

**Investigation of Factors Impacting
Participation of High School Students
in the National School Lunch Program**



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National Food Service Management Institute The University of Mississippi

Building the Future Through Child Nutrition

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The purpose of NFSMI is to improve the operation of Child Nutrition Programs through research, education and training, and information dissemination. The Administrative Offices and Divisions of Information Services and Education and Training are located in Oxford. The Division of Applied Research is located at The University of Southern Mississippi in Hattiesburg.

MISSION

The mission of the NFSMI is to provide information and services that promote the continuous improvement of Child Nutrition Programs.

VISION

The vision of the NFSMI is to be the leader in providing education, research, and resources to promote excellence in Child Nutrition Programs.

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INVESTIGATION OF FACTORS IMPACTING PARTICIPATION OF HIGH SCHOOL STUDENTS IN THE NATIONAL SCHOOL LUNCH PROGRAM

EXECUTIVE SUMMARY

Participation in the National School Lunch Program (NSLP) has steadily declined over the years, particularly at the high school level. This is a major concern for school nutrition (SN) professionals because participation is critical to program success, especially for SN programs to be financially solvent. A low participation rate becomes an even greater challenge for school districts that do not have elementary or middle school revenue to offset the loss at the high school level.

The purpose of this research was to identify factors associated with the non-participation of high school students in the NSLP. To accomplish the project goal, the research was conducted in two phases. Qualitative data from Phase I focus groups explored the perceptions and barriers to participation as identified both by high school students and by SN professionals. Responses were transcribed, summarized, and classified into common themes that were the basis for survey development. In Phase II, a three-stage series of pilot tests were conducted to refine and validate the instrument prior to making it available for use by SN directors nationwide.

The focus group discussions with high school students revealed that SN programs have two distinct types of high school customers: those who eat school meals frequently (at least three times a week) and those who eat infrequently (two or less times per week, or about eight times or less per month). Students who eat school lunch frequently have different concerns from students who eat less frequently, if at all. Measuring satisfaction issues addresses the concerns of the first group, while measuring factors that affect non-participation addresses the concerns of the second

group. In addition, high school focus group responses indicated that reasons for non-participation can be categorized into eight themes: “Choices and Variety,” “Taste,” “Appearance,” “Customer Service Environment,” “Quality,” “Nutrition,” “Value,” and “Don’t Want to Eat.”

In contrast, focus groups with SN staff showed that reasons for non-participation can be collapsed into five categories: “Social Influence and Negative Stigma”; “Time Constraints (Not Enough Time to Eat After Being Served)”; “Overcrowding in the Dining Area”; “Perceived Poor Quality and Healthfulness of Menu Items”; and “Open-Campus/Open Option Policy.” There was general consensus that addressing participation issues on the high school level is more challenging than it is for the elementary and/or middle schools. This is particularly difficult for high schools with open campuses. Several SN professionals indicated the importance of addressing student needs from a commercial foodservice perspective because that is what the students expect. A majority of focus group participants agreed that seeking feedback from students is a critical and proactive effort towards increasing participation.

Findings from these focus groups provided the foundation for developing a needs assessment survey that explored the reasons why non-participants chose not to eat school lunch. Across the three-stage pilot test, a total of 1,636 surveys were sent to SN directors, 944 (58%) of which were completed and returned from 16 districts (25 high schools) representing the seven regions of the United States Department of Agriculture (USDA). School districts participating in the survey pilot tests were chosen for their variation in demographics (free and reduced price percentage, district size, ethnic diversity, and geographic location) and the capability to generate non-participants reports which identified the students who ate school lunches two or less times per week (eight or less times per month). Exploratory and confirmatory factor analyses were

used to statistically condense the survey and collapse responses into meaningful categories reflecting factors affecting non-participation.

Factor analyses showed that low participation can be attributed to six key issues, some of which are external to the SN program. Operationally controllable issues arise mainly from food quality, staff, and access to food. Issues beyond the SN director's immediate control include dining area capacity, food from home, and schoolwork. Among these factors, students stated that they would be most likely to participate if they saw improvements in the following attributes: overall quality of the food, variety of menu items from day to day, and time spent waiting in line. Based on statistical analyses and feedback from participating SN directors, the survey instrument was finalized after three rounds of pilot tests.

The validated questionnaire is composed of three parts. Section One of the survey provides specific reasons why students do not participate in the NSLP. Students are instructed to use the phrase "My reason for not eating school lunches is that..." before each of 27 statements about SN program attributes, and then indicate their level of agreement with each statement by using a 5-point scale, ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). In Section Two, students are asked to use the phrase, "I would be more likely to eat school lunches if..." before each of 13 statements, and then rate their level of agreement by using the scale 5 (*strongly agree*) to 1 (*strongly disagree*). This section provides the SN director a quick snapshot of key factors that will influence the student's decision to start eating school lunches more frequently. Section Three includes questions on grade level and gender to provide the SN director demographic information to further understand trends within the subgroups of students. A question on frequency of participation per week ensures that the student is appropriate for the sample.

The survey developed in this study specifically targets students who eat in the school cafeteria two or less times a week, thus results will be useful in helping SN professionals identify the specific issues that can be improved to increase participation. Use of the survey can assist SN directors, managers, and staff in establishing internal benchmarks for the SN. Valid and reliable data guides decision making and empowers the SN director and staff to address customer service issues in the effort to increase participation. Although planning and administering the survey may take considerable time, effort, and coordination, results provide a launching point for creating improvement plans that will focus on key factors that can influence the student's decision to start eating school meals more frequently.

INTRODUCTION

Since its inception in 1946, the federally subsidized National School Lunch Program (NSLP) has provided nutritionally balanced meals for the nation's school-aged children. In 2006 alone, over 28 million lunches were served to students across the nation's elementary and secondary schools through the NSLP (Ralston, Newman, Clauson, Guthrie, & Buzby, 2008). Although the program is available in nearly 101,000 elementary and secondary schools, as well as residential child care institutions, only an average of 29.5% of school-aged children participate (School Nutrition Association, 2006).

Student participation is critical, especially when foodservice programs are expected to break even financially. Over the years, participation on the high school level has consistently been lower than elementary and middle school programs, and has continued to decline over the years (Fogleman, Dutcher, McProud, Nelken, & Lins, 1992; Gilmore, Hutchinson, & Brown, 2000). This ongoing trend is a challenge, particularly for school districts that do not have elementary or middle school revenue to offset the loss at the high school level. A comprehensive review by Morcos and Spears (1992) categorized factors that affect participation into five broad categories of cost, availability of lunch options, meal acceptability, demographics, and school characteristics. Similarly, Smith (1992) summarized previous literature and concluded that factors affecting participation can be reduced to three categories, namely program attributes, student attributes, and community attributes.

A review of more current literature showed that the continuing decrease in high school participation has been attributed mainly to several key issues, some of which are beyond the school nutrition (SN) director's control. Program attributes that are operationally controllable issues arise mainly from food quality which includes taste, appearance, freshness, serving

temperature, and perceived healthfulness (Fogleman, et al., 1992; Hutchinson, Brown, & Gilmore, 1998; Marples & Spillman, 1995). Other operationally controllable issues include time waiting in line, portion sizes, customer service and dining environment, and perceived lack of variety (Fogleman, et al., 1992; Hutchinson, et al., 1998; Marples & Spillman, 1995).

Issues external to the SN program include attributes such as scheduling and length of meal period, condition and seating capacity of facilities, open or closed campuses, competitive foods, and meal price (Burghardt, Gordon, Chapman, Gleason, & Fraker, 1993; Gilmore, et al., 2000; Gleason, 1995; Griffith, Sackin, & Bierbauer, 2001; Marples & Spillman, 1995; Martin, 2008). School location and proximity to commercial food sources is especially influential for high schools with open campuses (Gilmore, et al., 2000; Gleason, 1995). In order to compete with local retail foodservice operations, SN directors must strive to deliver high quality service and nutritious foods that are attractive to the student population while also meeting program regulations required by the federal government. In addition, negative social perceptions of the program (e.g., “the school lunch is only for poor kids”) and peer influence (e.g., “my friends don’t eat school lunch, so I don’t, either”) are also beyond the SN director’s control (Fogleman, et al., 1992; Martin, 2008; Snyder, Lytle, Pellegrino, Anderson, & Selk, 1995).

Research Objectives

Little research has been done in recent years to explore why students do not eat school meals frequently, if at all. Factors previously cited need to be reassessed because the characteristics and needs of the high school market have changed over the past decade. The purpose of this project was to identify issues associated with the participation of high school students in the NSLP. The specific objectives of this project included the following:

- Develop and validate a high school student survey to assess the reasons why high school students choose not to eat in the school lunch program at their high school;
- Identify factors that can influence the student's decision to start eating school meals more frequently; and
- Make the survey available on the NFMSI Web site for use by SN directors nationwide.

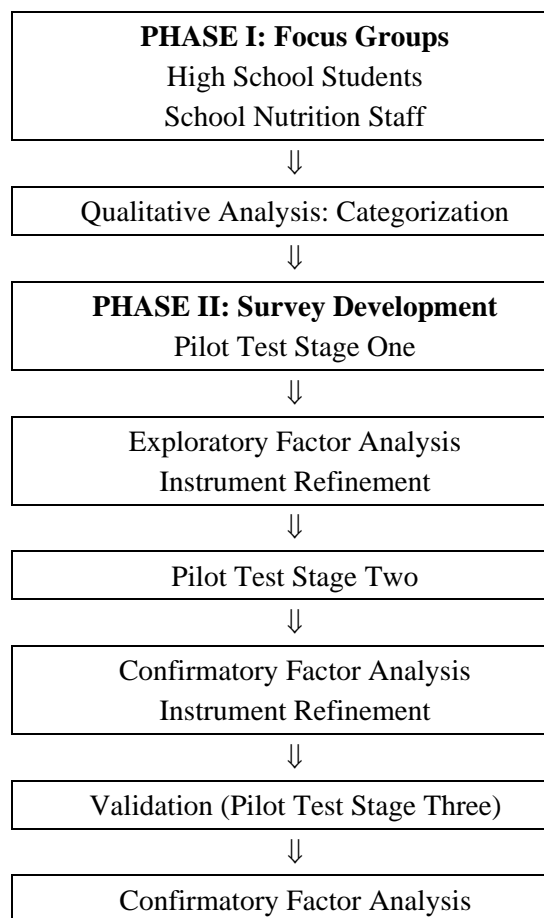
METHOD

Research Design

The purpose of this research was to identify issues associated with the participation of high school students in the National School Lunch Program (NSLP). To accomplish the project goal, the research was conducted in two phases (Figure 1).

Figure 1

Research Design Flowchart



Qualitative data from Phase I focus groups explored the perceptions and barriers to participation as identified both by high school students and by school nutrition (SN) professionals. Responses were transcribed, summarized, and classified into common themes that

were the basis for survey development. In Phase II, a series of pilot tests were conducted to refine and validate the instrument prior to making it available for use by SN directors nationwide.

Phase I: Focus Groups

For Phase I of this project, eight focus groups were conducted to explore high school students' perceptions of school meals and barriers to their participation. Two focus groups of six to eleven participants were completed in each of four school districts located in four geographic regions as defined by the United States Department of Agriculture (USDA). Each pair of focus group sessions included one group of high school students and one group of SN professionals. The initial two groups were pilot sessions designed to evaluate focus group protocol and questions.

E-mail invitations were sent to SN directors from four school districts in four different USDA regions to determine if they were willing to host a high school student focus group and participate in the SN professionals' focus group. The invitation described the objectives of the study and the SN director's role and contribution for coordinating the focus groups. Follow-up phone calls were conducted to answer any questions and/or concerns of the SN director, as well as clarify the procedure required for obtaining permission from the school district to recruit high school students to participate in the focus groups. A confirmation letter was sent to the SN directors who agreed to coordinate the focus groups in their school districts.

Participating SN directors were asked to recruit high school students to participate in the focus group, and to provide names of eight to ten SN professionals from their district, as well as adjacent school districts whom they believed might be interested in participating in the SN professionals' focus group. The researchers contacted each SN professional to provide an

overview of the project, and to invite him/her to participate in the focus group discussion. A participant assent statement was read on-site prior to beginning the focus group arranged by the SN director. Participation signified consent.

A passive parental consent template was provided for SN directors to use if district protocol required it. Parents were provided an overview of the project and the rights of their child as a participant of the focus group. Parents were also informed that their child may refuse to participate even if they have granted their permission. A student assent statement was also read on-site prior to beginning the high school student focus group arranged by the SN director. Students were assured of the confidentiality of their responses and their rights as participants of the focus group.

The discussions lasted approximately 90 minutes, and included semi-structured, open-ended questions on issues previously identified as impacting participation. For focus groups with high school students, the questions centered around the following: why they chose to eat or not eat school meals; definitions of quality, value, healthy meals, and choice; attributes that they liked or did not like about school lunches; and other expectations and/or concerns they have about school lunches. Questions for SN professionals focused on their role in providing a satisfactory lunch experience for the students, reasons why high school students choose not to eat school lunches, and their efforts to address issues with participation on the high school level.

The discussion sessions were held at an accessible, neutral site, accommodating the participants with convenient access. Focus groups were audio recorded and the sessions were transcribed by the researchers. Following transcription of the sessions, researchers reviewed the transcripts and collapsed responses into eight meaningful categories. The identified themes were

used in the development of a high school student survey to assess the factors impacting non-participation in the NSLP.

Phase II: Survey Development

Researchers used the eight themes from the Phase I focus group discussions to develop statements for a draft survey designed to understand why high school students choose not to eat school meals in their high school. The questionnaire, *Understanding Why High School Students Do Not Eat School Meals*, consisted of three sections. In Section One, students were asked to use the phrase “My reason for not eating school meals is that...” before each of 68 statements, and then to indicate their level of agreement with each statement as to why they do not eat (or do not frequently eat) school meals. Agreement was rated on a 5-point scale, ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). The purpose of the survey was to discover why high school students chose not to eat school meals, thus the majority of survey items were written in the negative to make it easier for students to respond intuitively.

Section Two asked students to use the phrase “I would be more likely to eat school meals if...” before each of 21 statements, and then indicate to what extent each statement would influence their decision to eat school meals. They responded by use of a 5-point scale, ranging from 5 (*absolutely yes*) to 1 (*absolutely no*). In Section Three, students rated the importance of eight statements as to why they do not eat school meals. Importance was rated on a 5-point scale, ranging from 5 (*very important*) to 1 (*not important*).

Three-Stage Pilot Test and Survey Distribution

After instrument development, the draft questionnaire was formatted into a scannable survey to be administered in a three-stage pilot test. The series of pilot tests had five primary objectives:

1. To statistically reduce the number of statements;
2. To evaluate the appropriateness of language and scales used;
3. To test ease of survey administration by the SN directors (or their authorized representative);
4. To estimate usable response rates; and
5. To refine survey instructions, student assent statement, and parental consent form based on SN director's input.

Stage One (Pre-test)

This stage was designed primarily to test survey protocol and student comprehension of the instrument. Two districts that participated in the focus groups agreed to serve as the first pilot test sites. To test survey protocol, two approaches were used. For one district, the researcher delivered and administered the survey on-site with the assistance of the nutrition services manager. The researcher observed the time it took for students to complete the survey, comprehension of the student assent statements, and the students' general acceptance of the survey process. For the second district, the researcher delivered the surveys to the district and trained the foodservice supervisors on the procedure for administering the survey. In both cases, a student assent statement was read to the students prior to answering the survey. The students were told that their participation was voluntary and that they may withdraw participation at any time. It was also emphasized that there are no wrong or right answers for the survey questions, but that it was important for them to provide feedback to the SN program.

Once the students submitted the completed surveys, they were provided with a *Survey Statement Feedback Form*, which contained open-ended questions designed to assess the appropriateness of the scales used, clarity of each survey item, and identify gaps in the survey.

Each district administered the survey in two high schools. The researchers used the summary of the *Survey Statement Feedback Form* responses and results of exploratory factor analysis to revise the survey in preparation for Stage Two.

Stage Two (Pilot Test)

Results of Stage One indicated the importance of being able to identify students who ate school lunch two or less times a week (about eight or less times a month). Prior to inviting districts to participate, a number of point-of-sale (POS) providers were consulted regarding the capability of SN directors to generate a non-participants list using the SN program's POS system. Most providers confirmed that reports such as these could easily be accessible to SN directors. The POS providers were then requested to provide contact information for SN directors using their products.

Of the 73 SN programs, one director from each of the seven USDA districts was invited by e-mail to participate in the development and validation of the survey. The invitation described the objectives of the study and an overview of the survey process. Follow-up phone calls were conducted to provide an overview of the project and the role that the director plays in coordinating the survey administration. Any questions and/or concerns of the SN director regarding the process were also addressed at this time. A confirmation e-mail was sent to five SN directors who agreed to make arrangements for administering the survey in their school districts. The e-mail also included suggestions for selecting students for the pilot test and other information for conducting the survey. Attached to the e-mail was a template of a passive parental consent form that SN directors could modify if this was required in their district.

The researchers administered the revised survey on-site at a local school district to observe the survey process. Following revisions based on the on-site administration, survey

packets containing the requested number of scannable surveys (at least 50 per high school), instructions for survey administration, a student assent statement, a high school profile form, and a self-addressed, postage-paid return envelope were mailed to the participating SN directors. The instructions outlined the steps to be taken for coordinating the survey process. The student assent statement informed the students of the purpose of the study, asked for their participation, and assured them of the confidentiality of their responses. The statement was to be read prior to survey completion. The high school profile form asked the director to supply demographic information about the SN program (e.g., student enrollment, average daily attendance, average daily participation). No identifying codes were placed on the questionnaires, thus preserving the anonymity of all respondents.

The SN director was then asked to randomly select 30 to 50 students who ate school lunches two or less times per week (about eight or less times per month) to complete the surveys. The process for choosing and inviting students to participate varied per district depending on the approach taken by the SN director and district/school administrators. After approximately two weeks, a follow-up e-mail was sent to all SN directors thanking them for their participation, and reminding them to complete and return the surveys. The survey was administered in six high schools. Results of factor analyses and reliability diagnostics were used to revise the survey in preparation for Stage Three.

Stage Three (Validation)

After survey revision, e-mail invitations were sent to 60 SN directors to solicit their participation in the final stage of survey validation. Those who indicated interest in the survey were contacted by telephone to address questions and/or concerns regarding the survey process. A confirmation letter similar to Stage Two was sent to 13 SN directors who agreed to make

arrangements for administering the survey in their school districts. Following the e-mail, the survey packets were sent to the SN directors. The rest of the process followed the Stage Two survey protocol. The survey was administered in nine districts (15 high schools). Results of confirmatory factor analysis and reliability diagnostics were used to finalize the survey.

Data Analysis

Statistical procedures were performed using SPSS Version 15.0 for Windows and Amos Version 7.0 for Windows. Descriptive statistics were used to summarize frequencies, means, and standard deviations for all variables and resulting factors. Using SPSS version 15.0, exploratory factor analyses (EFA) with varimax rotation were performed using data from Section One (Pilot Test Stages One and Two) to establish the factor structure for reasons why high school students do not eat school lunches. Factors with eigenvalue of 1.0 and above were retained for further analysis. All indicators with loadings of .40 and below were eliminated. Cronbach's Coefficient Alpha (α) was calculated to test reliability of the scale and each extracted factor. Confirmatory factor analysis using Amos Version 7.0 was performed for Stage Three data to assess the seven-factor structure that resulted from EFA. Indicators with factor loadings less than .40 and factors with reliability less than .70 were eliminated from the final scale (Nunnally, 1978).

Sample

School districts participating in the focus groups and survey pilot tests were chosen for their variation in demographics in relation to free and reduced price percentages (high or low), district sizes (small, medium, large), ethnic diversity, location (rural, suburban, urban), and USDA region (Western, Mountain Plains, Midwest, Northeast, Mid-Atlantic, Southeast, and Southwest). Additionally, school districts chosen for the survey pilot tests were required to have the capability to generate non-participants reports which identify the students who eat school

lunches infrequently or two or less times per week (eight or less times per month). In every round, the SN director in each school district identified the students who met the study criteria and selected a random sample of 30 to 50 students per high school. SN directors (or their authorized representative) administered the pilot survey to the students in each high school. A total of 16 districts (25 high schools) participated across the three rounds of pilot tests.

Informed Consent

The researchers followed informed consent procedures established by the Human Subjects Protection Review Committee at The University of Southern Mississippi for Phases I and II of the research study.

RESULTS AND DISCUSSION

Phase I: Focus Groups

Characteristics of Participating School Nutrition Programs

School nutrition (SN) directors provided profiles of their district high schools and school meal programs. The number of high schools per district ranged from 1 to over 30. High school enrollment varied from approximately 500 to almost 3000 students. Two districts reported closed campuses during lunch, and the other two were either open or had open options for students. The percentage of high school students approved for free and reduced meals ranged from less than 5% to almost 80%.

Focus Groups with High School Students

The focus group discussions with the high school students revealed that SN programs have two distinct types of high school customers: those who eat school meals frequently and those who do not. Students who eat school lunch frequently (three or more times per week) have different concerns from those students who eat less frequently, if at all. Measuring satisfaction issues addresses the concerns of the first group, while measuring factors that affect participation addresses the concerns of the second group. Findings from these focus groups provided the foundation for developing a needs assessment survey that explores the reasons why non-participants choose not to eat school lunch. For the purpose of this research, results will be focused on the non-participation issue.

In summary, focus group responses indicated that reasons for non-participation can be categorized into eight themes: “Choices and Variety,” “Taste,” “Appearance,” “Customer Service Environment,” “Quality,” “Nutrition,” “Value,” and “Don’t Want to Eat.”

Focus Groups with School Nutrition Staff

The focus group discussions with the SN staff showed that reasons for non-participation can be collapsed into five categories: “Social Influence and Negative Stigma,” “Time Constraints (Not Enough Time to Eat After Being Served),” “Overcrowding in the Dining Area,” “Perceived Poor Quality and Healthfulness of Menu Items,” and “Open-Campus/Open Option Policy.”

Unlike the students, SN staff did not consider lack of choice as a reason for non-participation. Focus group discussions made it evident that the definition of choice was different between students and staff. Staff members considered having multiple menu items per day as choice. For students, however, even if there were multiple menu items, if the items were the same everyday, then this was not considered choice or variety.

There was general consensus that addressing participation issues on the high school level is more challenging than it is for the elementary and/or middle schools. This is particularly difficult for high schools with open campuses. Several SN professionals indicated the need to address student needs from a commercial foodservice perspective because that is what the students expect. A majority of focus group participants agreed that seeking feedback from students is a critical and proactive effort toward increasing participation.

Phase II: Survey Development

Across the three-stage pilot test, a total of 1,636 surveys were sent to SN directors, 944 (58%) of which were completed and returned. Respondents with substantive missing data and poor quality responses (i.e. those who answered neutral or either extreme for all items) were removed prior to analysis. In addition, tests for multivariate and univariate outliers and violations of assumptions for factor analyses were performed using SPSS version 15.0 for Windows, resulting in 854 (52%) usable surveys retained for analyses.

Characteristics of Participating School Nutrition Programs

Sixteen districts (25 high schools) participated across the three stages of survey administration. Based on program profiles provided by participating SN directors, on average, the enrollment at the participating high schools was 1,345, ranging from 371 to 2,334 students. Table 1 shows a summary of SN program demographics across the pilot test.

Table 1

Program Demographics of Participating High Schools (Stages One-Three)

Demographics	Range	
	Min	Max
Enrollment	371	2,334
Average Daily Attendance (ADA)	81%	97%
Average Daily Participation (ADP)	6%	94%
Percent of Students Eligible		
Free	16%	66%
Reduced	4%	28%
ADP Per Benefit Category		
Free	16%	89%
Reduced	4%	64%
Paid	<1%	79%
Lunch Price	free	\$2.20

A majority of high schools (68%) reported having closed campuses and eight (32%) either had open campuses or open options for students. Average daily participation (ADP) for closed campuses averaged 49%, while open campuses averaged 41%. The percentage of high school students approved for free and reduced priced meals ranged from 21% to 78%, with a mean of 48%.

Stage One: Pre-Test Survey

A total of 136 questionnaires were completed by students from four high schools in two school districts. All responses were retained and used for descriptive and exploratory factor analyses (EFA) using SPSS. Descriptive statistics were calculated for all survey items.

In Section One, students were provided 68 reasons for not eating school lunches and were asked to indicate their level of agreement with each statement using a scale of 5 (*strongly agree*) to 1 (*strongly disagree*). EFA with varimax rotation was performed to determine if responses could be statistically grouped into a smaller number of categories. Results showed that the reasons why the students do not choose to eat school meals can be explained by 39 items ($\alpha=.90$; $R^2=.65$) grouped into eight categories: "Food Quality" ($\alpha=.91$; $R^2=.12$), "Staff and Cleanliness" ($\alpha=.86$; $R^2=.10$), "Cafeteria" ($\alpha=.82$; $R^2=.08$), "Food from Home" ($\alpha=.81$; $R^2=.08$), "Food Recognition" ($\alpha=.85$; $R^2=.07$), "Serving Portions" ($\alpha=.85$; $R^2=.07$), "Schoolwork" ($\alpha=.67$; $R^2=.07$), and "Just not Hungry" ($\alpha=.72$; $R^2=.06$).

Of the 39 items, the top ten reasons why students do not participate were food quality issues related to appearance, taste, and lack of choice/variety. This finding was strongly supported by results seen in Sections Two and Three. In Section Two, students were given 21 statements preceded by "I would be more likely to eat school meals if..." and were asked to indicate their level of agreement with each statement using a scale of 5 (*absolutely yes*) to

1 (*absolutely no*). Descriptive analyses indicated that students would be more likely to eat school lunch if the food tasted good ($M=4.18$, $SD=1.28$), if the choices were what the students wanted ($M=4.14$, $SD=1.33$), if the food quality were good ($M=4.09$, $SD=1.29$), if there were more variety ($M=4.09$, $SD=1.35$), and if the food appeared fresh ($M=4.08$, $SD=1.32$). Similarly, students indicated in Section Three that on a scale from 5 (*very important*) to 1 (*not important*), taste ($M=4.17$, $SD=1.18$), value ($M=3.98$, $SD=1.34$), and overall food quality ($M=3.91$, $SD=1.36$) were most important in influencing their decision not to participate.

In preparation for Stage Two, Section One was reduced from 68 items to 39 statements. Due to lack of variability, scale anchors for Section Two were modified from an Absolutely Yes/Absolutely No scale to a five-point Strongly Agree/Strongly Disagree scale. Section Two was collapsed from 21 items to 13 items, which were modified to reflect program factors extracted from Section One. Section Three of the initial survey was eliminated due to multicollinearity issues and lack of scale reliability.

Stage Two: Pilot Survey

A total of 197 (61% return rate) questionnaires from six high schools (five districts) were completed with a usable response rate of 140 (43%). Survey responses were analyzed using Amos Version 7.0 and SPSS Version 15.0 for Windows. Descriptive statistics were calculated for all survey items.

Confirmatory factor analysis (CFA) using Amos was performed on Section One responses to test the eight-factor structure established in Stage One. Because the model fit was unsatisfactory and structure was not confirmed, a secondary EFA using SPSS was performed. Although a considerable number of statements grouped together similar to Stage One, the structure of other factors shifted. Results showed that the reasons why the students did not

choose to eat school meals can be explained by 32 items ($\alpha=.90$; $R^2=.73$) grouped into seven categories: “Food Quality” ($\alpha=.92$; $R^2=.20$), “Food Access” ($\alpha=.77$; $R^2=.13$), “Other Personal Reasons” ($\alpha=.60$; $R^2=.11$), “Food from Home” ($\alpha=.89$; $R^2=.10$), “Staff and Cleanliness” ($\alpha=.79$; $R^2=.07$), “Cafeteria” ($\alpha=.78$; $R^2=.06$), and “Schoolwork” ($\alpha=.82$; $R^2=.06$).

Similar to Stage One results, students indicated that lack of choice/variety and the unappealing and unhealthy appearance of the food are primary reasons why they chose not to eat school lunch. In addition, results indicated that they would be more likely to eat school lunch if the wait in line were shorter ($M=4.15$, $SD=1.21$), if the overall food quality were better ($M=4.11$, $SD=1.14$), and if there were more variety in the menu from day to day ($M=3.94$, $SD=1.18$).

Factor analysis and correlation diagnostics reduced Section One from 39 items to 32 items, while Section Two was not modified. To avoid confusion, the anchor statement for Section One was slightly modified from “My reason for not eating school meals is that...” to “My reason for not eating school lunches is that...”, delineating reasons for not eating school lunch versus reasons for not eating school breakfast. Instructions, statement verbiage, and rating scales were not changed between Stage Two and Stage Three. A demographics section (grade level and gender) was added in response to SN director feedback that this information will be helpful in analyzing data and addressing issues for the different market segments in their high schools. This section will also help in ensuring that the sample is balanced and representative of the population of students who eat infrequently.

Stage Three: Validation Survey

A total of 1,175 questionnaires were distributed to 13 SN directors, nine of whom returned a total of 611 (52%) completed surveys from 15 high schools. Data screening resulted in

a final usable sample of 578 (49%), the majority of whom were female (57%). The sample was dispersed among 9th graders (22%), 10th graders (24%), 11th graders (27%), and 12th graders (23%). Twenty-two (4%) of respondents did not indicate gender or grade in school.

CFA was used to verify the seven-factor structure of Section One, “My reason for not eating school lunches”. Initial results suggested that this structure was not the optimum solution ($\chi^2(467, N=578)=2349.44$, $RMSEA=.08$). Factor loadings were screened for indicators that failed to load at .40, consequently eliminating these from analyses. The seventh factor (other personal reasons) had a Cronbach’s alpha value of .05, which fell short of the .07 criterion for reliability. This factor was also eliminated from further analysis. The resulting six-factor scale showed an improvement in the fit indices, and a chi-square difference test suggested that the modified scale was a better fit to the data ($\chi^2(320, N=578)=1223.35$, $RMSEA=.07$; $\alpha=.91$). All factor loadings, ranging from .45 to .83, were significant at .001 indicating convergent validity (Anderson & Gerbing, 1988). Table 2 provides the factor means and standard deviations in descending order, as well as reliability coefficients for each factor extracted. Higher factor averages indicate the greater challenge or area of improvement for the SN program. Also presented under each factor is a list of the statements in each category arranged from highest to lowest standardized factor loading.

The six extracted factors were “Food Quality” ($\alpha=.90$), “Food Access” ($\alpha=.71$), “Dining Area Capacity” ($\alpha=.81$), “Food from Home” ($\alpha=.80$), “Staff” ($\alpha=.79$), and “Schoolwork” ($\alpha=.75$). The foremost factor influencing participation is “Food Quality” ($M=3.53$, $SD=0.92$), which addressed the tangible characteristics of the food (e.g., appearance, taste, aroma), food choices, and overall quality. SN directors must strive to deliver nutritious, high quality foods that are attractive to the student population, while also meeting program regulations required by the

federal government. Not far behind is “Food Access” ($M=3.12$, $SD=0.98$), which referred to the appropriateness of serving portions and the availability of food throughout the serving period. As SN professionals identified during the focus groups, the factor “Dining Area Capacity” ($M=3.10$, $SD=1.35$) or the available dining space and seating also affected the students’ decision to eat school lunch. The factor, “Food from Home” ($M=2.87$, $SD=1.32$), showed that some students prefer not to eat school lunches because they (or their parents) prefer that they bring their own lunch. “Staff” ($M=2.80$, $SD=1.09$) included the interaction and behavior of the staff towards the students. Interestingly, students attribute the cleanliness of the dining area to staff rather than considering it a general characteristic of the dining space. “Schoolwork” ($M=2.50$, $SD=1.23$), although not a strong predictor, indicated that academic responsibilities for some students took precedence over choosing to eat lunch in the cafeteria.

An analysis of variance for factor means between grade levels showed that a significant difference was observed only for dining room capacity ($F[3, 555]=3.11$, $p<.05$), where 9th graders ($M=3.34$, $SD=1.32$) were more likely to agree than 11th graders ($M=2.98$, $SD=1.34$) and 12th graders ($M=2.96$, $SD=1.30$) that the dining area capacity was inadequate. Additional analyses showed that males are more likely to respond that they do not get enough food ($t[554]=2.88$, $p<.05$), while females are more likely to agree that they do not like what is served ($t[554]=3.99$, $p<.001$), the food choices do not change ($t[554]=2.548$, $p<.05$), and that they prefer to bring food from home ($t[554]=2.10$, $p<.05$). Females are also more likely to respond that food does not taste good ($t[554]=2.41$, $p<.05$) and that food does not look healthy ($t[554]=2.70$, $p<.05$), nutritious ($t[554]=1.99$, $p<.05$), or appealing ($t[554]=3.86$, $p<.001$).

Table 2

Factor Structure, Reliability, Standardized Factor Loadings, Means, and Standard Deviations of Reasons Why High School Students Do Not Eat School Lunch (N=578)

Factor Structure (Reliability)	Standardized Loading^a	Mean^b ± SD
Factor 1: Food Quality ($\alpha=.90$)		3.53 ± 0.92
The food does not appear fresh	.76	3.80 ± 1.18
The overall food quality is poor	.74	3.68 ± 1.31
The food does not look appealing	.74	3.94 ± 1.22
The food does not look healthy	.73	3.67 ± 1.26
The food is not cooked correctly	.72	3.34 ± 1.33
I do not like what is served	.63	3.93 ± 1.13
I can not recognize what the food is	.62	2.97 ± 1.43
The food does not appear nutritious	.62	3.48 ± 1.30
The food does not taste good	.62	3.79 ± 1.18
The food choices do not change	.55	3.68 ± 1.26
The choices offered are not those on the menu	.49	2.72 ± 1.32
Factor 2: Food Access ($\alpha=.71$)		3.12 ± 0.98
They run out of food	.75	3.13 ± 1.43
The food I like is gone before I get to the cafeteria	.65	2.90 ± 1.46
I do not get enough food	.60	3.16 ± 1.48
I have to go to different lines to get the food I want	.45	2.78 ± 1.48
The amount of food is inadequate	.45	3.64 ± 1.28

^aAll factor loadings were significant at .001

^bScales (Max/Min): 5 = *strongly agree*/1 = *strongly disagree*

Note: χ^2 (320, N=578)=1223.35; GFI=.86; TLI=.84; RMSEA=.07; $\alpha=.91$

(Table 2 continues)

(Table 2 continued)

Factor Structure, Reliability, Standardized Factor Loadings, Means, and Standard Deviations of Reasons Why High School Students Do Not Eat School Lunch (N=578)

Factor Structure (Reliability)	Standardized Loading^a	Mean^b ± SD
Factor 3: Dining Area Capacity ($\alpha=.81$)		3.10 ± 1.35
There are not enough places to sit	.83	3.07 ± 1.47
There is not enough space in the dining room	.82	3.15 ± 1.46
Factor 4: Food from Home ($\alpha=.80$)		2.87 ± 1.32
I bring my own food	.83	2.61 ± 1.59
My parents purchase food for me to take to school	.79	2.51 ± 1.51
I prefer to eat what I bring from home	.65	3.48 ± 1.53
Factor 5: Staff ($\alpha=.79$)		2.80 ± 1.09
The staff is not always pleasant	.78	2.77 ± 1.37
The cafeteria appears unclean	.69	2.94 ± 1.42
The staff is not friendly	.68	2.56 ± 1.36
The staff does not speak to me	.65	2.96 ± 1.41
Factor 6: Schoolwork ($\alpha=.75$)		2.50 ± 1.23
I'm busy with school projects	.81	2.38 ± 1.31
I need time to catch up on school work	.74	2.62 ± 1.41

^aAll factor loadings were significant at .001

^bScales (Max/Min): 5 = *strongly agree*/1 = *strongly disagree*

Note: χ^2 (320, N=578)=1223.35; GFI=.86; TLI=.84; RMSEA=.07; $\alpha=.91$

Table 3 shows that similar to Stage One and Two, students were more likely to start eating school lunches more frequently if the overall food quality were better ($M=4.29$, $SD=1.09$), if there were more variety in the menu from day to day ($M=4.12$, $SD=1.20$), and if the wait in line were shorter. ($M=3.96$, $SD=1.28$). Additional analyses showed that female and male students

were very similar in their evaluations except for increased variety ($t[552]=3.31, p<.001$), increase in healthy options ($t[547]=2.87, p<.05$), shorter lines ($t[545]=2.43, p<.05$), and more menu items that they can recognize ($t[546]=3.69, p<.001$). Females were more likely than their male counterparts to eat school lunches if these improvements were made.

Table 3

Means and Standard Deviations for Attributes that Influence High School Students' Decision to Participate in the National School Lunch Program More Frequently (N=578)

I would be more likely to eat school lunches if...	M \pm SD ^a		
	Combined	Female	Male
The overall quality (taste, appearance, temperature) of the food served were better	4.29 \pm 1.09	4.35 \pm 1.06	4.22 \pm 1.13
There were more variety in the menu from day to day	4.12 \pm 1.20	4.26 \pm 1.15	3.92 \pm 1.30
The wait in line were shorter	3.96 \pm 1.28	4.08 \pm 1.24	3.81 \pm 1.35
I received enough food to fill me up	3.92 \pm 1.35	3.96 \pm 1.33	3.88 \pm 1.38
They served more menu items that I can recognize	3.91 \pm 1.26	4.07 \pm 1.17	3.68 \pm 1.34
Menu items did not run out before the meal period was over	3.83 \pm 1.29	3.90 \pm 1.30	3.75 \pm 1.28
There were more healthy options available	3.70 \pm 1.31	3.83 \pm 1.28	3.50 \pm 1.34
I knew what was going to be on the menu before I got to the cafeteria	3.68 \pm 1.36	3.78 \pm 1.34	3.56 \pm 1.40
The serving and dining areas were cleaner	3.56 \pm 1.34	3.64 \pm 1.34	3.44 \pm 1.34
The posted/announced menus were more accurate	3.50 \pm 1.36	3.56 \pm 1.37	3.40 \pm 1.34
There were more seating space in the dining area	3.47 \pm 1.38	3.49 \pm 1.40	3.46 \pm 1.36
I were allowed to sit with my friends during the meal period	3.46 \pm 1.49	3.43 \pm 1.55	3.52 \pm 1.40
The staff were friendlier	3.28 \pm 1.39	3.29 \pm 1.42	3.24 \pm 1.37

^aScales (Max/Min): 5 = *strongly agree*/1 = *strongly disagree*

Description of Validated Survey Questionnaire

The validated questionnaire is composed of three parts. Section One of the survey provides specific reasons why students do not participate in the NSLP. Students are instructed to use the phrase “My reason for not eating school lunches is that...” before each of 27 statements about SN program attributes and indicate their level of agreement with each statement by using a 5-point scale, ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). In Section Two, students are asked to use the phrase, “I would be more likely to eat school lunches if...” before each of 13 statements, rating their level of agreement by using the scale 5 (*strongly agree*) to 1 (*strongly disagree*). This section provides the SN director a quick snapshot of key factors that will influence the student’s decision to start eating school lunches more frequently. Section Three includes questions on grade level and gender to provide the SN director demographic information to further understand trends within the subgroups of students. As requested by SN directors, a question on frequency of participation per week was added to ensure that the student is appropriate for the sample. Several SN directors suggested that individual programs may choose to include a section for student comments.

CONCLUSIONS AND RECOMMENDATIONS

Research Study Conclusions and Applications

Declining participation in the National School Lunch Program (NSLP) by high school students not only negatively impacts the bottom line, it also shows that the program is not achieving its goal of providing nutritionally balanced meals for all of the nation's school-aged children. It is important for school nutrition (SN) directors and other SN professionals to understand the factors that drive this declining participation trend. Doing so will help in developing strategies to encourage students to avail of the nutritional service that is readily accessible to them.

Focus groups with high school students showed that students who eat school lunch frequently have different concerns from students who eat two or less times a week. Measuring satisfaction focuses on the concerns of the first group, while measuring factors that affect participation addresses the concerns of the second group. To understand the reasons behind low participation, directors must first be able to identify students who eat school lunch infrequently. The validity and usefulness of research findings greatly rely on the importance of sampling these high school students. If participation is to be improved, there is a need to examine what SN directors can do to address the concerns of these non-participating students.

Results of the survey and factor analyses showed that low participation can be attributed to six key issues, some of which are external to the SN program and staff. Operationally controllable issues arise mainly from food quality, access to food, and to a lesser degree, staff. Issues external to the SN program include dining area capacity, food from home, and schoolwork. Among these factors, students stated that they would be most likely to participate if

they saw improvements in the following attributes: overall quality of the food, variety of menu items from day to day, and time spent waiting in line.

Valid and reliable data guides decision making and empowers the SN director and staff to address customer service issues in the effort to increase participation. The survey developed in this study is a research-based tool generalizable for use with the high school population (grades 9 through 12), regardless of district size. Use of this survey can assist SN directors, managers, and staff to establish internal benchmarks for the SN program, particularly for programs with very low rates of participation on the high school level. In addition, the survey is appropriate for school districts where the number of free and reduced price eligible students is greater than average daily participation in the NSLP. It is important that strategies be developed to promote the program and benefits to these eligible students. Results of the survey can be used to develop an improvement plan geared towards advancing the SN program in the effort to increase participation. SN directors must prioritize which factors to address based on the importance given by the student population, as well as their ability to change these at the local level.

Although planning and administering the survey may take considerable time, effort, and coordination, results provide a launching point for creating improvement plans that will focus on key factors that can influence the student's decision to start eating school meals more frequently. SN directors must prioritize which factors to address based on student feedback and the SN team's ability to change these at the local level.

Education and Training Implications

The following are recommendations for additional education and training:

- There is a need to develop training modules that will address the following: assessing the need to administer the survey; collecting and processing data; interpreting results; and designing action plans for addressing areas of improvement.
- A gap analysis comparing the existing National Food Service Management Institute (NFSMI) training modules and the factors identified in this study can be conducted to determine additional training materials that may need to be developed. It would be beneficial for SN professionals to receive training to address each specific factor to facilitate improvement and to increase student participation.
- Educational materials are needed to help SN staff in understanding the consumer psychology and behavior of the high school market. The food and service expectations of these students are evolving as they become more exposed to more commercial dining and a wider variety of culinary experiences.
- Training modules are needed for guiding SN directors in conducting focus groups with students in the effort to determine issues affecting participation. Modules should also include guidance for conducting brainstorming activities with the SN staff to find efficient, effective, and creative solutions for addressing these issues.

Research Implications

Outcomes of the study and feedback from participating directors showed there are more opportunities for research to support the goal of increasing participation on the high school level. The development of a survey guide to provide step-by-step instructions on planning, administering, and interpreting the results of the survey would be beneficial to SN professionals

committed to increasing participation in the NSLP. In addition, a compilation of strategies for addressing unsatisfactory scores and the development of a best practices checklist will provide SN directors and other members of the SN team a toolkit for developing improvement plans geared toward increasing participation at the high school level.

REFERENCES

- Anderson, J. C., & Gerbing, D. W. (1988). Structural modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411-423.
- Burghardt, J., Gordon, A., Chapman, N., Gleason, P., & Fraker, T. (1993). *The school nutrition dietary assessment study: School food service meals offered and dietary intakes*. Washington, D.C.: United States Department of Agriculture, Food and Nutrition Service.
- Fogleman, L., Dutcher, J., McProud, L., Nelken, I., & Lins, A. (1992). High school students' attitudes toward, and participation in the National School Lunch Program. *School Food Service Research Review*, 16, 36-42.
- Gilmore, S. A., Hutchinson, J., & Brown, N. E. (2000). Situational factors associated with student participation in the national school lunch program. *The Journal of Child Nutrition & Management*, 24(1), 8-12.
- Gleason, P. M. (1995). Participation in the National School Lunch Program and the School Breakfast Program. *American Journal of Clinical Nutrition*, 61 (Supplement), 213S-220S.
- Griffith, P., Sackin, B., & Bierbauer, D. (2001). School meals: Benefits and challenges. *The Journal of Child Nutrition & Management*, 25(1), 3-7.
- Hutchinson, J., Brown, N. E., & Gilmore, S. A. (1998). High school students' perceptions associated with their participation in the National School Lunch Program. *The Journal of Child Nutrition & Management*, 22, 87-94.
- Marples, C. A., & Spillman, D. M. (1995). Factors affecting students' participation in the Cincinnati public schools lunch program. *Adolescence*, 30 (119), 745-754.

- Martin, J. (2008). Overview of federal Child Nutrition legislation. In J. Martin, & C. Oakley (Eds.), *Managing Child Nutrition Programs: Leadership for excellence*. Sudbury, MA: Jones and Bartlett Publishers.
- Morcos, S., & Spears, M. (1992). The National School Lunch Program: Factors influencing participation. *School Food Service Research Review*, 16(1), 11-22.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.
- Ralston, K., Newman, C., Clauson, A., Guthrie, J., & Buzby, J. (July, 2008). *The National School Lunch Program: Background, trends, and issues* (ERR-61). Economic Research Service United States Department of Agriculture. Retrieved August 4, 2008, from <http://www.ers.usda.gov/Publications/ERR61/>
- School Nutrition Association. (2006). *Little big fact book: The essential guide to school nutrition*. Alexandria, VA: Author.
- Smith, E. R. (1992). Factors affecting participation in the National School Lunch and School Breakfast Programs. *School Food Service Research Review*, 16, 91-100.
- Snyder, P., Lytle, L., Pellegrino, T., Anderson, M., & Selk, J. (1995). Commentary on school meals from school food service personnel and researchers. *American Journal of Clinical Nutrition*, 61 (supplement) 247S-249S.

Appendix

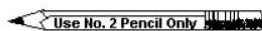
Understanding Why High School Students Do Not Eat School Lunches



Understanding Why High School Students Do Not Eat School Lunches

Completely fill in the circle of your answer. Use a #2 pencil.

Correct ●●●



Incorrect ⊗ ⊙ ⊕

Your School Nutrition Program is interested in understanding why high school students do not eat or do not eat frequently in the school lunch program. Please reflect on these statements and answer based on your own experience.

SECTION I. Reasons for not eating school lunches

Instructions:

Please read the statements regarding reasons for not eating (or not eating frequently) school lunches. As you respond, use the phrase "My reason for not eating school lunches is that" before each statement and then indicate your level of agreement by using the scale 5 (Strongly Agree) to 1 (Strongly Disagree).

My reason for not eating school lunches is that...		Strongly Agree				Strongly Disagree
1.	The food does not taste good.	(5)	(4)	(3)	(2)	(1)
2.	I prefer to eat what I bring from home.	(5)	(4)	(3)	(2)	(1)
3.	The amount of food is inadequate.	(5)	(4)	(3)	(2)	(1)
4.	There is not enough space in the dining room.	(5)	(4)	(3)	(2)	(1)
5.	The staff is not friendly.	(5)	(4)	(3)	(2)	(1)
6.	I do not like what is served.	(5)	(4)	(3)	(2)	(1)
7.	I bring my own food.	(5)	(4)	(3)	(2)	(1)
8.	The food does not appear nutritious.	(5)	(4)	(3)	(2)	(1)
9.	My parents purchase food for me to take to school.	(5)	(4)	(3)	(2)	(1)
10.	The food I like is gone before I get to the cafeteria.	(5)	(4)	(3)	(2)	(1)
11.	I need time to catch up on school work.	(5)	(4)	(3)	(2)	(1)
12.	I have to go to different lines to get the food I want.	(5)	(4)	(3)	(2)	(1)
13.	I can not recognize what the food is.	(5)	(4)	(3)	(2)	(1)
14.	The food choices do not change.	(5)	(4)	(3)	(2)	(1)
15.	The staff does not speak to me.	(5)	(4)	(3)	(2)	(1)
16.	The food does not appear fresh.	(5)	(4)	(3)	(2)	(1)
17.	The choices offered are not those on the menu.	(5)	(4)	(3)	(2)	(1)
18.	The food is not cooked correctly.	(5)	(4)	(3)	(2)	(1)
19.	There are not enough places to sit.	(5)	(4)	(3)	(2)	(1)
20.	The food does not look healthy.	(5)	(4)	(3)	(2)	(1)
21.	I'm busy with school projects.	(5)	(4)	(3)	(2)	(1)
22.	The food does not look appealing.	(5)	(4)	(3)	(2)	(1)

SECTION I. (Continued)

My reason for not eating school lunches is that...		Strongly Agree				Strongly Disagree
23.	I do not get enough food.	5	4	3	2	1
24.	They run out of food.	5	4	3	2	1
25.	The staff is not always pleasant.	5	4	3	2	1
26.	The cafeteria appears unclean.	5	4	3	2	1
27.	The overall food quality is poor.	5	4	3	2	1

SECTION II. Deciding to eat school lunches**Instructions:**

Please read the following statements that could influence your decision to start eating school lunches more frequently. As you respond, use the phrase, "I would be more likely to eat school lunches if..." before each statement, and then rate your level of agreement by using the scale 5 (Strongly Agree) to 1 (Strongly Disagree).

I would be more likely to eat school lunches if...		Strongly Agree				Strongly Disagree
1.	The overall quality (taste, appearance, temperature) of the food served were better.	5	4	3	2	1
2.	There were more variety in the menu from day to day.	5	4	3	2	1
3.	There were more healthy options available.	5	4	3	2	1
4.	The staff were friendlier.	5	4	3	2	1
5.	The wait in line were shorter.	5	4	3	2	1
6.	The serving and dining areas were cleaner.	5	4	3	2	1
7.	There were more seating space in the dining area.	5	4	3	2	1
8.	I were allowed to sit with my friends during the meal period.	5	4	3	2	1
9.	Menu items did not run out before the meal period was over.	5	4	3	2	1
10.	I knew what was going to be on the menu before I got to the cafeteria.	5	4	3	2	1
11.	The posted/announced menus were more accurate.	5	4	3	2	1
12.	They served more menu items that I can recognize.	5	4	3	2	1
13.	I received enough food to fill me up.	5	4	3	2	1

SECTION III. Tell us about you**Instructions:**

Please answer the following questions.

- What is your grade in school?
☐ 9th Grade ☐ 10th Grade ☐ 11th Grade ☐ 12th Grade
- What is your gender?
☐ Male ☐ Female



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