An assessment of high school juniors' perceptions of their school lunch programs: Open versus closed campus schools

by

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GENERAL INTRODUCTION

In 1946, Congress authorized the National School Lunch Program (NSLP) for the purpose of safeguarding "the health and well-being of the nation's children and to encourage the consumption of nutritious agricultural commodities and other foods" (Burghardt & Devaney, 1993, p. 3). Since 1946, the NSLP has developed into a several billion dollar a year federally sponsored program (Sautter, 1978).

Unfortunately, the NSLP has been plagued in recent years by low participation among students. A research study of the NSLP showed participation in the program lessens as the student ages (Fogleman, Dutcher, McProud, Nelken, & Lins, 1992). This decrease in participation occurs because as students grow older it appears they are given more lunch options from which to choose. Generally, at the elementary level, students can either buy reimbursable lunches or bring their lunches from home. At the secondary level, however, students have options such as vending machines, a la carte items, and foods sold during student fundraisers. These options compete directly with the traditional reimbursable lunch. In addition, many secondary schools have open campuses that enable students to go home or buy lunch from quick-service restaurants, convenience stores, or other off campus options. All of these options translate into low participation in the NSLP.

Because these low participation rates are so prevalent in the NSLP, the importance of satisfying students' needs is gaining more attention (Elbushra & Matthews, 1991). School food service (SFS) directors are realizing they must create a lunch program that will keep students in the school cafeteria and

participating in the NSLP. To accomplish this task, it is imperative SFS personnel look at how well they are meeting their students' expectations (Zacharelli, 1989).

Students' perceptions of their current lunch programs must first be identified in order to meet students' expectations. To assess students' perceptions, SFS directors are utilizing a variety of innovative methods. Among them are implementing youth advisory councils and conducting satisfaction surveys (Bender, Tutt, & Watkins, 1985; Geller, 1987).

Once students' perceptions are identified, SFS personnel can begin implementing programs to meet students' expectations and subsequently increase participation rates. Implementing customer service programs to train cafeteria workers and cooking more on-premise to create pleasant aromas are a few of the innovative methods currently being utilized to increase participation in the NSLP (Bender et al, 1985; Geller, 1987). Most importantly, more food service directors are treating students as customers who make choices, rather than as a captive audience. Whenever possible, SFS directors should attempt to offer services and menu items that will satisfy their customers, while increasing participation and decreasing plate waste (Smith, 1992).

Although the need to assess and meet students' expectations has been identified, the component that has not been addressed is the importance of particular aspects of the lunch program to students. Until SFS personnel identify which aspects of the lunch program are most important to students, they will not know where to start in order to meet students' expectations. Therefore, the purpose of this study is to identify high school juniors' perceptions of their school lunch programs. The specific objectives of this study were to:

1) Assess the frequency with which closed and open campus students purchased both a la carte and reimbursable lunch items
2) Determine reasons why closed and open campus students ate/did not eat reimbursable lunches
3) Determine lunch alternatives closed and open campus students utilize when not eating reimbursable lunches
4) Assess the frequency of participation and desire to participate in NSLP activities
5) Determine the frequency and types of comments both parents and teachers make to the student about school lunches
6) Compare closed and open campus students' perceptions of how important various aspects of the lunch programs were to them
7) Compare closed and open campus students' perceptions of how well their current lunch programs met their expectations

This study is part of a project funded by the National Food Service Management Institute which assesses various aspects of SFS quality.

Thesis Organization

This thesis has been organized so that a general introduction and literature review precede two manuscripts and a general conclusion section. The first manuscript has been written according to specifications for submission to the School Food Service Research Review, a refereed scholarly journal, for possible publication. The manuscript is entitled, "High school juniors' perceptions of their school lunch programs: Open versus closed campus schools".

The second manuscript has been written according to specifications for submission to School Food Service & Nutrition, a practitioner-oriented journal, for possible publication. The manuscript is entitled, "Closed and open campus students' perceptions of school lunch: Is the NSLP making the grade?" The general conclusion will summarize the results, applications, and suggestions for further study on this topic.

Authorship of these manuscripts is shared with Dr. Shirley Gilmore, an Associate Professor in the Department of Hotel, Restaurant, and Institution Management at Iowa State University.

A copy of the student questionnaire is presented in Appendix A, and a copy of the Review of Research Involving Human Subjects is presented in Appendix B. At Iowa State University, all research involving the use of human subjects must be approved by the Human Subjects Review Committee (HSRC).

Literature Review

Background

The National School Lunch Program (NSLP) was authorized by Congress in 1946 for the purpose of safeguarding "the health and well-being of the nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other foods" (Burghardt & Devaney, 1993, p. 3). Since its inception, the NSLP has grown from a $100 million dollar a year institution to a several billion dollar a year federally sponsored program (Sautter, 1978). According to the American School Food Service Association (ASFSA) (1989), the NSLP is currently the largest school feeding program in the world.

Both private and public nonprofit elementary and secondary schools are allowed to participate in the NSLP (Burghardt & Devaney, 1993). Schools that choose to participate in the NSLP must provide "reimbursable" school lunches to students. Reimbursable school lunches are designed to provide the student with one-third of the Recommended Daily Allowances (RDAs) using the following five components: meat or meat alternate, two or more fruits and/or vegetables, enriched or whole-grain bread or bread alternate, and milk. These items are recommended in different amounts depending on the age and grade level of students, with the amount of food increasing as the student gets older (Burghardt & Devaney, 1993).

The United States Department of Agriculture (USDA) subsidizes reimbursable lunches that conform to federal government nutritional standards. To do this, the USDA donates commodity food items and provides cash reimbursements to participating schools (Burghardt & Devaney, 1993). It is, therefore, advantageous for schools to participate in this program.

Customer Expectations

From menu planning to cashiering, whether or not customers will return to a food service establishment depends on how well that operation meets or exceeds customers' expectations. School food service (SFS) operations are one viable operation that must meet their customers' expectations. Students, like adult customers, make dining choices based on their needs, experiences, and desires. When students' expectations are not met by a food service establishment, they will think twice before returning (Osthus & Renz, 1990). It is imperative for SFS directors to realize this concept because their money will be

made on repeat business ("Merchandising", 1985). In order to gain this repeat business, SFS directors need to assess how well they are meeting their students' needs and not focus solely on what is best for the food service department (Zacharelli, 1989).

A problem that arises when SFS personnel assess students' opinions regarding the lunch program is there are discrepancies between their opinions of what students think and what the students actually think. Smith (1992), in a study of 371 SFS employees and 812 students in grades 6, 8, and 10, found that there was a discrepancy between SFS personnel's opinions of student preferences for a particular menu item and students' own preferences. The SFS personnel rated students' preferences significantly higher than students rated their own preferences. The researcher suggested that SFS personnel may not be able to predict the degree of student preferences for a particular menu item.

The importance of satisfying students' needs is gaining more attention because low participation rates are so prevalent in the NSLP today (Elbushra & Matthews, 1991). Subsequently, SFS directors are finding they must recognize and assess their students' expectations in an effort to create a lunch program that will keep students in school rather than looking for a lunch alternative. With families dining out more frequently, children have become accustomed to the atmosphere and food quality they enjoy at restaurants. When children enter the SFS setting, they expect the atmosphere and food quality of the lunch program to mirror their restaurant experiences. "School food service professionals will need to meet students' increasingly sophisticated expectations in order to maximize the potential of the school lunch program" (Fogleman, Dutcher, McProud, Nelken, & Lins, 1992, p. 19).

To assess students' expectations and make changes in their lunch programs accordingly, SFS directors are utilizing a variety of innovative methods to increase participation rates. Implementing customer service programs for cafeteria workers, using youth advisory councils, conducting student satisfaction surveys, cooking on premise to create pleasant aromas, and involving students in the planning and/or actual production of meals are a few of these innovative methods (Bender, Tutt, & Watkins, 1985; Geller, 1987). Most importantly, food service directors are treating students as customers who make choices rather than as a captive audience. Every student is a potential customer, and responding to their needs and concerns is an effective way to maximize participation (Fogleman et al., 1992).

Participation

Currently the NSLP is available to 92% of all school-aged students in the United States. On an average school day, however, only 56% of all students who have the NSLP available to them participated (Burghardt & Devaney, 1993). Previous research showed that participation in the NSLP is higher at the elementary level than at the secondary level, with participation rates of 3.5 days per week at age 9 decreasing to only 1.8 days per week at age 18 (Fogleman et al, 1992). Demographic information of participants in the NSLP are shown in Table 1.

Variation in participation is based on several factors including household income, region of the country, gender, and age. Also, more students participate in the NSLP in locations where the full price of the lunch is lower than other locations. Geographically, more students from rural schools participate than

Table 1. Demographics of Students who Participate in the NSLP

Ages	Participation Rate
6-10	66%
11-14	55%
15-18	40%
Gender	Participation Rate
Male	59%
Female	52%

Source: Burghardt, J. & Devaney, B. (1993). The school nutrition dietary assessment study: Summary of findings. Washington, DC: United States Department of Agriculture.

urban and suburban. Students in Southeastern, Southwestern, and Mountain states participate more in the NSLP than students in the Northeastern and Western states (Burghardt & Devaney, 1993).

Factors Affecting the NSLP Participation

Participation in the NSLP has been plagued in recent years by the many alternative food choices currently available to students. In open campus schools especially, the lunch competition is high because students are allowed to leave the school grounds at lunch time to obtain their lunch elsewhere. Common alternatives include quick-service restaurants and convenience stores (Burghardt & Devaney, 1993). Permission for students to leave campus at lunch has been shown to have a negative impact on participation in the lunch program (West & Hoppe, 1973; Printiss, 1970; Keyser, Vaden, & Dayton, 1983). The distance from

the school to a commercial eating establishment is another major factor in participation rates associated with open campus schools (West & Hoppe, 1973; Keyser et al, 1983). If the eating establishment is within walking distance or if the student drives a car, eating off-campus may be an easy alternative.

Competition also exists in closed campus schools. Inside the cafeteria, vending machines, school stores, and snack bars are students' popular choices. In addition, sack lunches continue to be a stable, if not a growing competitor (Burghardt & Devaney, 1993). A la carte items are likely to be offered as an alternative to the reimbursable lunch, especially in secondary schools (Keyser et al, 1983).

Because participation in the NSLP decreases as the student's age increases, participation generally is lowest in secondary schools than in elementary or middle schools (Keyser et al, 1983). Research has shown that secondary schools are more likely than elementary or middle schools to have policies that allow students to leave campus or offer food from vending machines or school stores (Burghardt & Devaney, 1993; Keyser at al, 1983)

Time spent waiting in line, parent/faculty comments, and food quality are other factors that may impact student participation in the NSLP. Students are not always given adequate time to eat. Howe (1979) indicated in some instances sophomores and juniors did not participate in the NSLP because there was not enough time to purchase and eat the food. Fogleman et al (1992) found that 53% of students surveyed stated "Time it takes to get food" as a reason for not participating in their schools' lunch programs. McLaren (1989) found that SFS directors who implemented some type of quick-service line enjoyed increased student participation. The Comptroller General (1977) reported that lunch

programs that allowed for longer lunch periods (40 minutes) enjoyed higher participation than lunch programs with shorter lunch periods (23 minutes).

Students, especially younger ones, are impressionable. Authority figures who make negative comments or perpetuate negative connotations about the school lunch program, are likely to have an effect on a student's decision to purchase a reimbursable lunch. Faculty, SFS workers, and even parents can actually aid in the success or failure of a lunch program. Smith (1992) indicated parental attitude had been shown to affect participation in child nutrition programs. Price, Price, and Womach (1975) concluded in a study that as parent complaints about the lunch program increased, student participation rates in the program decreased. Brown, Gilmore, & Dana (1994) assumed teachers, as well as parents, had an effect on the participation rates of students in school food services. In a case study conducted by Talmage and Iverson (1979), students exhibited negative attitudes about the lunch program in schools where teachers and SFS personnel exhibited much the same negative attitudes. In schools where teachers and SFS personnel respected the lunch program, however, students appeared to share those feelings of respect.

Researchers have shown that higher food quality is related to higher participation in the lunch program (Keyser et al, 1983). They found that participation rates were higher in schools where implementation of food quality measures was used regularly. Jansen, Harper, Kylen, Sigetomi, and Fallis (1977) found that food with appealing texture, color, and flavor, served at the proper temperature was better accepted by students. Generally, food prepared on-site as opposed to food produced in a central commissary and delivered, has more characteristics representative of high food quality. Lilly, Davis, Wilkening, and

Shank (1980) found that student participation in the NSLP was significantly higher at schools where the meals were prepared on-site as opposed to those schools that used proportioned-delivered meals. The bottom-line seems to be that students can define and expect food quality. A study conducted in Detroit, Michigan revealed only 27% of responding students rated the food quality of their lunch program as very good or good, 41% indicated it was fair, and 33% indicated the quality was poor or very poor (1980-81 School Foodservice Report, 1980).

Fogleman et al (1992) conducted a study of 394 high school students assessing their participation in and attitudes toward the NSLP. Using a 5-point Likert-type scale, they found that students were least satisfied with the amount of time it took to obtain their lunch, and most satisfied with the temperatures of the cold foods they purchased. This study showed that students are aware of and are affected by food quality. One of the most frequently cited reasons for not participating in the NSLP was the taste of the food. Improving the taste of the food was identified by students as a major factor which might cause them to purchase a school lunch more often. Also, students were very concerned about the freshness of the food in the NSLP and perceived the nutritional value of the school lunch as low.

Plate Waste

Acceptability of foods in the lunch program has been shown by measuring plate waste (Lilly et al, 1980; Coale & Bedford, 1984). The amount of waste disposed by students is affected by the amount of food consumed, thus, the acceptability of the food items can be measured (Hollingsworth, Shanklin,

Gench, & Hinson, 1992). Normally, the most popular menu items have the least amount of waste (Spears & Vaden, 1985).

In addition to acceptability of foods, plate waste has been correlated to food quality. In 1977, the Government Accounting Office recommended the USDA instruct food service personnel in the NSLP to improve both food quality and appearance in order to decrease plate waste (Ninety-fifth Congress, 1977). In the past, the visible problem of plate waste has led to new attitudes about school lunch. SFS directors started to view the student as a consumer rather than a recipient and made efforts to improve food quality and offer more choices. Also, the prevalent waste problem led to the authorization of new meal patterns which allowed food portions to be adjusted according to the student's age (VanEgmond-Pannall, 1985).

Smith (1992) summarized the characteristics of a successful lunch program by indicating, whenever possible, school lunch programs should include services and menu items that will satisfy their customers, increase participation, and decrease plate waste (Smith, 1992). In order to do this, the first step of assessing students' perceptions of their current programs needs to be taken.

The purpose of this study is to identify high school juniors' perceptions of their school lunch programs. More specifically, the objectives are to assess the importance of selected characteristics of the NSLP and the degree to which the programs meet students' expectations. In addition, differences between open and closed campus lunch programs are identified. Further, factors that affect students participation in the NSLP are discussed. This study is part of a project funded by the National Food Service Management Institute which assesses various aspects of school food service quality.

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HIGH SCHOOL JUNIORS' PERCEPTIONS OF THEIR SCHOOL LUNCH PROGRAMS: OPEN VERSUS CLOSED CAMPUS SCHOOLS

A paper to be submitted to the School Food Service Research Review

Amy D. Brooks, Shirley A. Gilmore

Abstract

Much research has been conducted in the area of student perceptions of particular food items/meals in the National School Lunch Program (NSLP). Research, however, has focused on particular food items/meals rather than dining and serving environments as reasons for not eating reimbursable lunches. This study surveyed high school juniors from four high schools in three states. Three closed campus high schools were combined (n = 467), and one high school was open campus (n = 293). Students were asked to indicate the frequency with which they purchased both a la carte items and reimbursable lunches and to cite reasons why they ate/did not eat reimbursable lunches. Types of parent/teacher comments and student participation in the NSLP also were assessed. Students were asked to indicate how important 18 descriptive statements were to them and how well their current school food service (SFS) programs met their expectations. Five-point Likert-type scales were used (1 = Not Important/Does Not Meet Expectations to 5 = Very Important/Meets all Expectations). Results indicated students were generally dissatisfied with most aspects of their lunch programs. Results also showed that aspects of programs meeting students' expectations were not the ones valued as important.

Introduction

The National School Lunch Program (NSLP) was created for the purpose of safeguarding "the health and well-being of the nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other foods" (Burghardt & Devaney, 1993, p. 3). Since its inception in 1946, the NSLP has grown from a $100 million dollar a year institution, to a several billion dollar a year federally sponsored program (Sautter, 1978).

The NSLP has been plagued in recent years by low participation among students. Previous research showed that participation in the NSLP is higher at the elementary level than the secondary level. Participation rates decrease from 3.5 days per week at age 9 to 1.8 days per week at age 18. This decrease in participation occurs because as students grow older, it appears they are given more lunch options from which to choose. At the secondary level, vending machines, a la carte items, and foods sold during student fundraisers are among the options that generally compete with the NSLP (Fogleman, Dutcher, McProud, Nelken, & Lins, 1992). In addition, many secondary schools have open campuses that enable students to go home or buy lunch from quick-service restaurants, convenience stores, or other off-campus options. All of these options translate into low participation in the NSLP.

The importance of satisfying students' needs is gaining more attention because low participation rates are so prevalent in the NSLP (Elbushra & Matthews, 1991). School food service (SFS) directors are realizing they must create a lunch program that will keep students in the school cafeteria and participating in the NSLP. To accomplish this task, it is imperative SFS

personnel look at how well they are meeting their students' expectations (Zacharelli, 1989).

In order to meet students' expectations, students' perceptions of their current lunch programs must first be identified. To assess students' perceptions, SFS directors are utilizing a variety of innovative methods. Among these methods are implementing youth advisory councils and conducting satisfaction surveys (Bender, Tutt, & Watkins, 1985; Geller, 1987).

Once students' perceptions have been identified, SFS personnel can begin implementing programs to meet students' expectations and, subsequently, increase participation rates. Implementing customer service programs to train cafeteria workers and cooking more on-premise to create pleasant aromas are a few of the innovative methods currently being utilized to increase participation in the NSLP (Bender et al, 1985; Geller, 1987). Most importantly, more food service directors are treating students as customers who make choices rather than as a captive audience. Whenever possible, SFS directors should attempt to offer services and menu items that will satisfy their customers while increasing participation and decreasing plate waste (Smith, 1992).

While research of students' acceptability of particular food items/meals in NSLP is prevalent, there has been limited research conducted on their perceptions of the program as a whole, including dining and serving environments. Also, research on the importance of particular aspects of the lunch program to students is lacking. Until SFS personnel learn which aspects of the lunch program are most important to students, they will not know where to start in order to meet students' expectations. Therefore, the purpose of this study is to identify high school juniors' perceptions of their school lunch programs.

More specifically, the objectives were to assess the importance of selected characteristics of the NSLP and the degree to which the programs meet students' expectations. In addition, differences between open and closed campus lunch programs were identified. Further, factors that affect student participation in the NSLP are discussed. This study is part of a project funded by the National Food Service Management Institute which assesses various aspects of school food service quality.

Methodology

Sample

Secondary students were chosen for this study for reasons of maturity and lack of need for parental consent. High school juniors were chosen to be the focus of this study because graduating seniors would not be in school to see any changes implemented in their lunch program. Student ownership in the project, and subsequent truthful information, was the desired outcome of choosing juniors as the sample to be surveyed.

Instrument

A quantitative questionnaire was developed to assess high school juniors' (11th graders) perceptions of their school lunch programs. The first part of the questionnaire consisted of descriptive statements that were based on a review of the current literature involving school lunch programs. These statements were used to characterize various aspects of student participation in and perceptions of the lunch program. Questions determining frequency of and reasons for

purchasing a la carte items and reimbursable lunches were included. The most common mode of transportation to school, gender, past participation in school lunch activities, and comments made by parents and teachers about school lunches were also in the first part of the questionnaire.

The second part of the questionnaire consisted of 18 descriptive statements describing the lunch program. These statements were generated through a review of the current literature. The 18 statements were specifically chosen because they assessed food quality and dining and serving environments. These statements were used to assess both the importance of the issues to the students and how well their schools' current programs met their expectations on those issues. Importance and expectation statements were rated using five point, Likert-type scales (1 = Not Important or Does Not Meet Expectations to 5 = Very Important or Meets all Expectations). Examples of statements included in this part of the questionnaire are "Cafeteria is bright and cheery", "Nutritious (healthy) food is available", and "Noise level in cafeteria is comfortable".

Pilot Test

The questionnaire was pilot tested with six juniors from a local high school who were representative of the sample population. Students were instructed to complete the questionnaire without any discussion among their peers. Students also were asked to note any difficulties they had in completing it. The students were observed and completion time for each student was noted.

After completion of the questionnaire, a small discussion group was held with the students to assess difficulties they had with the questionnaire and to obtain suggestions for improvement. Suggestions included additional responses

to the demographic questions and clarification of a statement on the questionnaire. Appropriate changes were made to the questionnaire. The average time of completion was 10 minutes.

School Selection

Purposive sampling was used to select schools for the study. Three of the four schools used in this study were selected based on criteria developed for the project, "Food Quality in Food Service", funded by the National Food Service Management Institute. Primary selection criteria included school district size, type of production system, and type of service system. Consequently, due to adherence of these project criteria, all three of the schools selected were closed campus schools. Two were urban schools with class sizes of over 200 juniors, and one was a rural school with a class size of less than 50 juniors. The fourth school was selected specifically for its open campus status. This school had a class size of over 200 juniors and was located in an urban area.

Permission Acquisition

Student questionnaires were reviewed and approved by the Human Subjects Review Committee (HSRC) at Iowa State University. Requests for approval to administer the questionnaires were made to the individual SFS directors who received permission from their school boards, superintendents, and/or principals. Because participating students were over age 14, as specified by the HSRC and the individual schools, no parental consent was needed. Students were informed through instructions on the questionnaires that while their participation was needed, it was voluntary.

Data Collection

The number of classrooms and students per classroom was given to the researcher by the SFS director. A packet for each teacher was mailed to the principal of each school. Each packet contained the appropriate number of questionnaires, an instruction sheet, and an envelope for completed questionnaires. Once packets were received by teachers, they had one week to administer the questionnaires to their classes. Questionnaires were distributed to all juniors in a pre-chosen, required course so the optimum number of students could be surveyed. Teachers were instructed to distribute the questionnaires to the entire class, allow 15 minutes for completion, collect the questionnaires, place them in the enclosed envelope, seal the envelope, and return it to the principal. The completed questionnaires were received by the principal and retrieved by the researcher at the principal's office.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Three closed campus schools were combined to form a closed campus sample. Frequencies and percentages for the demographics were calculated for the total sample and closed and open campus samples. Students' perceptions of parent/teacher comments about school lunch and student participation in NSLP activities were calculated for the total sample. T-tests were used to establish differences in importance and expectation statements among students from the total sample and closed and open campus samples. T-tests also were used to establish differences in importance and expectation statements between gender for students from the total sample and closed and open campus samples.

Cronbach's alpha was used to determine the reliability of the importance and expectation scales. Factor analyses and a correlation were run on the importance and expectation scales.

Results and Discussion

Characteristics of Students

Demographic characteristics of students are shown in Table 1. Over half of the students (52.2%) from the total sample were female, with 47.8% of the students being male. This distribution is similar to a study by Fogleman et al (1992) regarding high school students' participation in and attitudes toward the NSLP. The average age of students was 17. Close to two-thirds (62.2%) of the students from the total sample reported driving themselves to school as their usual mode of transportation.

Slightly more than half of the students from both closed (51.8%) and open (52.7%) campuses were female, with males representing 48.2% and 47.3% respectively. The average age of students from both closed and open campuses was 17. Two-thirds (66.4%) of the students from the closed campus schools and over half (55.8%) of the students from the open campus school reported that they usually drove to school.

Buying Behaviors of Students

The majority of students from the total sample (30.4%) never purchase a la carte items, while 18.8% of the students indicated on average they purchase a la carte items one time per week, and 16.2% reported purchasing a la carte items

five times per week. Almost half (45.3%) of the students never purchase a reimbursable lunch, while approximately one-fourth (22.8%) purchase a reimbursable lunch on the average of five times per week.

Almost half of the students from closed campus schools reported either never purchasing a la carte items (25.4%) or purchasing them once per week (21.5%). When asked to indicate the frequency with which students from closed campus schools purchased reimbursable lunches, responses were fairly similar for one and five times per week (33.0% and 28.1% respectively).

Student responses from the open campus school were more evenly dispersed when purchasing a la carte items. A large group of students (38.5%) never purchase a la carte items, while approximately 14% of the students purchase them one, two, three, or five times per week. Almost two-thirds of the students from the open campus school never purchase reimbursable lunches. This is not surprising because open campus students have many more lunch options available to them.

Reasons for Purchasing /Not Purchasing Reimbursable Lunches

Students from the total and closed campus samples cited not being allowed to go elsewhere and convenience as their main reasons for eating reimbursable lunches. Lunch being affordable, convenience, and having friends who eat the lunches were reported by students from the open campus school as the main reasons for eating reimbursable lunches. Variety and having a favorite menu item were among the "other reasons" given by the total sample for eating reimbursable lunches.

The majority of students from the total sample (55.9%) and the closed

campus sample (61.4%) reported not liking the food as the main reason for not eating reimbursable lunches. Fogleman et al (1992) also found that almost half of the students cited not liking the food as one of the main reasons for not eating the lunches. Over one-fourth (26.9%) of the total sample cited being able to go elsewhere as a reason for not eating reimbursable lunches. Although nearly one-half (47.1%) of the students from the open campus reported not liking the food, the majority of responses (62.1%) indicated being able to go elsewhere as the main reason for not eating the lunches. In addition, 35.2% of the open campus students stated that having friends who don't eat the lunches was a reason for not eating the lunches themselves. Fogleman et al (1992) found that only 9% of students used this reason for not eating reimbursable lunches. Lack of variety and enjoying lunch away from school grounds were among the "other reasons" given by the total sample for not eating the school lunches. It is interesting to note that while variety was cited by students as a positive reason for eating reimbursable lunches, the lack of variety was cited as a negative reason for not eating the lunches. Fogleman et al (1992) also reported lack of variety as a reason for students not eating school lunches.

When they do not purchase a reimbursable lunch, 38.9% of the students from the total sample indicated they obtain their lunch at a nearby restaurant. Bringing lunch from home, not eating lunch, and purchasing items from school vending machines are three other options given by approximately one-fourth of the total sample. Students from the closed campus schools reported bringing lunch from home (42.2%), purchasing items from school vending machines (36.2%), and not eating lunch (34.0%) as their three most popular lunch alternatives. Although the majority (80.9%) of students from the open campus

school cited eating at a nearby restaurant as their most popular alternative, nearly one-fourth (23.5%) reported eating at a nearby convenience store as another alternative.

Students' Perceptions of Parent/Teacher Comments about School Lunch

Table 2 illustrates students' perceptions of parent and teacher comments pertaining to the school lunch program. In both cases, the majority of students believed their parents and/or teachers made no comments about school lunch (94.1% and 53.1% respectively). According to students, teachers make more negative comments about school lunch than parents. An earlier study also found that students perceived parental comments as neutral on the issue related to the nutritious (healthful) status of the lunches (Fogleman et al, 1992).

Student Participation in NSLP Activities

As shown in Table 3, when asked about participation in NSLP activities, few students reported they had participated in the NSLP sometime during high school. Over one-fourth of the students, however, indicated planning lunch menus would increase their chances of buying a reimbursable lunch. Fogleman et al (1992) reported similar findings in their study. Only 16.3% of the responding students stated they had given suggestions and/or opinions about the school lunches.

Mean Ratings for Importance and Expectation Statements

As shown in Table 4, the total sample had a total mean score for the importance statements of 4.0, with mean scores ranging from 3.2 to 4.5. The closed campus sample had a total mean score of 4.1 with mean scores ranging

from 3.2 to 4.6. For the open campus sample, the total mean score for the importance statements was 3.9, slightly lower, with mean scores ranging from 3.1 to 4.3. For the expectation statements, the total mean score for the total and closed campus samples was 2.9 with mean scores ranging from 2.3 to 3.7 for the total sample, and 2.3 to 3.8 for the closed campus sample. The total mean score for the expectation statements for the open campus sample was 3.0, slightly higher, with mean scores ranging from 2.2 to 3.5, slightly lower than the other two samples.

Both the importance and expectation scales were found to be reliable. The standardized item alpha was .95 for the importance scales and .93 for the expectation scales. Exploratory factor analyses were run on the importance and expectation statements. Initial results showed two factors for the importance and three factors for the expectation statements, had eigenvalues above 1.0. Items in each factor were analyzed, but no commonalties were found. Factor analyses also were run on importance and expectation statements for closed and open campuses. Results revealed two factors for importance and two factors for expectation statements, with eigenvalues above 1.0 for the closed campuses. For the open campus sample, one factor was found for the importance statements, and three factors were found for the expectation statements, with eigenvalues above 1.0. Again, items in each factor were analyzed but no commonalties were found. Therefore, a one factor loading was accepted.

Correlations were run on all importance statements and their corresponding expectation statements. Of the 18 statements, 13 were shown to be significantly correlated ($p \leq .01$). The correlation coefficients for all significant statements were low, with only one, "Seating arrangement in cafeteria allows

students to socialize" (r = .38) above .35. This showed that although 13 statements were significant, there was only a slight relationship between the variables (Borg & Gall, 1989). The results, therefore, can not be used as a measure of practical prediction.

Significant Differences between Importance and Expectation Statements

As shown in Table 4, significant differences ($p \leq .001$) were found between 17 of the 18 importance and expectation statements for the total sample and the closed campus samples. For the open campus sample, 16 pairs were highly significant ($p \leq .001$) and one, "Nutritious (healthy) food is available" was significant ($p \leq .05$). For all three groups, the statement, "Noise level in cafeteria is comfortable" was found not to be significant. In all cases with significant differences, the mean scores for importance statements were higher than expectation statements. This shows that students' expectations of their school lunch programs are not being met with respect to how important they feel particular aspects of the program are to them.

Significant Differences between Closed and Open Campus Samples by Importance and Expectation Statements

Table 5 shows significant differences between closed and open campus samples when importance and expectation statements were compared. Significant differences were found in 12 of the 18 importance statements. The closed campus sample rated the importance statements higher than the open campus sample in all cases of significant differences. This is not surprising considering closed campus students are unable to leave school like open campus students, and, therefore, may be more concerned with characteristics of the lunch

program.

The expectation statements had 10 significant differences between closed and open campus samples. It is interesting to note that 7 of the 10 significant expectation statements were rated higher by the open campus sample than the closed campus sample. This seems to contradict the fact that if students' expectations were being met, they would be eating school lunch instead of going elsewhere.

Seven statements were significantly different between closed and open campus samples in both importance and expectation categories. In all cases, mean importance scores were higher than mean expectation scores. This again indicates that students' expectations are not being met with respect to the characteristics of the program that are important to them.

Significant Differences in Importance and Expectation Statements by Gender

Significant differences in importance statements between females and males are shown in Table 6. Of the 18 importance statements, 12 were found to be significant for the total sample, 8 for the closed campus sample, and 9 for the open campus sample. In all cases, mean scores were higher for females than males. This may be explained based on the characteristic that females may tend to be more detail-oriented than males, and, therefore, may notice more aspects of the lunch program than males.

There were few significant differences in expectation statements between females and males. Two statements, "Portion sizes are adequate" ($p \leq .01$) and "Seating arrangement in cafeteria allows students to socialize" ($p \leq .05$) were significant for both the total and closed campus samples. For the open campus

sample, the statement, "Nutritious (healthy) food is available" was significant ($p \leq .05$). The statement, "Price of food is reasonable" was significant for the total sample ($p \leq .05$). Once again, in all cases, mean scores were higher for females than males.

Only three statements were significantly different in both the importance and expectation categories when gender was compared. In all cases, mean scores for importance were rated higher than expectation. This finding shows that although students feel those particular characteristics of the program are important, their current lunch programs are not meeting their expectations.

Applications

Results of this study indicate the NSLP is falling short of meeting students' expectations. Consistently, the issues that met students' expectations were not rated as very important. In order to decrease this discrepancy, SFS personnel must strive to assess the issues that students believe are important. Until SFS personnel know which characteristics of the lunch program are important to students, they will not be able to fully meet students' expectations.

Although most students indicated they had not participated in NSLP activities during high school, over one-fourth of the students stated planning the lunch menu would make them more likely to purchase a reimbursable lunch. This may be an easy and economically feasible way for SFS personnel to increase participation.

Few students reported making suggestions on how to improve the NSLP to SFS personnel. Although this study did not determine why students gave so

little input into their lunch programs, the reasons why students do not make suggestions need to be assessed. Students may feel that their opinions are not valued by SFS personnel.

Satisfaction surveys, youth advisory councils, and suggestion boxes are methods by which SFS directors can obtain student suggestions. Regardless of the methods used, getting students more involved in the NSLP may be paramount in increasing lunch participation.

Students often gave ambiguous or contradictory responses to the questionnaire, and a replication of this study might decrease these phenomena. When asked to indicate other reasons for both eating and not eating a reimbursable lunch, students frequently gave variety and lack of variety as reasons. Also, it was interesting to note that open campus students believed their lunch program met their expectations more than closed campus students, yet open campus students participated less often.

Although high school juniors were used in this study, a sampling across all high school grades may yield useful comparisons of students' perceptions of the NSLP. A modification of this questionnaire also may be used to obtain junior high students' opinions of school lunch programs.

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Table 1. Demographic characteristics of students

Characteristics	Total n	Total %	Closed Campus n	Closed Campus %	OpenCampus n	OpenCampus %
Gender						
Female	396	52.2	242	51.8	154	52.7
Male	363	47.8	225	48.2	138	47.3
Age in Years						
15	1	0.1	1	0.2	0	0
16	177	23.8	111	24.2	66	23.0
17	514	69.0	316	69.0	198	69.0
18	52	7.0	30	6.6	22	7.7
19	1	0.1	0	0	1	0.3
How do you usually get to school?						
Walk	20	2.7	11	2.4	9	3.1
Ride bike	4	0.5	3	0.7	1	0.3
Ride bus	37	5.0	28	6.2	9	3.1
Drive yourself	465	62.2	302	66.4	163	55.8
A friend drives	97	13.0	50	11.0	47	16.1
A parent drives	92	12.3	51	11.2	41	14.0
On average, how frequently do you purchase a la carte items?						
Never	228	30.4	117	25.4	111	38.5
1 time per week	141	18.8	99	21.5	42	14.6
2 times per week	111	14.8	70	15.2	41	14.2
3 times per week	95	12.7	57	12.4	38	13.2
4 times per week	53	7.1	39	8.5	14	4.9
5 times per week	121	16.2	79	17.1	42	14.6
On average, how frequently do you purchase a reimbursable lunch?						
Never	343	45.3	154	33.0	189	64.7
1 time per week	63	8.3	36	7.7	27	9.2
2 times per week	54	7.1	43	9.2	11	3.8
3 times per week	64	8.4	54	11.6	10	3.4
4 times per week	61	8.0	48	10.3	13	4.5
5 times per week	173	22.8	131	28.1	42	14.4
Why do you eat reimbursable school lunches? [a]						
I like the food	41	5.4	30	6.4	11	3.8
It is convenient	176	23.2	129	27.6	47	16.0
It is affordable	142	18.7	85	18.2	57	19.5
My friends eat school lunches	63	8.3	18	3.9	45	15.4
I don't have time to go elsewhere	81	10.7	57	12.2	24	8.2
I am not allowed to go elsewhere	191	25.1	186	39.8	5	1.7
Other reasons	240	31.6	107	22.9	133	45.4
Why do you choose not to eat reimbursable lunches? [a]						
I do not like the food	424	55.9	286	61.4	138	47.1
I don't have time to eat lunch	41	5.4	31	6.7	10	3.4
It is too expensive	46	6.1	34	7.3	12	4.1
It takes too long to eat a school lunch	60	7.9	37	7.9	23	7.8
My friends don't eat school lunches	120	15.8	17	3.6	103	35.2

Table 1. Cont.

Characteristics	Total		Closed Campus		Open Campus	
	n	%	n	%	n	%
I am able to go elsewhere	204	26.9	22	4.7	182	62.1
My parents don't want me to	13	1.7	8	1.7	5	1.7
Other reasons	156	20.6	100	21.5	56	19.1
When you don't purchase a reimbursable lunch, where do you obtain your lunch? [a]						
I don't eat lunch	201	26.4	159	34.0	42	14.3
I bring lunch from home	205	27.0	197	42.2	8	2.7
I buy items from school vending machines	185	24.3	169	36.2	16	5.5
I buy items from fundraiser or club	19	2.5	19	4.1	0	0
I eat at nearby home	33	4.3	10	2.1	23	7.8
I eat at a nearby restaurant	296	38.9	59	12.6	237	80.9
I eat at a nearby convenience store	85	11.2	16	3.4	69	23.5
Other	93	12.3	55	11.8	38	13.0

Note. Not all students replied. Total possible N = 760.

[a] Multiple responses possible

Table 2. Students' perceptions of parent/teacher comments about school lunch

Statements	n	%
What do your parents/guardians say to you about school lunches?		
They frequently make negative comments	52	7.0
They sometimes make negative comments	67	9.0
They don't comment	583	94.1
They sometimes make positive comments	24	3.2
They frequently make positive comments	17	2.3
What do your teachers say to you about school lunches?		
They frequently make negative comments	107	14.2
They sometimes make negative comments	133	17.7
They don't comment	399	53.1
They sometimes make positive comments	71	9.5
They frequently make positive comments	27	3.6

Note. Not all students replied. Total possible N = 760.

Table 3. Student participation in NSLP activities

Statements	n	%
Have you participated during high school in the following activities?*		
Planning the lunch menu	35	4.7
Preparing the lunch	4	0.5
Serving the lunch	12	1.6
Washing dishes	9	1.2
Would you be more likely to buy a reimbursable lunch if you were involved in the following activities?[a]		
Planning the lunch menu	217	29.1
Preparing the lunch	89	12.0
Serving the lunch	44	5.9
Washing dishes	20	2.7
Have you given any suggestions and / or opinions about the school lunches to your food service people this year?		
Yes	123	16.3
No	630	83.7

Note. Not all students replied. Total possible N = 760.

[a] Multiple responses possible

Table 4. Significant differences between importance (I) and expectation (E) statements by total, closed, and open campus samples.

Variables		Total			Closed Campus			Open Campus		
		Mean	n	t-value	Mean	n	t-value	Mean	n	t-value
Cafeteria is bright and cheery	I	3.2	655	5.2***	3.2	397	4.0***	3.1	258	3.3***
	E	2.8			2.9			2.7		
Seats are comfortable	I	3.8	656	18.3***	3.9	398	13.7***	3.6	258	12.2***
	E	2.4			2.6			2.2		
Seating arrangement in cafeteria allows students to socialize	I	4.3	655	11.6***	4.4	396	9.2***	4.2	259	7.1***
	E	3.7			3.8			3.5		
Cafeteria workers are friendly	I	3.8	652	8.4***	3.8	394	7.5***	3.8	258	4.0***
	E	3.3			3.1			3.5		
Cafeteria workers are courteous	I	3.9	649	11.0***	3.9	390	10.5***	3.9	259	4.3***
	E	3.2			3.0			3.5		
Cafeteria is clean	I	4.4	654	26.5***	4.5	397	21.6***	4.2	257	15.5***
	E	2.8			2.9			2.7		
Food lines are short	I	4.2	653	27.8***	4.3	395	23.8***	3.9	258	15.0***
	E	2.3			2.3			2.4		
Adequate time is give to eat	I	4.4	650	28.4***	4.5	392	25.4***	4.2	258	14.6***
	E	2.5			2.4			2.6		
Nutritious (healthy) food is available	I	3.8	651	12.5***	4.0	393	14.5***	3.5	258	2.4*
	E	3.0			2.8			3.3		
Many food choices are available	I	4.3	650	21.3***	4.3	394	18.4***	4.2	256	11.2***
	E	3.0			2.8			3.2		
Temperature of hot food is hot	I	4.3	649	22.9***	4.5	392	21.1***	4.2	257	11.0***
	E	2.9			2.7			3.2		
Temperature of cold food is cold	I	4.2	653	18.0***	4.3	394	15.4***	4.1	259	9.7***
	E	3.1			3.0			3.2		
Food tastes good	I	4.5	653	30.2***	4.6	394	25.7***	4.3	259	16.6***
	E	2.7			2.6			2.8		
Food looks good	I	4.3	651	28.3***	4.4	394	24.1***	4.2	257	15.5***
	E	2.5			2.5			2.6		
Price of food is reasonable	I	4.3	646	16.0***	4.3	393	12.8***	4.2	253	9.7***
	E	3.3			3.3			3.3		

Table 4 cont.

Variables		Total			Closed Campus			Open Campus		
		Mean	n	t-value	Mean	n	t-value	Mean	n	t-value
Quality of ingredients is high	I	3.9	645	18.6***	4.1	392	16.5***	3.7	253	9.3***
	E	2.7			2.7			2.8		
Portion sizes are adequate	I	4.2	643	21.1***	4.3	387	17.8***	4.1	256	11.7***
	E	2.7			2.7			2.8		
Noise level in cafeteria is comfortable	I	3.2	649	ns	3.3	393	ns	3.2	256	ns
	E	3.3			3.3			3.2		

Note. Not all students responded
ns = not significant
*p ≤ .05
**p ≤ .01
***p ≤ .001

Table 5. Significant differences of mean scores of variables by type of campus (closed or open)

Variables	Closed n	Closed mean	Open n	Open mean	t-value
Importance Statements					
Seats are comfortable	456	3.9	290	3.6	2.7**
Seating arrangement in cafeteria allows students to socialize	453	4.4	290	4.1	2.7**
Cafeteria is clean	454	4.5	290	4.2	3.5***
Food lines are short	453	4.3	290	3.9	3.9***
Adequate time is given to eat	451	4.5	289	4.2	3.1**
Nutritious (healthy) food is available	451	4.0	289	3.5	4.9***
Temperature of hot food is hot	454	4.4	290	4.1	3.0**
Temperature of cold food is cold	454	4.3	290	4.1	2.2*
Food tastes good	453	4.6	290	4.3	2.9**
Food looks good	455	4.4	288	4.2	2.4*
Price of food is reasonable	455	4.3	288	4.2	2.1*
Quality of ingredients is high	455	4.0	288	3.7	3.7***
Expectation Statements					
Seats are comfortable	403	2.6	258	2.2	4.2***
Seating arrangement in cafeteria allows students to socialize	403	3.8	259	3.5	2.4*
Cafeteria workers are friendly	399	3.1	258	3.5	-3.6***
Cafeteria workers are courteous	399	3.1	259	3.5	-4.6***
cafeteria is clean	402	2.9	257	2.7	2.0*
Adequate time is given to eat	401	2.4	259	2.6	-2.4*
Nutritious (healthy) food is available	401	2.8	259	3.3	-4.7***
Many food choices are available	400	2.8	257	3.2	-3.3***
Temperature of hot food is hot	398	2.7	257	3.2	-4.5***
Temperature of cold food is cold	400	3.0	259	3.2	-2.1*

Note. Not all students replied. Total possible N = 760.

*$p \leq .05$

**$p \leq .01$

***$p \leq .001$

Table 6. Significant differences in importance statements by gender (F & M) for total, closed, and open campus samples.

Variables		Total			Closed Campus			Open Campus		
		Mean	n	t-value	Mean	n	t-value	Mean	n	t-value
Importance Staements										
Cafeteria is bright and cheery	F	3.2	387	ns	3.2	235	ns	3.1	152	ns
	M	3.1	356		3.1	220		2.9	136	
Seats are comfortable	F	3.8	388	ns	3.8	235	ns	3.7	153	ns
	M	3.7	357		3.9	221		3.5	136	
Seating arrangement in cafeteria allows students to socialize	F	4.4	387	3.0**	4.5	234	2.0*	4.3	153	2.2*
	M	4.1	355		4.3	219		3.9	136	
Cafeteria workers are friendly	F	3.9	388	3.8***	3.9	235	2.8**	4.0	153	2.6**
	M	3.6	355		3.6	219		3.6	136	
Cafeteria workers are courteous	F	4.1	386	3.8***	4.1	233	3.1**	4.0	153	2.2*
	M	3.7	354		3.7	218		3.7	136	
Cafeteria is clean	F	4.6	388	4.1***	4.7	235	3.3***	4.4	153	2.7**
	M	4.2	355		4.4	219		4.0	136	
Food lines are short	F	4.2	388	ns	4.3	235	ns	4.0	153	ns
	M	4.1	354		4.3	218		3.7	136	
Adequate time is give to eat	F	4.5	385	2.8**	4.6	232	2.5*	4.3	153	1.6*
	M	4.3	354		4.4	219		4.1	135	
Nutritious (healthy) food is available	F	4.0	388	3.4***	4.2	235	2.9**	3.7	153	2.0*
	M	3.6	351		3.8	216		3.3	135	
Many food choices are available	F	4.4	388	2.7**	4.4	235	2.0*	4.3	153	ns
	M	4.1	353		4.2	218		4.0	135	
Temperature of hot food is hot	F	4.4	388	ns	4.5	235	ns	4.3	153	ns
	M	4.2	355		4.4	219		4.0	136	
Temperature of cold food is cold	F	4.3	388	2.6**	4.4	235	ns	4.2	153	2.1*
	M	4.1	355		4.2	219		3.9	136	
Food tastes good	F	4.6	388	2.3*	4.6	235	ns	4.5	153	2.9**
	M	4.4	354		4.6	218		4.1	136	
Food looks good	F	4.4	387	2.5*	4.4	235	ns	4.4	152	2.7**
	M	4.2	355		4.4	220		3.9	135	
Price of food is reasonable	F	4.4	386	2.2*	4.4	235	ns	4.3	151	ns
	M	4.2	356		4.3	220		4.0	136	

Table 6. Cont.

Variables		Total			Closed Campus			Open Campus		
		Mean	n	t-value	Mean	n	t-value	Mean	n	t-value
Quality of ingredients is high	F	3.9	388	ns	4.1	235	ns	3.7	153	ns
	M	3.9	354		4.0	220		3.6	134	
Portion sizes are adequate	F	4.1	383	ns	4.2	231	ns	4.0	152	ns
	M	4.2	356		4.3	220		4.1	136	
Noise level in cafeteria is comfortable	F	3.3	387	2.3*	3.4	234	2.2*	3.2	153	ns
	M	3.1	354		3.1	218		3.1	136	

Note. Not all students responded
ns = not significant
*$p \leq .05$
**$p \leq .01$
***$p \leq .001$

CLOSED AND OPEN CAMPUS STUDENTS' PERCEPTIONS OF SCHOOL LUNCH: IS THE NSLP MAKING THE GRADE?

A paper to be submitted to School Food Service & Nutrition

Amy D. Brooks, Shirley A. Gilmore

The National School Lunch Program (NSLP) has been plagued in recent years with low student participation. Research conducted on the NSLP has shown that as students get older they participate less in the program. This occurrence has mostly been due to the increased variety of lunch options available to older students. Secondary students, especially, have choices that far exceed the typical reimbursable lunch offerings. Vending machines, foods sold at student fundraisers, and a la carte items are just three examples of these lunch options. Also, many secondary schools have an open campus lunch option, where students are permitted to leave school at lunch time. With this option, the NSLP also competes with quick-service restaurants, convenience stores, and a number of other off campus options.

With all of this lunch competition, school food service (SFS) directors are discovering the need to develop new and unique ways to keep their students eating school lunch. Over the years, SFS directors have changed their thinking about students who participate in the NSLP. Students are no longer regarded as a "captive audience", but rather as customers. They are no longer thought of as a mass who merely accepts what is being given to them, but rather conscientious, decision-making diners concerned with food quality and getting good value for their money.

In keeping with this new, more proactive recognition of their customer base, SFS directors have recognized the need to identify students' perceptions of their school lunch programs. A typical method to identify perceptions is to assess how well students' expectations of their current lunch programs are being met. To do this, more and more SFS directors are seeking student input to assess strong and weak points of their lunch programs. Student satisfaction surveys and youth advisory councils (YACs) are two of the most common methods used. The intent of assessing students' expectations of the lunch program is to use the information received to satisfy students by making changes in the lunch program accordingly. Thus, these changes should help increase student participation in the NSLP.

There is, however, something missing in this method of assessing students' perceptions. Research has shown that while SFS directors are asking students how well particular aspects of their lunch programs meet students' expectations, they are not asking students how important these aspects are to them. Consequently, the changes that are being made in lunch programs are not ones that reflect issues of high importance to students. It is our belief that to merely assess expectations is futile. Issues of importance must first be identified, so any changes SFS personnel made in the program would be meaningful to their students.

This study was part of a larger study funded by the National Food Service Management Institute which measured various aspects of SFS quality. For this study, a questionnaire with 18 characteristics that described the school lunch program was developed (see Table 1). The 18 characteristics described several aspects of food quality and the dining and serving environments. It was used to

determine how well the program met students' expectations and which of the 18 characteristics did students find most important. The characteristics were rated by students on two five-point scales (1 = Not Important to 5 = Very Important and 1 = Does Not Meet Expectations to 5 = Meets All Expectations). The students sampled were 760 high school juniors from four high schools in three states. Three of the schools were closed campus, and one was open campus. Student responses were compared by closed and open campus status.

Results of the survey showed that a discrepancy occurred between the characteristics students valued as important and the characteristics that actually met their expectations. Tables 1 and 2 show the average scores for both closed and open campuses for both importance and expectation characteristics. Importance characteristics are listed in order from highest to lowest scores along with the corresponding expectation scores.

Table 3 shows the top five scores for importance and expectation characteristics from closed campus students. Scores for importance characteristics were quite high, indicating students valued eating food that tastes and looks good, is served at the proper temperatures, in a clean cafeteria, and having an adequate amount of time to eat it. However, the top five expectation items were different than the importance items. This shows that the characteristics that are meeting students' expectations are not the ones that closed campus students think are important. The expectation characteristics, which were rated considerably lower than the importance characteristics, dealt with the dining environment, the price of the food, and the attitudes of the SFS employees.

Results for open campus students were similar to closed campus students

(see Table 4). The top five importance characteristics (while not quite as high as the closed campus students) were rated high. Of the top five characteristics, four were the same as the closed campus students with "Many food choices are available" replacing "Temperature of hot food is hot". The five high importance scores were very similar to each other, with four of the characteristics tied in score. Open campus students rated the top five expectation characteristics similar to the closed campus students. Only one of the characteristics, "Nutritious (healthy) food is available" was different. Again, the expectation characteristics were rated considerably lower than the importance characteristics. Also, none of the top five expectation characteristics were the same as the importance characteristics, indicating, once again, that the characteristics meeting open campus students' expectations are not the ones they value as important.

All importance characteristics were rated higher by closed campus students than open campus students. Because closed campus students have no outside lunch options, we expected these students to place more importance on these characteristics of their lunch program. It was expected that open campus students, many of whom often do not participate in the program, would not be as concerned with these aspects of their lunch programs.

Surprisingly, when the top five expectation scores were compared, open campus students rated two characteristics, "Cafeteria workers are courteous" and "Cafeteria workers are friendly" higher than the closed campus students. Also, one issue, "Price of food is reasonable" was tied in score with the closed campus students. It would seem that if these characteristics were truly meeting open campus students' expectations, they would participate more frequently in the NSLP.

Results of this survey indicated students were not very satisfied with their lunch programs. Both open and closed campus students reported they were quite concerned with characteristics of food quality. However, the characteristics that were meeting their expectations involved SFS workers' attitudes and the dining environment.

Results of this study should give SFS directors a good starting point when attempting to make improvements in their lunch programs. For example, instead of making improvements in the seating arrangement in the cafeteria (an issue that basically meets students' expectations), SFS directors should concentrate on improving the taste of the food (an issue that was highest on both closed and open campus students' lists of importance).

The purpose of this study was to encourage SFS directors to expand their use of student satisfaction surveys and YACs to include the assessment of aspects of the school lunch program that are important to students. We strongly believe that by using this as an assessment tool; less time, money, and energy will be wasted, and more positive results will emerge.

Table 1. Average scores for importance issues and corresponding expectation issues for closed campus

Characteristic	Importance	Expectation
Food tastes good	4.6	2.6
Adequate time is given to eat	4.5	2.4
Cafeteria is clean	4.5	2.9
Food looks good	4.4	2.5
Temperature of hot food is hot	4.4	2.7
Seating arrangement in cafeteria allows students to socialize	4.4	3.8
Price of food is reasonable	4.3	3.3
Food lines are short	4.3	2.3
Temperature of cold food is cold	4.3	3.0
Many food choices are available	4.3	2.8
Portion sizes are adequate	4.2	2.7
Quality of ingredients is high	4.0	2.7
Nutritious (healthy) food is available	4.0	2.8
Seats are comfortable	3.9	2.6
Cafeteria workers are courteous	3.9	3.0
Cafeteria workers are friendly	3.7	3.1
Noise level in cafeteria is comfortable	3.2	3.3
Cafeteria is bright and cheery	3.2	2.9

Importance Scale: 1 = Not important, 2 = Of little importance, 3 = Undecided, 4 = Somewhat important, 5 = Very important

Expectation Scale: 1 = Does not meet expectation, 2 = Meets some expectations, 3 = Undecided, 4 = Meets most expectations, 5 = Meets all expectations

Table 2. Average scores for importance issues and corresponding expectation issues for open campus

Characteristic	Importance	Expectation
Food tastes good	4.3	2.8
Adequate time is given to eat	4.2	2.6
Price of food is reasonable	4.2	3.3
Food looks good	4.2	2.6
Cafeteria is clean	4.2	2.7
Many food choices are available	4.2	3.2
Temperature of hot food is hot	4.1	3.2
Seating arrangement in cafeteria allows students to socialize	4.1	3.5
Portion sizes are adequate	4.0	2.8
Temperature of cold food is cold	4.0	3.2
Food lines are short	3.9	2.4
Cafeteria workers are courteous	3.9	3.5
Cafeteria workers are friendly	3.8	3.5
Quality of ingredients is high	3.7	2.8
Seats are comfortable	3.6	2.2
Nutritious (healthy) food is available	3.5	3.3
Noise level in cafeteria is comfortable	3.2	3.2
Cafeteria is bright and cheery	3.0	2.7

Importance Scale: 1 = Not important, 2 = Of little importance, 3 = Undecided, 4 = Somewhat important, 5 = Very important

Expectation Scale: 1 = Does not meet expectation, 2 = Meets some expectations, 3 = Undecided, 4 = Meets most expectations, 5 = Meets all expectations

Table 3. Top five average scores for importance and expectation issues for closed campus students

IMPORTANCE ISSUES:

Issue	Average Score
Food tastes good	4.6
Cafeteria is clean	4.5
Adequate time is given to eat	4.5
Temperature of hot food is hot	4.4
Food looks good	4.4

EXPECTATION ISSUES:

Issue	Average Score
Seating arrangement in cafeteria allows students to socialize	3.8
Noise level in cafeteria is comfortable	3.3
Price of food is reasonable	3.3
Cafeteria workers are friendly	3.1
Cafeteria workers are courteous	3.0

Table 4. Top five average scores for importance and expectation issues for open campus students

IMPORTANCE ISSUES:

Issue	Average Score
Food tastes good	4.3
Adequate time is given to eat	4.2
Cafeteria is clean	4.2
Many food choices are available	4.2
Food looks good	4.2

EXPECTATION ISSUES:

Issue	Average Score
Seating arrangement in cafeteria allows students to socialize	3.5
Cafeteria workers are courteous	3.5
Cafeteria workers are friendly	3.5
Price of food is reasonable	3.3
Nutritious (healthy) food is available	3.3

GENERAL CONCLUSIONS

Summary

The purpose of this study was to assess high school juniors' perceptions of open versus closed campus school lunch programs. The specific objectives of this study were to:

1) Assess the frequency with which closed and open campus students purchased both a la carte and reimbursable lunch items
2) Determine reasons why closed and open campus students ate/did not eat reimbursable lunches
3) Determine lunch alternatives closed and open campus students utilize when not eating reimbursable lunches
4) Assess the frequency of participation, and desire to participate in NSLP activities
5) Determine the frequency and types of comments both parents and teachers make to the student about school lunches
6) Compare closed and open campus students' perceptions of how important various aspects of the lunch programs were to them
7) Compare closed and open campus students' perceptions of how well their current lunch programs met their expectations

This study was part of a project funded by the National Food Service Management Institute which assessed various aspects of school food service (SFS) quality.

A quantitative questionnaire was designed to collect information about

students' perceptions of their lunch programs. A pilot test was conducted with six local high school juniors, and a discussion group was held afterwards to assess any difficulties they had in completing the questionnaire. The questionnaire was distributed to four high schools in three states. Three high schools were combined to form a closed campus sample (n = 467) and one high school was an open campus sample (n = 293). Frequencies and percentages were calculated for the demographic questions, students' perceptions of parent/teacher comments about the NSLP, and student participation in NSLP activities for the total, closed, and open campus samples. Significant differences in importance and expectation statements between gender and the total, closed, and open campus samples were determined using t-tests. Cronbach's alpha was used to determine the reliability of the importance and expectation scales.

Over half of the students from the total, closed campus, and open campus samples were female, with an average age of 17 years. Close to two-thirds of the students from the total (62.2%) and closed campus (66.4%) samples, and over half of the open campus (55.8%) sample reported driving themselves to school as their usual mode of transportation.

Almost half of the students from the total sample reported never purchasing reimbursable lunches, and approximately one-fourth of the students indicated they purchased reimbursable lunches five times per week. For the closed campus sample, one-third of the students stated they purchased reimbursable lunches one time per week and over one-fourth of the students indicated purchasing lunches five times per week. The majority of students from the open campus sample reported never purchasing reimbursable lunches.

Not being allowed to go elsewhere and convenience were among the main

reasons students from the total and closed campus samples cited for eating reimbursable lunches. Open campus students also cited convenience as a reason, in addition to lunches being affordable and having friends who eat reimbursable lunches.

The majority of students from both the total and closed campus samples indicated not liking the food was the main reason for not eating reimbursable lunches. While almost half of the students from the open campus sample also cited not liking the food as a reason for not eating reimbursable lunches, the majority of students from the open campus cited being allowed to go elsewhere was the main reason.

When not purchasing a reimbursable lunch, over one-third of the students from the total sample indicated they obtained their lunch from home. Closed campus students cited purchasing items from vending machines, bringing their lunches from home, and not eating lunch as three lunch alternatives. The majority of the students from the open campus sample reported eating at a nearby restaurant as a lunch alternative.

The majority of students stated their parents and/or teachers made no comments about the reimbursable lunch. When asked about participation in NSLP activities, the majority of students reported they had not participated in these activities during high school. Over one-fourth of the students, however, indicated that planning the lunch menu might make them more likely to purchase a reimbursable lunch.

The importance end expectation scales were found to be reliable. After running a factor analysis on each scale, a one factor loading was accepted for both scales because no commonalties could be found among items in the factors.

Differences in importance and expectation statements from the total, closed, and open campus samples were compared. Mean scores for importance statements were higher than expectation statements in all instances. Significant differences between importance and expectation statements were found for 17 of the 18 statements in all three samples.

In all cases of significant differences between closed and open campus samples, the closed campus sample rated the importance statements higher than the open campus sample. For the importance statements, 12 of the 18 were found to be significant, while 10 of the 18 expectation statements were found to be significant.

Significant differences in importance and expectation statements between gender were found in 12 of the 18 importance statements for the total sample, 8 of the 18 for the closed campus sample, and 9 of the 18 for the open campus sample. There were few significant differences found in expectation statements between genders. In all cases of significant differences, females rated both sets of statements higher than males.

Recommendations

This study was limited to high school juniors and may not be generalizable to other grade levels for two reasons. First, with an average age of 17 and the majority of the open campus students driving themselves to school, they were more able to take full advantage of their other options. High school freshmen, for example, are typically not of driving age and this may skew results of a comparison between open and closed campus schools. Also, high school juniors had more of an investment in their lunch programs than graduating seniors. It

was the belief of the researcher that surveying graduating seniors would not yield reliable results.

It is recommended that the questionnaire be revised prior to further use. When students were asked if they participated in NSLP activities, wanted to participate in NSLP activities, or wanted to give suggestions to SFS personnel, few students had done so. Therefore, questions to determine why students do not wish to participate in their lunch programs need to be added to the questionnaire. In addition, if other grade levels are to be surveyed (freshmen and sophomores), responses related to driving may need to be changed depending on the legal driving age of the area where the questionnaire is to be administered.

The literature suggested that geographical location was a reason for different levels of students' participation in the NSLP. A further recommendation is to replicate this study in other geographical areas.

APPENDIX A

SURVEY QUESTIONNAIRE

Department of Hotel, Restaurant, and Institution Management
Iowa State University
National Food Service Management Institute Research Project
Spring 1994

Survey of Students

We need your help in a research study of school food service programs. Your school district has been selected to participate in this study. The purpose of the following survey is to collect opinions from 11th graders about your school lunch program and other lunch options you use. It will take about 10 minutes to complete. No names are needed or requested for this survey. Please place the completed survey in the mailing envelope provided by your teacher.

We hope you will participate, but participation is voluntary. Thank you very much for your help.

Directions: Please **check** or **write in** (where appropriate) your responses.

1. What is your gender?
   ___ Female
   ___ Male

2. What is your age? _____

3. How do you usually get to school?
   ___ Walk
   ___ Ride bike
   ___ Ride bus
   ___ Drive yourself
   ___ A friend drives
   ___ A parent drives

4. On average, how frequently do you purchase single items (not a reimbursible* lunch) at school (e.g., cookies, chips, fruit)?
   ___ Not available
   ___ Never
   ___ 1 time per week
   ___ 2 times per week
   ___ 3 times per week
   ___ 4 times per week
   ___ 5 times per week

5. On average, how frequently do you purchase a reimbursible school lunch?
   ___ Never
   ___ 1 time per week
   ___ 2 times per week
   ___ 3 times per week
   ___ 4 times per week
   ___ 5 times per week

6. Why do you eat reimbursible school lunches? *(You may choose more than one reason.)*
   ___ I like the food
   ___ It is convenient
   ___ It is affordable
   ___ My friends eat school lunches
   ___ I don't have time to go elsewhere
   ___ I am not allowed to go elsewhere
   ___ Other _____

*A reimbursible school lunch is offered for a single price and must include at least three of the following items: meat, bread, vegetable/fruit, milk.

7. When you **don't** purchase a reimbursible school lunch, where do you obtain your lunch? *(You may choose more than one.)*
   ____ I don't eat lunch
   ____ I bring lunch from home
   ____ I buy items from school vending machines
   ____ I buy items from fundraiser or club
   ____ I eat at nearby home
   ____ I eat at nearby restaurant (e.g., Burger King)
   ____ I eat at nearby convenience store (e.g., Quick Trip)
   ____ Other _____

8. Why do you choose **not** to eat reimbursible school lunches? *(You may choose more than one.)*
   ____ I do not like the food
   ____ I don't have time to eat lunch
   ____ It is too expensive
   ____ It takes too long to eat a school lunch
   ____ My friends don't eat school lunches
   ____ I am able to go elsewhere
   ____ My parents don't want me to
   ____ Other _____

9. Have you participated during **high school** in the following activities?

• Planning the lunch menu	____	Yes	____	No
• Preparing the lunch	____	Yes	____	No
• Serving the lunch	____	Yes	____	No
• Washing dishes	____	Yes	____	No

10. Would you be more likely to buy a reimbursible school lunch if you were involved in the following activities?

• Planning the lunch menu	____	Yes	____	No
• Preparing the lunch	____	Yes	____	No
• Serving the lunch	____	Yes	____	No
• Washing dishes	____	Yes	____	No

11. Have you given any suggestions and/or opinions about the school lunches to your food service people this school year?
   ____ Yes
   ____ No

12. What do your parents/guardians say to you about school lunches?
   ____ They frequently make negative comments about school lunches
   ____ They sometimes make negative comments about school lunches
   ____ The don't comment about school lunches
   ____ They sometimes make positive comments about school lunches
   ____ They frequently make positive comments about school lunches

13. What do your teachers say to students about school lunches?
   ____ They frequently make negative comments about school lunches
   ____ They sometimes make negative comments about school lunches
   ____ The don't comment about school lunches
   ____ They sometimes make positive comments about school lunches
   ____ They frequently make positive comments about school lunches

Directions: Please circle how **important** the following issues are to you, where 1 = not important and 5 = very important

		Not important	*Of little importance*	*Undecided*	*Somewhat important*	*Very important*
14.	Cafeteria is bright and cheery	1	2	3	4	5
15.	Seats are comfortable	1	2	3	4	5
16.	Seating arrangement in cafeteria allows students to socialize	1	2	3	4	5
17.	Cafeteria workers are friendly	1	2	3	4	5
18.	Cafeteria workers are courteous	1	2	3	4	5
19.	Cafeteria is clean	1	2	3	4	5
20.	Food lines are short	1	2	3	4	5
21.	Adequate time is given to eat	1	2	3	4	5
22.	Nutritious (healthy) food is available	1	2	3	4	5
23.	Many food choices are available	1	2	3	4	5
24.	Temperature of hot food is hot	1	2	3	4	5
25.	Temperature of cold food is cold	1	2	3	4	5
26.	Food tastes good	1	2	3	4	5
27.	Food looks good	1	2	3	4	5
28.	Price of food is reasonable	1	2	3	4	5
29.	Quality of ingredients is high	1	2	3	4	5
30.	Portion sizes are adequate	1	2	3	4	5
31.	Noise level in cafeteria is comfortable	1	2	3	4	5

(over please)

APPENDIX B

HUMAN SUBJECTS REVIEW COMMITTEE APPROVAL

Information for Review of Research Involving Human Subjects

Iowa State University

(Please type and use the attached instructions for completing this form)

1. Title of Project Assessment of Expectations of School Lunch Programs and Other Lunch Alternatives

2. I agree to provide the proper surveillance of this project to insure that the rights and welfare of the human subjects are protected. I will report any adverse reactions to the committee. Additions to or changes in research procedures after the project has been approved will be submitted to the committee for review. I agree to request renewal of approval for any project continuing more than one year.

Amy D. Brooks	5/21/94	
Typed Name of Principal Investigator	Date	Signature of Principal Investigator
Hotel, Restaurant, and Institution Management	11 MacKay	4-1730
Department	Campus Address	Campus Telephone

3. Signatures of other investigators

	Date	Relationship to Principal Investigator
	3/21/94	Associate Professor
	3/21/94	Associate Professor

4. Principal Investigator(s) (check all that apply)
☐ Faculty ☐ Staff ☒ Graduate Student ☐ Undergraduate Student

5. Project (check all that apply)
☐ Research ☒ Thesis or dissertation ☐ Class project ☐ Independent Study (490, 590, Honors project)

6. Number of subjects (complete all that apply)
X # Adults, non-students ___ # ISU student ___ # minors under 14 ___ other (explain)
X # minors 14 - 17

7. Brief description of proposed research involving human subjects: (See instructions, Item 7. Use an additional page if needed.)

Expectations of high school seniors about their school lunch program and other lunch alternatives will be examined using a questionnaire. Permission from the school principal will be required, followed by parental consent. Only students who have obtained parental consent will participate. Subjects will be males and females probably between the ages of 16-18. Questionnaires will be distributed during the school day, probably in homeroom classes. Incentives will not be offered and no attempts will be made to follow-up. Teachers at the same school will be asked to complete a questionnaire similar to that administered to students. This study is part of a larger project involving food service programs in four school systems of different sizes in Iowa and neighboring states.

(Please do not send research, thesis, or dissertation proposals.)

8. Informed Consent:
☒ Signed informed consent will be obtained. (Attach a copy of your form.) - students
☒ Modified informed consent will be obtained. (See instructions, item 8.) - teachers
☐ Not applicable to this project.

9. Confidentiality of Data: Describe below the methods to[63] used to ensure the confidentiality of data obtained. (See instructions, item 9.)

Attached.

10. What risks or discomfort will be part of the study? Will subjects in the research be placed at risk or incur discomfort? Describe any risks to the subjects and precautions that will be taken to minimize them. (The concept of risk goes beyond physical risk and includes risks to subjects' dignity and self-respect as well as psychological or emotional risk. See instructions, item 10.)

No risk or discomfort is anticipated for the subjects. Subjects will be informed that if they decide not to participate they may withdraw without penalty.

11. CHECK ALL of the following that apply to your research:
- ☐ A. Medical clearance necessary before subjects can participate
- ☐ B. Samples (Blood, tissue, etc.) from subjects
- ☐ C. Administration of substances (foods, drugs, etc.) to subjects
- ☐ D. Physical exercise or conditioning for subjects
- ☐ E. Deception of subjects
- ☐ F. Subjects under 14 years of age and/or ☒ Subjects 14 - 17 years of age
- ☐ G. Subjects in institutions (nursing homes, prisons, etc.)
- ☐ H. Research must be approved by another institution or agency (Attach letters of approval)

If you checked any of the items in 11, please complete the following in the space below (include any attachments):

Items A - D Describe the procedures and note the safety precautions being taken.

Item E Describe how subjects will be deceived; justify the deception; indicate the debriefing procedure, including the timing and information to be presented to subjects.

Item F For subjects under the age of 14, indicate how informed consent from parents or legally authorized representatives as well as from subjects will be obtained.

Items G & H Specify the agency or institution that must approve the project. If subjects in any outside agency or institution are involved, approval must be obtained prior to beginning the research, and the letter of approval should be filed.

Checklist for Attachments and Time Schedule

The following are attached (please check):

12. [x] Letter or written statement to subjects indicating clearly:
    a) purpose of the research
    b) the use of any identifier codes (names, #'s), how they will be used, and when they will be removed (see Item 17)
    c) an estimate of time needed for participation in the research and the place
    d) if applicable, location of the research activity
    e) how you will ensure confidentiality
    f) in a longitudinal study, note when and how you will contact subjects later
    g) participation is voluntary; nonparticipation will not affect evaluations of the subject

13. [x] Consent form (if applicable)

14. [ ] Letter of approval for research from cooperating organizations or institutions (if applicable)

15. [x] Data-gathering instruments

16. Anticipated dates for contact with subjects:

First Contact	Last Contact
April 4, 1994	May 27, 1994
Month / Day / Year	Month / Day / Year

17. If applicable: anticipated date that identifiers will be removed from completed survey instruments and/or audio or visual tapes will be erased:

discarded May 1995
Month / Day / Year

18. Signature of Departmental Executive Officer | Date | Department or Administrative Unit

3/21/94 HRIM

19. Decision of the University Human Subjects Review Committee:

[X] Project Approved ___ Project Not Approved ___ No Action Required

Patricia M. Keith — Name of Committee Chairperson
3-10-95 — Date
Signature of Committee Chairperson

Permission letters and related data are included in the file for M. Brown "Food Quality in School Food Service" approved 5-6-94.

GC:1/90