection of respondents under management category, purposive and convenience sampling techniques was employed in selecting relevant stakeholders.

3.4 Data Collection Procedure

A formal letter was sent to the various institutions explaining the purpose of the study to them in order to get their consent for the study. After their consent has been given, a date was scheduled for the collection of data. In collecting the data, the purpose of the study was explained to the participants and they were encouraged to be candid in their responses as the study was solely for academic purposes.

In gathering the primary data, the purpose and intention of the study was explained to the respondents and permission was sort from them. Those that agreed on the spot were used for the study; a date was scheduled for key stakeholders who were unavailable as at the time the permission was sought for the study.

3.5 Validation of the Research Instruments

The questionnaire and interview forms that were designed for the study were subjected to a validation process. In the validation process of this study, a copy of the questionnaire and the interview was given to the research supervisor who is an expert in this field. The supervisor's expertise perused the questionnaire carefully to ascertain the appropriateness and adequacy of the instrument in gathering the necessary information. Again, with the incidence of the pandemic,

the survey validation was conducted virtually with the aid of internet calling services like Skype and Zoom to solicit information from relevant authorities for the qualitative analysis.

3.6 Statistical data model analysis

The generalized linear model was used to regress the factors the research considers influences meal enjoyment or satisfaction. The generalized linear model is of the form:

$$y = \beta X + \varepsilon$$

Where X represents the matrix of covariates or predictor variables, β is the estimated coefficient matrix and ε is the error vector. This model presents us with a way of measuring the influence of the variates on our response variable y .

A categorical comparison using the F-test and chi-square contingency tests was employed on the data to discover the difference in satisfaction levels across the different types of schools. Factor analysis would be performed to reduce the dimensions within the dataset while confirmatory factor analysis would be performed to establish the relationship between the variables for the test of hypotheses. This was done using the Structural equation modeling (SEM) approach. It is a collection of statistical models that seeks to explain relationships among multiple variables. It enables researchers to examine interrelationships among multiple dependent and independent variables simultaneously. The reasons for selecting SEM for data analysis were, firstly, SEM has the ability to test causal relationships between constructs with multiple measurement items (Hair, Black, Babin, & Anderson, 2006). Secondly, it offers powerful and rigorous statistical procedures to deal with complex models (Hair et al., 2006; Tabachnick & Fidell, 2009).

3.7 Reliability and Validity

The internal consistency of the study instrument is measured using the Cronbach Alpha (α). All the Cronbach's above 0.6 which proves that the consistency of the items measuring the same constructs is acceptable. Most measurements of constructs are based the existed questionnaires (Meyer et al., 1997; Martin-Consuegra et al., 2007) as important reference; thus, the validity can be trusted in our study. Besides, the study used confirmatory factors analysis to examine the validity of the constructs.



CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Demographic Characteristics of the Respondents (Students)

Under the demographic characteristics, the study assessed the sex, age, level and programmes that are being offered by the respondents. This is the help assess the background from which the responses are coming from. Table 4.1 below presents the demographic characteristics of the students

Table 4.1: Demographic Characteristics of the Respondents (Students)

Demographic	Presec		Aquinas		Ghanata		WASS	
	N	%	N	%	N	%	N	%
Sex								
Male	135	100	0	0	38	51	32	43
Female	0	0	135	100	37	49	43	57
Total	135	100	135	100	75	100	75	100
Age								
10 – 14 yrs	0	0	0	0	0	0	0	0
15 – 18 yrs	115	85	105	71	65	87	75	100
19ys and above	20	15	30	29	10	13	0	
Total	135	100	135	100	75	100	75	100
Current Level								
SHS 1	0	0	0	0	0	0	0	0
SHS 2	0	0	0	0	0	0	0	0
SHS 3	135	100	135	100	75	100	75	100
Total	135	100	135	100	75	100	75	100

Table 4.1. above display the demographic characteristics of the respondents from their respective schools. Presec and Aquinas are single-sex schools, specifically boys' school, hence all the respondents were male with a total frequency of 135(100%) and 135(100%) respectively. With regards to the "B" schools which were mixed-schools, Ghanata record 38(51%) of respondents who were male while the remaining 37(39%) were females. There were 32(43%) males and 43(57%) females from WASS.

On age, it was observed most of the respondents were between the ages of 15-18yrs. In more specific terms, 115(85%) of the respondents from Presec which constitutes the majority were between the ages of 15-18yrs. Similarly, St. Thomas Aquinas SHS also recorded the highest number of respondents in the 15-18yrs age group, and the same applies to Ghanata and WASS.

In the area of the respondents' current level at their respective schools, it emerged that all the respondents from the four (4) institutions were in SHS 3. This was because, there were the only group of respondents that were present on campus during the time of data collection. All other students at SHS 1 and SHS 2 were ordered to stay at home because of corona virus and this accounted for why there were only final year students that were present during data collection. All the respondents were selected from different course background, ranging from visual arts, general arts, business, general science etc. In brief, the respondents are well educated and they have tasted the various meals served at their schools for close to three years, therefore are capable of giving accurate information on the nature of meals serve and whether or not they are satisfied with it.

4.2 Specific Meals Served at Selected Schools

In the process of finding out specific meals served at the selected schools, it astonishingly emerged that all the schools use the same menu for breakfast, lunch and supper. However, St. Aquinas SHS is a Day-school so they are only entitled to lunch under the school feeding programme. The other schools in the study are fed thrice. Information from the management at the School Feeding Authority revealed that the same menu was designed for all schools in the Greater Accra region irrespective of their categorization. Below is Table 4.2 which depicts the various meals serve at the various school.

Table 4.2: Specific Meals served at Presec (CATEGORY A)

Days	Breakfast	Lunch	Supper
Monday	Hausa Kooko with bread/spread	Beans and gari	Can fish stew with boiled rice
Tuesday	Tom Brown porridge with bread	Tuna, groundnut soup with boiled rice	Sardine, hot pepper with kenkey
Wednesday	Drinking Chocolate with milk	Beans, Gari and fried plantain	Tuna stew with boiled rice
Thursday	Corn porridge with bread/milk	Shito, egg on Waakye	Canned fish, stew with kenkey
Friday	Tom Brown porridge with bread	Tuna, Palm soup with boiled yam	Tuna stew with boiled rice
Saturday	Hausa Kooko bread spread	Shito, fried fish with waakye	Sardine, hot pepper with kenkey
Sunday	Drinking Chocolate with bread spread	Hot pepper, fried fish with kenkey	Chicken, stew with jollof rice.

Table 4.2.1: Specific Meals served at St. Thomas Aquinas (CATEGORY A)

Days	Lunch
Monday	Beans and gari
Tuesday	Tuna, groundnut soup with boiled rice
Wednesday	Beans, Gari and fried plantain
Thursday	Shito, egg on Waakye
Friday	Tuna, Palm soup with boiled yam
Saturday	Shito, fried fish with waakye
Sunday	Hot pepper, fried fish with kenkey

Source: Data from the field, 2020

Table 4.2.2: Specific Meals served at Ghanata SHS (CATEGORY B)

Days	Breakfast	Lunch	Supper
Monday	Hausa Kooko with bread/spread	Beans and gari	Can fish stew with boiled rice
Tuesday	Tom Brown porridge with bread	Tuna, groundnut soup with boiled rice	Sardine, hot pepper with kenkey
Wednesday	Drinking Chocolate with milk	Beans, Gari and fried plantain	Tuna stew with boiled rice
Thursday	Corn porridge with bread/milk	Shito, egg on Waakye	Canned fish, stew with kenkey
Friday	Tom Brown porridge with bread	Tuna, Palm soup with boiled yam	Tuna stew with boiled rice
Saturday	Hausa Kooko bread spread	Shito, fried fish with waakye	Sardine, hot pepper with kenkey
Sunday	Drinking Chocolate with bread spread	Hot pepper, fried fish with kenkey	Chicken, stew with jollof rice.

Table 4.2.3: Specific Meals served at West African SHS (CATEGORY B)

Days	Breakfast	Lunch	Supper
Monday	Hausa Kooko with bread/spread	Beans and gari	Can fish stew with boiled rice
Tuesday	Tom Brown porridge with bread	Tuna, groundnut soup with boiled rice	Sardine, hot pepper with kenkey
Wednesday	Drinking Chocolate with milk	Beans, Gari and fried plantain	Tuna stew with boiled rice
Thursday	Corn porridge with bread/milk	Shito, egg on Waakye	Canned fish, stew with kenkey
Friday	Tom Brown porridge with bread	Tuna, Palm soup with boiled yam	Tuna stew with boiled rice
Saturday	Hausa Kooko bread spread	Shito, fried fish with waakye	Sardine, hot pepper with kenkey
Sunday	Drinking Chocolate with bread spread	Hot pepper, fried fish with kenkey	Chicken, stew with jollof rice.

Table 4.2, 4.2.1., 4.2.2., and 4.2.3., depicts the various menu for the four schools under consideration. Since the foods are provided by the School Feeding Programme secretariat, the menu for all the schools were the same, with the exception of St. Thomas Aquinas SHS which is a day school and whose menu is limited to the lunch. The results are in sharp contrast to the findings of Adigbo (1993) whose study revealed that food provided to second cycle institutions vary as a result of the amount of fees paid. The work of Adigbo (1993) was conducted before the

Figure 4.1 above presents the level of satisfaction among students from the selected schools.

From the Figure 4.1, 84% of the respondents at Presec revealed that they are not satisfied with the quantity of meals served at the dining hall. On the contrary, 67% of students at Ghanata are satisfied with the quantity meals served at the dining hall. Results from WASS and Aquinas indicated that, 60% and 59% of students respectively are not satisfied with the quantity of meals served at the dining hall. In brief, it is evident that with the exception Ghanata school, majority of students from the other three selected schools are not satisfied with the quantity of meals served at their respective dining halls. The results are consistent with the findings of Koufie (2016) whose studies also revealed that, students are not satisfied with the quantity of meal serve at the dining hall and this is a matter of concern.

In brief, from the table Ghanata Senior High School which is a category B school that has high level of satisfaction 67% over dissatisfaction (33%) over school meals. Majority of students from Presec, WASS, and Aquinas have expressed high dissatisfaction for the school meals serves at the dining hall. Therefore, in comparison the level of satisfaction is relatively higher in B schools compared to A schools. However, the exact source of this heterogeneity is unknown.

4.4. Perceived influence of sensory qualities (Quality Measure)

As stated earlier, assessing the level of satisfaction of the quality of meals serve at the selected second cycle institutions requires the use of the sensory characteristics of the meals. Table 4.2 presents the students ratings of the sensory properties of meals serve at the selected schools.

Table 4.3: Rating of the Properties of the Meals serve at Selected Schools

Schools	Properties	Mean	Standard Deviation
A-Schools			
Presec	Colour	3.63	0.556
	Taste	2.96	0.706
	Texture	3.23	0.825
	Flavour	2.99	0.746
Aquinas	Colour	3.23	0.690
	Taste	3.19	0.784
	Texture	3.15	0.738
	Flavour	3.02	0.674
B-Schools			
Ghanata	Colour	2.89	0.764
	Taste	2.97	0.706
	Texture	2.85	0.711
	Flavour	2.99	0.697
WASS	Colour	3.10	0.825
	Taste	3.05	0.815
	Texture	2.84	0.759
	Flavour	2.77	0.705

It was inquired from the students in the selected schools to rate the following properties (i.e. colour, taste, texture, and flavour) of the meals served at the dining hall. Each property was rated using a five-point Likert Scale for quality, that is Very bad=1, bad=2, fair/normal=3, good=4, and excellent=5. Mean and standard deviation were used to estimate the average rating and the degree of variability for each property. From the table above, Presec recorded a mean of 3.63 for colour. A mean of 3.63 is near the rating of 4 hence implying that students at Presec considered the colour of the meals provided them to be “good”. Furthermore, taste, texture, and flavour recorded means of 2.93, 3.23, and 2.99 respectively, and these values can be approximated to 3 which signifies “fair”, implying that the students at Presec perceive the taste, texture, and flavour of the meals their served to be “fair/normal”. In sum, students of Presec rated the colour of their meals as “good”, taste, texture and flavour as “fair”

In Aquinas which is the second Category-A school, the ratings for colour, taste, texture, and flavour, are 3.23, 3.19, 3.15, and 3.02, respectively. Indicating that students in the said institution rated all the properties of the meals serve them as “fair”. Similarly, all the ratings for the various properties of the meals at Ghanata are approximately 3, which means these properties are rated “fair”. Again, all the properties are rated “fair” in WASS with the exception of quantity which was rated “bad”. In brief, it is evident from the results, that the properties of the meals served to students both in category A and B schools do not have any extraordinary ratings, hence depicting the fact that meals serve at various senior high schools are just “fair/normal”. Again, a general linear model (See Appendix 4) also indicate that taste is the most important sensory characteristics and this corroborates the study of Kim and Lee (2003) which revealed that the

sensory characteristics especially taste and texture are very crucial to students' level of satisfaction and their food choices.

4.5. Results from Matrons

In a quest to confirm the information solicited from students, and also to know measures put in place by management to promote students' satisfaction, further information was sourced from the authorities (specifically matrons) of the selected schools. Below is Table 4.3 which depicts the demographic information on the matrons.

Table 4.4: Demographic Characteristics of the Respondents (Matrons)

Demographic	Frequency	Percentage
Sex		
Male	0	0
Female	4	100
Total	100	100
Age		
18 – 25 yrs	0	0
26 – 40 yrs	0	0
41 – 50 yrs	0	0
Above 50yrs	4	4
Total	4	100
Highest Educational Qualification		
Higher National Diploma	0	0

First Degree	4	100
Masters' Degree	0	0
Others	0	0
Total	4	100
How long have you been in this position?		
2 -5 yrs	0	0
6 – 10yrs	0	0
11 – 15yrs	0	0
15yrs and above	4	100
Total	4	100

From Table 4.3. it is evident that all the matrons for the four schools in question are all females, indicating that, females are often the ones in charge of food provision in most selected senior high schools. This consistent with the findings of Koufie (2016) whose study also confirm that, the matron at Opoku Ware SHS is a female.

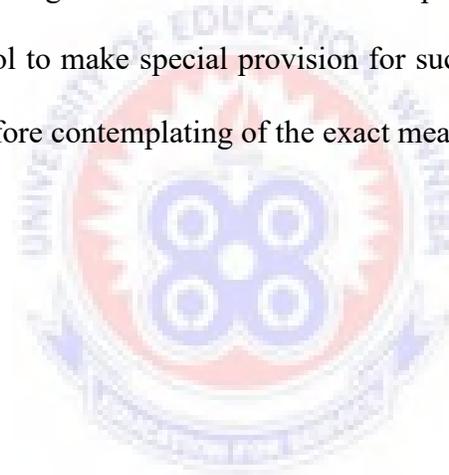
From the table, it is overt that all the matrons have over 15yrs experience at their current position. Again, all the matrons from the selected schools are above 50years and they all have Bachelor's degree as their highest academic qualification. This result hint on the fact that, people who occupy this position are highly educated.

4.5.1. Management Practices That Promote Students' Satisfaction of Meals

All the respondents (i.e. the matrons) from the four selected schools unanimously agreed that there is a policy on the choice of cooking methods in the preparation of students' meals. Again,

the matrons revealed that there is a standardized menu from the regional office which is given to all school management, and that, the choice of menu by the schools depends on the region and the district where the school is located.

As consistent with the account from the students, the matrons also confirmed that the menu does not include fruits or dessert. However, some of them revealed that it was suggested but not compulsory. With regards to students with special conditions such as obesity, over-weight, underweight, salt-free, and other health issues, the matrons intimated that the school has no special specification in providing meals for students with special conditions. However, if it becomes critical for the school to make special provision for such people, the school first of all assess their medical report before contemplating of the exact measure to take.



CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Summary

Students' satisfaction with food service plays a significant role in the overall quality of life of a student in senior high schools. Ample studies have documented that students who consume nutritious meals before taking an academic task are more effective in increasing their cognitive performance. In sum, the role of good nutrition in education cannot be overemphasized. However, the food must equally meet a standardized quality and quantity criteria. Over the years, the concept of school meals and school feeding programmes are analysed using individual schools. No study has taken into consideration different categorization of schools (specifically senior high schools) in order to see the similarities and difference in meals serve at different schools and the factors that account for it. To this end, the study sought to examine students' satisfaction with school meals under the free SHS policy.

Though numerous theories and models that underpin the study of nutrition among adolescents, the study adopted the "SERVQUAL" developed by Parasuraman, Zeithaml, and Berry, (1988). The SERVQUAL model uses its constructs namely, tangibility, assurance, responsiveness, and empathy, to explain to the concept of satisfaction among students in senior high schools. A survey research designs was used to assess the students' satisfaction with school meals at different category of schools. Stratified, purposive and convenience sampling techniques were used to select a total number of 450 respondents from four senior high schools of which two were from category A schools while the other two were from category B schools. In addition,

four management; one from each school were selected to answer key questions pertaining to measures put in place by each school to ensuring students' satisfaction of school meal.

Results gathered from the respondents were presented based on the study objectives using descriptive statistics, chi-square, and binary logistics regression. It emerged from the findings the menu of food served to students is the same for all categories of schools under the same region or districts. In the case of the selected schools which are all within the Greater Accra region, the menu is the same for all the schools in this region. Furthermore, though majority of the students, (i.e. 84% at Presec, 60% at WASS, and 59% at Aquinas) are dissatisfied with the meals serve at their respective schools, the level of satisfaction is higher in B-schools compared to A-schools. Nevertheless, the key properties of the meals that influence students' satisfaction are its sensory qualities (taste, colour, texture, flavour) and quantity. Amongst these properties, students from the two categories of schools chose 'quantity' as the most important property that influence their satisfaction for school meals. Additionally, measures put in place by management to ensuring students satisfaction for school meals is limited, as they only conduct periodic checks on the meals served to students to ensure they are wholesome. Some of the measures proposed by the management of the respective schools in promoting students' satisfaction of school meals are;

- Educate students on the nutritional value of every meal to the students
- Management should ensure that food served are well garnished and presented
- Ensure wholesome foods are served to students
- Dining hall should be design in way to making eat enjoyable and relaxing
- Kitchen staff should be made to go for refresher course to improve on their skills

Students on the other hand also suggested that the cooks at the kitchen should go for refresher courses in cooking in order to enhance the cooking skills. Again, the students also suggested that management should cooperate with the school feeding secretariat to ensure that the quantity of meals serve to students is increased.

5.3 Conclusion

In conclusion, the study addressed the research questions that were formulated to guide the study. First and foremost, it emerged from the study that all schools use the same menu for breakfast, lunch and supper in the various regions. However, St. Aquinas SHS is a Day-school so they are only entitled to lunch under the school feeding programme. The other schools in the study were fed thrice. Information from the management at the School Feeding Authority revealed that the same menu was designed for all schools irrespective of the category.

In examining the perceived influence of sensory qualities and quantity, majority of the students in category “A” schools expressed displeasure about the quantity of food served at their various schools. Under category “B”, majority of the students in West Africa SHS also expressed dissatisfaction for the quantity of meal serve in the school. It was only Ghanata SHS that recorded majority of students’ satisfaction for the portion size serve in the school. In brief, when it comes to satisfaction in the area of quantity, all the schools with exception of Ghanata SHS expressed dissatisfaction. In the area of quality, majority of the students in all the four schools rate the sensory qualities of the food ‘fairly’. Amongst these sensory characteristics, taste and texture were the most cherished, as these were the main characteristics that influence students’ food choices.

Apart from Ghanata Senior High School which is a category B school that has high level of satisfaction 67% over dissatisfaction (33%) over school meals. Majority of students from Presec, Legon, WASS, and Aquinas expressed high dissatisfaction of the school meals served at their respective dining. In general, satisfaction level among students in Category “B” was higher than category “A”.

On measures put in place by management, it came to the fore that measures put in place by management (who were matrons) in promoting students’ satisfaction revealed that there was a policy on the choice of cooking methods in the preparation of students’ meals. Again, the matrons revealed that there is a standardized menu from the regional office which is given to all school management, and that, the choice of menu by the schools depends on the region and the district where the school is located but educating student on the nutritional value of the meals served, and ensuring wholesome foods are served to students, Matrons however, do not have any power to alter the menu since it is designed at the regional level.

The major contribution of this study is that, it has laid bare the various factors that influence students’ satisfaction of school meals under the Free SHS and school feeding era, this will help in how best the School Feeding Secretariat can improve on their capacity to ensure that students are satisfied with the meals they provide them.

5.4 Recommendations

Based on the findings, the study recommends that the proposition by both matrons and students should be seriously taken into consideration. These propositions are;

- The quantity of meals served at selected schools is an issue of great concern to all the students, hence, management should ensure that the quantity of meals served is enhanced.

Besides, most of these students are adolescent whose body demand a lot of energy-giving food in order to stay active and healthy

- Management should ensure that food served are well garnished and well-presented considering the fact that ‘taste’ is the most important sensory qualities that students from both category A and category B cherished.
- Educating students on the nutritional value of every meal, so that they will not be overly focused on the sensory qualities, and the quantity that is served.
- Kitchen staff should be made to go for refresher courses to improve on their skills, as this will go a long way to improving the quality of meals that are prepared for students.

5.5 Limitations and Direction for Further Studies

From the results, level of satisfaction is higher in B-Schools compared to A-School, however, the exact source of this discrepancy is unknown. Considering the fact that both categories of schools are served the same set of meals, conducting further studies into the source of this variation will need to be studied in future studies.

Again, the sample size for the study was small and this has resulted in the redundancy of some variables in the logistics regression. Hence broadening the scope of subsequent studies will be needful.

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APPENDIX

Appendix A

UNIVERSITY OF EDUCATION, WINNEBA

QUESTIONNAIRE FOR STUDENTS

The objective of this study is to gather information with the purpose of assessing students' satisfaction with dining hall meals in the free SHS programme. It is solely for academic purpose and your identity shall be kept very confidentially.

PART I. DEMOGRAPHICS *Please tick or circle your answer*

1. Gender

- a) Male () b) Female ()

2. Age

- a) 10 – 14 years () b) 15 – 18 years () c) 19 years and above ()

3. State your current level

- a) SHS 1 () b) SHS 2 () c) SHS 3 ()

4. Programme offering in school

- a) Home Economics () b) General Arts. ()
c) General science () d) Agricultural science ()
e) Business () f) Visual Art () g) Electrical () h) Building Technology ()
i) Others (specify).....

PART II - MEALS

5. How many times are you given food in a day?

- a) Once () b) Twice () c) Thrice ()

6. List the various meals serve at the dining hall under the various categories

Breakfast ()	Lunch ()	Supper ()
i).....
ii).....
iii).....
iv).....
iv).....

7. Which of the meal categories do you prefer most?

- a) Breakfast() b) Lunch() c) Supper ()

8. Under your most preferred category, which meal is your favourite?

.....

9. Which dining hall meal you don't you like?.....

PART III - LEVEL OF SATISFACTION OF SCHOOL MEAL

10. Generally, are you satisfied with the meals served at the dining hall?

- a) Yes () b) No ()

11. Do you go to the dining hall to eat at all times?

- a) Yes() b) No () c) Not Always()

12. Give reasons for your answer.....

.....

13. Which of the factors influence your satisfaction level for the food serve at the dining hall?

- a) the sensory qualities of the meals serve, i.e. the taste, colour, texture, and flavour
- b) the physical appearance and design of dining hall
- c) the quantity of meal served
- d) The ergonomics of dining hall tables and chair
- e) The attitude and behaviour of kitchen staff and colleagues at the dining hall
- f) other.

14. Kindly rate the following properties of the meal serve at the dining hall

No.	Properties	Very bad	Not sure	Fair	Good	Excellent
1	Colour					
2	Taste					
3	Texture					
4	Flavour					
5	Quantities					

15. Which of the above properties is the most relevant one to you?

- a) Colour b) Taste c) Texture d) Flavour e) Quantities

16. Are there a lot of leftovers after dinning?

- a) Yes b) No

Give reason for your answer.....

.....

.....

PART IV – WAYS TO IMPROVING SCHOOL MEAL

17. What will be your humble suggestion to the management of the school to ensure students enjoy a delicious and nutritious meal?

.....
.....
.....

18. What role do you think parents/guardian or alumni can play to ensure student nutritional needs are met?

Parents/guardian:.....
.....
.....

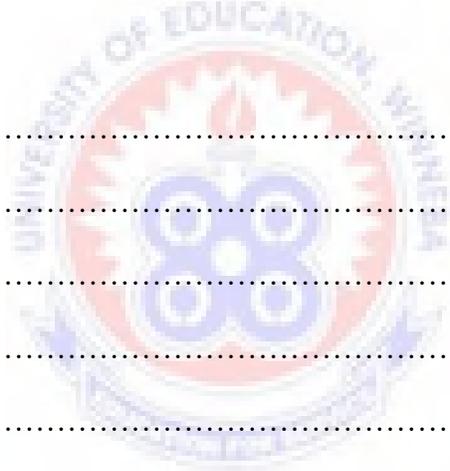
Alumni:.....
.....
.....

19. What should government do to improve the meals given to students in boarding schools?

.....
.....

20 Generally, what is your remark about the food that is prepared for at school?

.....
.....



Appendix B

UNIVERSITY OF EDUCATION, WINNEBA

QUESTIONNAIRE FOR MANAGEMENT

The objective of this study is to gather information with the purpose of assessing students' satisfaction with dining hall meals in the free SHS programme. It is solely for academic purpose and your identity shall be kept very confidentially.

PART I. DEMOGRAPHICS *Please tick or circle your answer*

1. Gender

- a) Male b) Female

2. Age

- A) 18 – 25 years b) 26 – 40 years c) 41 – 50 years d) above 50 years

3. Highest Educational Qualification

- a) Higher National Diploma b) First degree c) Masters' degree
d) Others.....

4. Position in Office

- a) Director of education b) Assistant Director c) Headmaster d) Matron

5. How long have you been in this Position?

- a) 2 - 5years b) 6 - 10 years c) 11 - 15 years d) 15 years and above

PART II

EXISTING MANAGEMENT PRACTICES THAT PROMOTE STUDENTS'

SATISFACTION OF MEALS.

6. Is there any policy on the choice of cooking methods in the preparation of students' meal?

- a) Yes b) No c) No idea

If "Yes" briefly state them:

.....

7. Is there any policy on the choice of menu by the category of schools?

- a) Yes b) No

If "yes", what is the criteria for the choice of menu?

.....

.....

8. Do menus include fruits or dessert?

- a) Yes b) No

If No why:

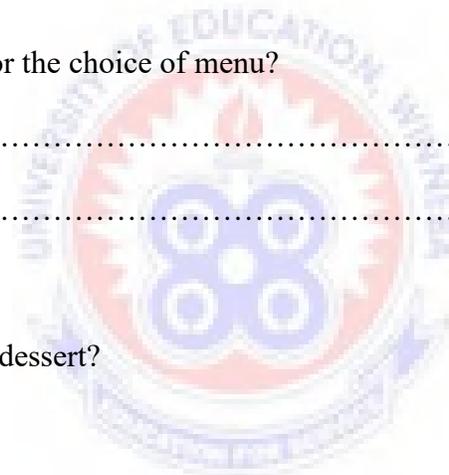
9. Is there any specification relating to providing meals for the following?

- i) Obesity ii) Over-weight iii) Underweight iv) Salt free

v) Other health issues

- a) Yes b) No c) No idea

10. Do the policy have any specification on the portion size of meal served to students at every meal time?



- a) Yes b) No c) No idea

If “yes” what are the recommended sizes for breakfast, lunch and supper?

.....

If No why?

.....

.....

11. How is the quality of meals assessed by management and who is responsible for that?

.....

.....

12. Is there any menu planning guidelines for the school categories?

- a) Yes b) No c) No idea

If “Yes” kindly explain the structure of the menu planning guidelines

.....

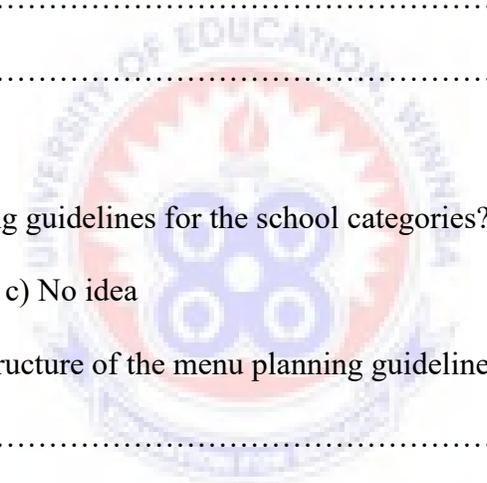
.....

13. Is there any policy for students to assess their satisfaction of meal at any point in time?

- a) Yes b) No

If “yes”, at what interval?

- a) Daily b) Weekly c) Semester d) Annually



14. What do you think the management should do to promote students' satisfaction?

- a) Educate students on the nutritional value of every meal to the students
- b) Management should ensure that food served are well garnished and presented
- c) Ensure wholesome foods are served to students
- d) Dining hall should be design in way to making eat enjoyable and relaxing
- e) Kitchen staff should be made to go for refresher course to improve on their skills
- f) Others (specify).....



APPENDIX C

General Linear Model

Parameter Estimates

Parameter	B	Std. Error	95% Interval		Wald Confidence Hypothesis Test		
			Lower	Upper	Wald	Chi- df	Sig.
			Square				
(Intercept)	-.707	.0000	-.707	-.707	.	1	.000
[SchoolCat=0]	.370	.0000	.370	.370	.	1	.000
[SchoolCat=1]	0 ^a	.	.	.	.	.	.
[Type=1]	.044	.0000	.044	.044	.	1	.000
[Type=2]	0 ^a	.	.	.	.	.	.
QuantitySat	1.975	.0000	1.975	1.975	.	1	.000
Taste	0 ^a	.	.	.	.	.	.
Texture	0 ^a	.	.	.	.	.	.
Colour	0 ^a	.	.	.	.	.	.
Flavour	0 ^a	.	.	.	.	.	.
(Scale)	.000 ^b	.0000	.000	.000	.	.	.

Dependent Variable: Prop. of students who enjoyed the meal.

Model: (Intercept), School Cat, Type, Quantity Sat, Taste, Texture, Colour, Flavour

a. Set to zero because this parameter is redundant.

b. Maximum likelihood estimate.

So, from Table 4.7, we derive a general linear model that looks like this:

$$y = -0.707\beta_0 + 0.370\beta_1 + 0.044\beta_3 + 1.975\beta_5$$

Where β_0 is the intercept, β_1 is the school category (category A or B), β_3 is the type of school (day or boarding), β_5 is the proportion of students satisfied with meal quantity. This implies the variables $\beta_6, \beta_7, \beta_8$ and β_9 representing proportion of students who thought meals had good taste, texture, colour and flavour respectively, are irrelevant to the model hence do not explain the enjoyment of meals by students.

The model informs us that the most influential variable for determining meal enjoyment was quantity as a 1.975 increase in meal quantity corresponded to a one unit increase in enjoyment of meal. The other important variables were school category and taste of meals which also had positive values of 0.37 and 0.044. These variables were significant according to the model as the significance was less than the p-value of 0.05.

