Exploring Factors that Affect the
School Lunch Experience of High School Students
Participating in the National School Lunch Program

National Food Service Management Institute
The University of Mississippi

Building the Future Through Child Nutrition

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PURPOSE
The purpose of the National Food Service Management Institute is to improve the operation of child nutrition programs through research, education and training, and information dissemination.

MISSION
The mission of the National Food Service Management Institute is to provide information and services that promote the continuous improvement of child nutrition programs.

VISION
The vision of the National Food Service Management Institute is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

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TABLE OF CONTENTS

LIST OF TABLES

**EXPLORING FACTORS THAT AFFECT THE SCHOOL LUNCH EXPERIENCE
OF HIGH SCHOOL STUDENTS PARTICIPATING IN THE
NATIONAL SCHOOL LUNCH PROGRAM**

EXECUTIVE SUMMARY

The purposes of this research were to develop a survey to assess the perceptions of high school students regarding their dining experience and to provide a step-by-step guide for administering the survey, interpreting results, and creating continuous quality improvement action plans to address student concerns. To accomplish the project goals, the research was conducted in three phases: High School Student Focus Groups, Survey Instrument Development, and Survey Guide Development.

In Phase I, focus groups were completed in each of four school districts located in four geographic regions as defined by the United States Department of Agriculture (USDA). The discussions included semi-structured, open-ended questions exploring student perceptions of school lunches and reasons for participation. Results indicated that there are seven primary reasons why high school students choose to participate in the National School Lunch Program (NSLP): convenience, hunger, value, food quality, food preference, socialization, and having no other choice. Focus group responses showed that students evaluated the menu and/or food items offered through the NSLP primarily based on the consistency of the following characteristics: serving portions, quality, taste, and availability. Other characteristics that influence perceptions and student satisfaction include healthfulness, freshness, appearance, proper doneness, appropriate serving temperatures, cleanliness of serving and dining areas, attitudes of staff, service recovery, and staff efficiency.

Qualitative data from Phase I was used as the foundation for drafting a survey designed to explore factors that impact the dining experience and satisfaction of high school students participating in the NSLP. A two-stage pilot test was performed with Stage 1 primarily designed to test survey protocol, assess student comprehension of the instrument, and estimate response rates. Stage 2 was designed as a validation step to statistically confirm Stage 1 results. The survey was administered to a total of 1,281 high school students from 19 high schools (15 school districts) across the seven USDA regions.

Results of the study showed that 21 key indicators impacting the dining experience of high school students factor into three dimensions, namely, food quality, program reliability, and staff responsiveness and empathy. Program reliability reflects student expectations on the delivery of food and services in a consistent, timely, and reliable manner. Staff responsiveness and empathy include student concerns regarding staff attitude towards work, service efficiency, and staff behavior towards students. Food quality includes characteristics that focus on variety, taste, freshness, appearance, aroma, and proper doneness of menu items. In addition, results indicated that food quality had the greatest effect on the students' evaluation of their overall dining experience. The top five reasons for eating school lunch were: "I am hungry"; "I didn't bring anything to eat"; "It's convenient"; "I have no choice"; and "My friends eat school lunches." The three least cited reasons for eating school lunches were: "I know what is being served"; "I get to try different foods"; and "I get a balanced meal."

The validated three-part questionnaire specifically targets students who participate in the NSLP three or more times per week. Section I of the survey provides student perceptions of specific program characteristics that contribute to the dining experience of high school students who participate in the NSLP. Students are instructed to use the phrase "When I eat school

9

lunches…" before each of 24 statements about SN program characteristics and indicate their

level of agreement with each statement by using a 5-point scale, ranging from 5 (*strongly agree*)

to 1 (*strongly disagree*). The last three statements provide an overall evaluation of food quality,

service, and student dining experience. Section II asks student to choose the top five (out of 14)

statements that influence the decision to eat school lunches frequently. Section III includes

questions on grade level, frequency of eating school lunches, and gender to provide the SN

director demographic information to further understand trends within the subgroups of students.

Individual programs may choose to include a section for student comments.

The survey is appropriate for SN programs that already have high rates of participation in

the high school level and would like to retain students by increasing customer satisfaction. In

addition, the survey is suitable for SN programs that have low potentials for growth (e.g., the

cafeteria is not equipped to support a large increase in participation, but would like to keep

students who already participate). Lastly, the survey would also be useful to SN programs that

have large percentages of paying students at the high school level.

The specific objective of Phase III was to develop an accompanying resource to guide SN

professionals in administering and interpreting results from *The School Lunch Experience Survey*

as well as *The Non-Participation Survey* (Asperin, Nettles, & Carr, 2008). An expert panel of SN

directors assisted in developing the resource. Expert panel members were asked to provide

comments and/or suggestions by answering structured, open-ended questions regarding each

section of the guide. Data collected and gaps identified by the panel were summarized and

utilized to revise the survey guide prior to Web release. The resource also included research-

based information on customer service (Meyer, Conklin, & Carr, 1997) and continuous quality

improvement (Lambert, Carr, & Hubbard, 2006) previously published by the National

Foodservice Management Institute, Applied Research Division (NFSMI, ARD).

The *High School Satisfaction and Non-Participation Survey Guide: Internal Benchmarking for School Nutrition Programs* contains seven sections that are designed to guide the SN director and/or manager through the survey process. The "Introduction" provides a brief overview of the resource and the benefits of conducting the customer service surveys. "Planning for Survey Administration" provides the SN director and/or manager guidance for choosing members of the survey team, timing of surveys, and frequency of survey administration. The section "Survey Options" not only describes *The Non-Participation Survey* and *The School Lunch Experience Survey,* it also provides guidance for deciding which survey to utilize and how to select participants. The section "Administering the Survey" contains checklists for SN directors to refer to as they go through the survey process from pre-planning to the day after the survey is completed. Step-by-step instructions for using the Microsoft Excel templates are provided in the section "Tabulating and Interpreting Results," while instructions for utilizing results are provided in the section "Developing a Customer Service Action Plan Using the Continuous Quality Improvement Process." The "Appendices" section includes copies of the surveys, parental consent templates, student assent statements, and memos to principals and/or teachers for surveys.

Use of the Web-based resource and implementation of the survey will aid SN professionals in establishing performance benchmarks and improving their programs based on customer feedback. The results of the survey can help SN directors focus improvement efforts on key factors that can influence the students' perception of, and satisfaction with, their school lunch experience.

11

INTRODUCTION

School nutrition (SN) programs participating in the National School Lunch Program

(NSLP) continue to encounter challenges with the increasing threat of competitive foods,

commercial food service, and federal budgetary constraints, particularly at the high school level.

Participation at 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). In view of this, it is advantageous

for SN directors to focus on retaining the customer base that already participates in the NSLP.

Meyer and Conklin (1998) suggested that it is ideal for students to be involved in the

operation, because they should have a choice about what they can purchase and eat. Focusing on

the customer can provide an opportunity to determine what characteristics affect customer

perceptions of value and satisfaction (Bojanic & Kashyap, 2000). One way to involve students

and measure student satisfaction with the NSLP is to survey students on their perceptions

regarding their dining experience. Assessing student satisfaction and addressing student concerns

proactively may positively influence each student's decision to continue eating school meals.

Past literature investigating the attitudes of high school students with the NSLP generally

focused on factors that affect participation. However, Hutchinson, Brown, and Gilmore (1998)

stated that participation may not be a good indicator of student satisfaction. Previous research

conducted by the National Food Service Management Institute, Applied Research Division

(NFSMI, ARD) showed through a series of focus groups with high school students that students

who eat school lunch frequently (three or more times per week) have different concerns from

students who eat less frequently (two or less times per week). Measuring satisfaction issues

addresses the concerns of the first group, while measuring factors that affect non-participation

addresses the concerns of the second group (Asperin, Nettles, & Carr, 2008).

Marketing literature is replete with research on customer satisfaction. Oliver (1999)

stated that satisfaction is "a fairly temporal post usage state for one-time consumption or a

repeatedly experienced state for ongoing consumption that reflects how the product or service

has fulfilled its purpose" (p. 41). That is, student satisfaction with the SN program can be viewed

as a transaction specific measure (i.e., satisfaction with the current dining experience) and as a

cumulative evaluation measure (i.e., satisfaction with the SN program over time). Overall

satisfaction or the "overall evaluation based on the total purchase and consumption experience

with a good or service over time" (Anderson, Fornell, & Lehmann, 1994, p. 54) has been shown

as a better predictor of repurchase intension (Jones & Suh, 2000).

In this study, the ability of the SN program to consistently deliver the benefits and quality

of service sought by the high school student is evaluated. In general, when performance is less

than what the customers expect, quality is perceived to be low resulting in negative

disconfirmation or dissatisfaction (Oliver, 1997). Conversely, if performance meets customer's

expectations (zero disconfirmation) or exceeds customer's expectations (positive

disconfirmation), quality is perceived to be high, and satisfaction is the result (Bitner, 1990;

Kandampully, Mok, & Sparks, 2001).

The most accepted measurement of perceived service quality is the SERVQUAL

instrument developed by Parasuraman, Zeithaml, and Berry (1985, 1988, 1991). The

SERVQUAL model is composed of five dimensions: tangibles, reliability, responsiveness,

empathy, and assurance. The following are brief descriptions of the five dimensions as

referenced in Kandampully et al. (2001, pp. 54-55):

- Tangibles: Consists of "appearance of physical facilities, equipment, personnel, and

  communications materials" (Berry & Parasuraman, 1991, p. 16);

- Reliability: Reflects the service provider's "ability to perform service dependably and

  accurately" (Parasuraman et al., 1988, p. 23);

- Responsiveness: Represents the "willingness to help customers and provide prompt service"

  (Parasuraman et al., 1988, p. 23);

- Empathy: Involves the "caring, individualized attention the firm provides its customers"

  (Parasuraman et al., 1988, p. 23); and

- Assurance: Reflects the "knowledge and courtesy of employees and their ability to inspire

  trust and confidence" (Parasuraman et al., 1988, p. 23).

Although the SERVQUAL is widely used, it does not take into consideration any

measurement of food quality, which is an important factor in foodservice customer evaluations.

Thus, there is a need to develop an instrument that will measure student satisfaction

encompassing food quality as well as the indicators from the SERVQUAL model which are

applicable in the delivery of services in SN programs. The primary purpose of this project is to

identify factors that affect the perception of high school students regarding their dining

experiences when they participate in the NSLP. The secondary objectives of this project include

the following:

- Develop a survey to assess the perceptions of high school students regarding their

  dining experience and provide SN directors a tool to use for internal benchmarking;

- Identify factors that can influence the student's evaluation of their dining experience

  and satisfaction;

- Identify primary reasons why high school students choose to participate in the NSLP;

- Develop a step-by-step guide for administering the survey, interpreting results, and creating continuous quality improvement action plans to address student concerns; and

- Provide the survey and guide to SN directors and other SN professionals in an accessible, downloadable format on the NFSMI Web site.

METHOD

Research Design

The purposes of this research were to develop a survey to assess the perceptions of high school students regarding their dining experience and to provide a step-by-step guide for administering the survey, interpreting results, and creating continuous quality improvement action plans to address student concerns. To accomplish the project goals, the research was conducted in three phases, namely, High School Student Focus Groups, Survey Instrument Development, and Survey Guide Development.

Phase I: High School Student Focus Groups

Phase I for this project was accomplished in conjunction with the project, *Investigation of Factors Impacting Participation of High School Students in the National School Lunch Program* (Asperin et al., 2008), conducted by the National Food Service Management Institute, Applied Research Division (NFSMI, ARD). Focus groups to explore student perceptions of the school lunch experience were completed in each of four school districts located in four geographic regions as defined by the United States Department of Agriculture (USDA).

E-mail invitations describing the study objectives were sent to school nutrition (SN) directors to determine willingness to host focus groups, each to be composed of six to eleven high school students. Follow-up phone calls with SN directors were conducted to answer any questions and/or concerns before confirmation letters were sent to those who agreed to participate. A passive parental consent template was provided for use if district protocol required it. Parents were provided an overview of the project, the rights of their child as a participant of the focus group, and the student's option to not participate even if parental consent was granted.

A student assent statement that assured confidentiality of responses and explained rights as participants was read prior to beginning the focus group.

The discussions lasted approximately 90 minutes and included semi-structured, open-ended questions exploring student perceptions of school lunches and reasons for participation. The focus groups were held at accessible, neutral sites, 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 meaningful categories. The identified themes were used in the development of a high school student survey to measure student perceptions of their dining experience and satisfaction with the National School Lunch Program (NSLP).

Phase II: Survey Instrument Development

Qualitative data from Phase I was used as the foundation for drafting a survey designed to explore factors that impact the dining experience and satisfaction of high school students participating in the NSLP. The scannable survey entitled, *The School Lunch Experience Survey,* consisted of three sections. In Section I, students were asked to use the phrase "I am satisfied with school lunches because…" before each of 40 statements and then to indicate their level of agreement with each statement, ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). Section II asked students to choose the top five among 14 reasons why they choose to eat school lunch. In Section III, students were asked to provide demographic information related to grade in school, frequency of eating school lunches per week, and gender. A two-stage pilot test was performed with Stage 1 primarily designed to test survey protocol, assess student comprehension of the instrument, and estimate response rates. Stage 2 was designed as a validation step to

statistically confirm Stage 1 results. The survey was administered to a total of 1,281 high school

students from 19 high schools (15 school districts) across the seven USDA regions.

Stage 1

Prior to survey administration, a pre-test was conducted in a local high school. The

researcher delivered and administered the survey on site with the assistance of the SN director.

The researcher recorded the average time that students used to complete the survey. The

researcher also took note of any questions the students had with regards to comprehension of the

assent statement and instructions for completing the survey. Seeing no revisions necessary,

e-mail invitations providing an overview of the study objectives and survey process were sent to

ten SN directors across the seven USDA regions. Follow-up phone calls were conducted to

provide an overview of the SN director's function in coordinating the survey administration.

Confirmation e-mails were sent to two 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.

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 three or more times per week 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 both SN directors thanking them for their participation, and reminding them to

complete and return the surveys.

Due to a small number of completed surveys received, an additional 15 SN directors were

invited to participate in Stage 1, nine of whom agreed to conduct the pilot test. In total, 1,000

surveys were distributed across 12 districts for Stage 1. Results of factor analyses and reliability

diagnostics were used to revise the survey in preparation for Stage 2.

Stage 2 (Validation)

After survey revision, e-mail invitations were sent to seven SN directors to solicit their

participation in the final stage of survey validation. All indicated interest in the survey and were

contacted by telephone to address questions and/or concerns regarding the survey process. The

rest of the process followed the Stage 1 survey protocol. A total of 1,150 surveys were

distributed across the seven districts. 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. Exploratory factor analysis (EFA) with varimax rotation (SPSS version 15.0), was performed using data from Section 1 (Stage 1) to establish the structure for factors that affect the perception of high school students regarding their school lunch experiences. 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 2 data to assess factor structure. Indicators with factor loadings less than .40 and factors with α less than .70 were eliminated from the final scale (Nunnally, 1978). Multiple regression analyses were used to measure the impacts of extracted factors and indicators on overall measurements of food quality, service, and overall dining experience.

Phase III: Survey Guide Development

The specific objective of Phase III was to develop an accompanying resource to guide SN professionals in administering and interpreting results from *The School Lunch Experience Survey* as well as *The Non-Participation Survey* (Asperin et al., 2008). NFSMI, ARD research-based resources on customer service (Meyer, Conklin, & Carr, 1997) and continuous quality improvement (Lambert, 2006), as well as feedback provided by SN directors, were used to develop the guide. The draft included seven sections: Introduction, Planning for Survey Administration, Choosing the Right Survey, Administering the Survey, Understanding the Survey Results, Developing a Customer Service Improvement Plan, and Appendices.

Nine SN Directors were invited to attend a day and a half meeting to evaluate the draft survey guide and to discuss implications of results obtained from using the surveys. The SN directors were sent an e-mail invitation to determine his/her willingness to serve on the expert

panel. The invitation explained the project, the purpose of the expert panel meeting, and provided the researchers' contact information for questions and concerns. After panel members agreed to participate, confirmation letters were mailed electronically with additional information on the upcoming meeting and travel arrangements. The expert panel members were sent a pre-meeting packet consisting of a cover letter, a draft of the survey guide, an evaluation form for the survey guide, and a meeting agenda listing topics to be covered during the expert panel discussion. Initially, the guide was reviewed by the expert panel participants to evaluate content, readability, clarity, and flow of the survey guide. In addition, participants were asked to bring copies of any resources and questions related to addressing customer service issues in the high school setting.

The discussion session was facilitated by the researcher with an assistant moderator capturing the participants' comments on a flip chart. The agenda included a discussion of the SN directors' preliminary evaluations and identification of gaps to ensure that the guide was comprehensive and useful for SN professionals. Expert panel members were asked to provide comments and/or suggestions by answering structured, open-ended questions regarding each section of the guide. Data collected and gaps identified by the panel were summarized and utilized to revise the survey guide prior to Web release.

Sample Selection

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 meals 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). The SN director in each school district selected a random sample of 30 to 50

students per high school. A total of 15 districts (19 high schools) participated in the two rounds

of pilot tests. The expert panel was selected from a pool of SN directors who actively

participated in the survey development stages of *The School Lunch Experience Survey* and *The*

Non-Participation Survey.

Informed Consent

For Phases I, II, and III of the research study, the researchers followed informed consent

procedures established by the Human Subjects Protection Review Committee at The University

of Southern Mississippi.

RESULTS AND DISCUSSION

Phase I: High School Student Focus Groups

Characteristics of Participating School Nutrition Programs

High school enrollment at the participating districts varied from approximately 500 to almost 3,000 students. The number of high schools per district ranged from 1 to over 30. Half of the districts had open campuses for lunch or had open options for seniors and/or juniors. Average daily participation (ADP) in the National School Lunch Program (NSLP) ranged from a low of 14% to a high of 83%, with an average of 55%. The percentage of high school students approved for free and reduced meals ranged from less than 5% to almost 80%.

Student Perceptions of the "School Lunch"

Results indicated that there are seven primary reasons why high school students choose to participate in the NSLP: convenience, hungry, value, food quality, food preference, no choice, and socialize. Table 1 shows the themes and related statements provided by the students, arranged from most to least cited.

Table 1

Focus Group Summary: Reasons Why High School Students Choose to Eat School Lunches

Theme	Statements
Convenience	Convenient
	Have enough time to eat
	Have no time to prepare or get own food
	Don't have transportation to go off campus
	Don't want to drive
	Don't want to lose parking
Hungry	I am hungry
	Get ready for afterschool practice
	Skipped meal(s) prior to class
	The lunch is filling
Value	I don't spend my own money
	Cheap
	Good price for what I get
Food Quality	Tastes good
	Different every day
	Nutritious
	Looks good
	Fresh food
	Quality food
	Warm/hot meal
	Decent food
No Choice	Have no other food
	No other choice
Food Preference	Only when serving favorite meal/item
	I like the food
Socialize	Spend time with friends
	It's a break for schoolwork

Focus group responses showed that students evaluated the menu and/or food items

offered through the NSLP based on the consistency of the following characteristics: serving

portions, quality, taste, and availability. Healthfulness, freshness, appearance, proper doneness,

and appropriate serving temperatures were also among the most cited criteria. Students stated

that cleanliness of serving and dining areas affect their perception of the food quality and the

quality of their overall dining experience. Participants implied that satisfaction with the school

lunch experience is also affected by the attitude of staff (e.g., friendliness, positive disposition,

openness to suggestions), service recovery (i.e., how the staff respond to customer complaints),

and staff efficiency (e.g., speed of service). In addition, satisfaction is negatively affected when

menu items run out before the lunch period is over, particularly if students have to pay full price

for a meal that would not have been their first choice. Students indicated that perceptions of the

cafeteria will improve if the dining environment was enhanced by providing music chosen by

students, upgrading décor for a restaurant feel, adding more color in the dining area, providing

more comfortable and inviting dining room, and using round tables to facilitate socialization.

Phase II: Survey Development

Across the two-staged pilot test, a total of 2,150 surveys were sent to SN directors, 1,281

(60%) of which were completed and returned. Only responses from students who ate three or

more times per week (38%) were retained for the majority of the analyses. 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.

Characteristics of Participating School Nutrition Programs

Fifteen districts (19 high schools) participated across the two stages of survey

administration. On average, the enrollment at the participating high schools was 1,393, ranging

from 616 to 3,200 students (Table 2). A majority of high schools (61%) reported having closed

campuses and seven (39%) either had open campuses or open options for juniors and seniors.

Average daily participation (ADP) for closed campuses averaged 55%, while open campuses

averaged 26%. The percentage of high school students approved for free and reduced priced

meals ranged from 7% to 76%, with a mean of 32%.

Table 2

Program Demographics of Participating High Schools (Stages 1 and 2)

Number of high schools surveyed		19
Number of surveys completed and returned		1,281
Number of usable surveys		1,221
Number of students who ate school lunch three or more times per week		818

	Range	
	Min	Max
Enrollment	616	3,200
Average Daily Attendance (ADA)	83%	98%
Average Daily Participation (ADP)	13%	74%
Percent of students eligible		
Free	6%	73%
Reduced Price	1%	12%
ADP per benefit category		
Free	8%	81%
Reduced Price	2%	35%
Paid	6%	90%
Lunch Price	$1.25	$3.13

Stage 1

A total of 1,000 questionnaires were distributed to 12 SN directors, nine of whom returned a total of 418 (42%) completed surveys from ten high schools. Data screening resulted in a final usable sample of 292 (29%), limited to students who ate school lunches three or more times per week. The majority of respondents were female (51%) and the sample was dispersed among 9th graders (33%), 10th graders (21%), 11th graders (29%), and 12th graders (17%).

In Section I, students were provided 40 statements pertaining to characteristics that affect the school lunch experience. Students were asked to indicate their level of agreement with each statement using a scale of 5 (*strongly agree*) to 1 (*strongly disagree*). The last three statements were global evaluations of food quality (*M*=3.29, *SD*=1.17), service (*M*=3.72, *SD*=1.04), and overall dining experience (*M*=3.56, *SD*=1.04).

Exploratory factor analysis (EFA) with varimax rotation was performed to determine if responses for statements 1 to 37 could be statistically grouped into a smaller number of categories. Results showed that the variance in student perceptions could be explained by 24 items (α=.94; R^2=.59) grouped into four categories: food quality (α=.92; R^2=.20), dining atmosphere (α=.82; R^2=.12), staff (α=.81; R^2=.13), and choice/variety (α=.74; R^2=.13). However, an additional eight items were retained for retest in Stage 2. These items were strongly emphasized by focus group participants as being important criteria for evaluating their school lunch experience. Thus, a retest was merited to ascertain whether unsatisfactory factor loadings were sample specific.

In Section II, respondents indicated that the top five reasons for eating school lunch were "I am hungry"; "It's convenient"; "I didn't bring anything to eat"; "My friends eat school lunches"; and "I have no choice." The three least cited reasons for eating school lunches were

"It prepares me for after school activities"; "I get a balanced meal"; and "I get to try different foods." Based on focus group results and previous literature, these responses were quite expected.

In preparation for Stage 2, Section I was reduced from 40 items to 35 statements. Based on student feedback communicated to the researcher by participating SN directors, the phrase, "*I am satisfied with school lunches because…*" used in Section I was revised to read, "*When I eat school lunches…*" to minimize response bias. Students indicated that the previous wording assumed they were at least minimally satisfied even when they are not. No changes were made to Sections II and III prior to Stage 2.

Stage 2 (Validation)

A total of 1,150 questionnaires were distributed to seven SN directors, six of whom returned a total of 863 (75%) completed surveys from nine high schools. Data screening resulted in a final usable sample of 523 (45%), limited to students who ate school lunches three or more times per week. The majority of respondents were male (53%) and the sample was dispersed among 9th graders (43%), 10th graders (24%), 11th graders (18%), and 12th graders (15%).

Confirmatory factor analysis (CFA) using AMOS was performed on Section I, items one through 32, to test the four-factor structure established in Stage 1. Because the model fit was unsatisfactory and structure was not confirmed, a secondary EFA using SPSS was performed. Preliminary results showed a 29-item, five-factor solution ($\alpha=.94$; $R^2=.54$). Parallel analysis showed that although five factors were generated, only the first three ($\alpha=.92$; $R^2=.53$) strongly accounted for the variance in student perceptions (Table 3).

Table 3

Reliability (α), Standardized Factor Loadings, Means (M), and Standard Deviations (SD) of Factors that Affect the School Lunch Experience of High School Students (N=523)

Factor Structure (Cronbach Alpha)	Standardized Loading[a]	M[b] ± SD
Factor 1: Food quality (α=.90)		3.04 ± 0.80
The food looks appealing.	.79	2.88 ± 1.07
The flavors of the food go well together.	.75	3.06 ± 1.03
The food tastes good.	.70	3.24 ± 1.04
The food smells good.	.70	3.26 ± 1.08
The food served is fresh.	.69	3.13 ±1.00
Food is cooked to the proper doneness.	.67	3.26 ± 1.15
The food has a homemade quality.	.67	2.29 ± 1.09
There is a variety of food items that I can choose from.	.66	3.40 ± 1.23
There is variety in the menu from day to day.	.63	2.87 ± 1.15
Factor 2: Program Reliability (α=.77)		3.30 ± 0.81
The serving portions are consistent.	.72	3.25 ± 1.11
The quality of the food is consistent.	.71	3.13 ± 1.12
The amount of food I get is enough.	.58	3.14 ± 1.40
I could purchase other items à la carte if I don't want the full meal.	.55	3.58 ± 1.23
I have enough time to eat.	.54	3.54 ± 1.32
I know what is being served before I get to the cafeteria.	.42	2.77 ± 1.39
There is enough seating space in the dining area.	.41	3.69 ± 1.23

[a]All factor loadings were significant at .001   *(Table 3 continues)*
[b]Scales (Max/Min): 5=strongly agree/1=strongly disagree
Note: $\chi 2$ (186, N=523)=568.40; GFI= .91;TLI=.90; RMSEA=.06; α=.92

(Table 3 continued)

Reliability (α), Standardized Factor Loadings, Means (M), and Standard Deviations (SD) of
Factors that Affect the School Lunch Experience of High School Students (N=523)

Factor Structure (*Cronbach Alpha*)	Standardized Loading[a]	M[b] ± SD
Factor 3: Staff Responsiveness and Empathy (α=.75)		2.94 ± 0.88
The service is friendly.	.77	3.21 ± 1.31
The staff look like they enjoy their work.	.73	2.74 ± 1.33
The staff understands my meal time needs.	.59	3.09 ± 1.16
The menu provides healthy meal options.	.53	3.11 ± 1.15
I know that I can offer suggestions.	.44	2.51 ± 1.26

[a]All factor loadings were significant at .001
[b]Scales (Max/Min): 5=strongly agree/1=strongly disagree
Note: χ2 (186, N=523)=568.40; GFI= .91;TLI=.90; RMSEA=.06; α=.92

CFA showed an improvement in the fit indices and a chi-square difference test suggested

that the modified 21-item, three-factor scale was a better fit to the data ($\chi2$ (186,

N=523)=568.40; GFI=.91; TLI=.90; RMSEA=.06; α=.92). The three extracted factors were food

quality (α=.90, R^2=.24), program reliability (α=.77, R^2=.15), and staff responsiveness and

empathy (α=.75, R^2=.15). The indicators falling in the second factor were most comparable to

Parasuraman et al.'s (1985, 1988, 1991) SERVQUAL dimension "reliability," and those in the

third factor conceptually reflect the dimensions of "responsiveness" and "empathy". All factor

loadings, ranging from .41 to .79, were significant at .001 indicating convergent validity

(Anderson & Gerbing, 1988).

Student ratings in Section I ranged from a low of 2.29 (*SD*=1.09; "the food has a

homemade quality") to a high of 3.69 (*SD*=1.23; "there is enough seating space in the dining

room"). Table 4 summarizes the overall evaluations of students regarding food quality, service,

and dining experience, showing that students had the greatest mean evaluation for the overall

quality of service ($M \pm SD = 3.21 \pm 1.10$). Multiple regression analysis showed that among the

food quality indicators, "the food looks appealing" ($\beta = .28$, $p<.001$); "the food tastes good"

($\beta = .24$, $p<.001$); and "food is cooked to the proper doneness"($\beta = .16$, $p<.001$), showed the

three greatest effects on overall food quality scores ($F[6,478] = 127.04$, $p<.001$). Similarly,

multiple regression analysis showed that "the service is friendly" ($\beta = .41$, $p<.001$) and "the staff

look like they enjoy their work" ($\beta = .28$, $p<.001$) had the greatest effects on overall service

quality scores ($F[3,478] = 149.14$, $p<.001$).

Table 4

*Means (M) and Standard Deviations (SD) of Overall Quality of Food, Service, and
Dining Experience (N=523)*

Overall Evaluations	**M^a ± SD**
The overall quality (taste, appearance, temperature) of the food served is good.	2.95 ± 1.04
The overall quality of the service is good.	3.21 ± 1.10
The overall quality of my dining experience is good.	3.12 ± 1.05

^{a}Scales (Max/Min): 5=strongly agree/1=strongly disagree

When overall dining experience scores were regressed on food quality, program

reliability, and staff responsiveness and empathy (Table 5), the factors significantly accounted

for slightly more than half of the variance in overall dining experience scores ($F[3,520] =$

219.76, $p<.001$; $R^2 = .56$). Food quality ($\beta = .42$, $p<.001$) had the greatest significant effect on

the students' evaluation of their overall dining experience, followed by program reliability

($\beta = .26$, $p<.001$) and staff responsiveness and empathy ($\beta = .18$, $p<.001$).

Table 5

*Summary of Stepwise Regression for Factors Significant in Predicting Overall
Quality of Student Dining Experience*

Independent Variable	*B*	*SE B*	β	t value	Sig.
Food Quality	.55	.06	.42	9.65	.000*
Program Reliability	.34	.05	.26	6.71	.000*
Staff Responsiveness and Empathy	.21	.05	.18	4.62	.000*
	R^2=0.56	*Adjusted R^2= 0.56*	*F= 219.76*		

* p<0.001

     Reflective of focus group results, survey respondents indicated in Section II that the top

five reasons for eating school lunch were "I am hungry"; "I didn't bring anything to eat"; "It's

convenient"; "I have no choice"; and "My friends eat school lunches" (Table 6). The three least

cited reasons for eating school lunches were "I know what is being served"; "I get to try different

foods"; and "I get a balanced meal." The top six reasons were consistently rated in order between

male and female students. There is also no significant difference in the two least cited reasons

between genders.

Table 6

Reasons Why High School Students Eat School Lunches

Reasons for Eating School Lunches	Frequency	
	Male	**Female**
I am hungry.	249	217
I didn't bring anything to eat.	162	168
It's convenient.	161	158
I have no choice.	114	100
My parents/I pay in advance.	114	100
My friends eat school lunches.	96	92
It fits my schedule.	77	83
I like the food.	87	50
It's affordable.	74	53
It prepares me for after school activities.	37	36
I like the variety of menu items.	37	36
I know what is being served.	44	28
I get to try different foods.	30	23
I get a balanced meal.	20	21

Phase III: Survey Guide Development

Characteristics of Expert Panel Members

The seven SN directors who agreed to participate in the expert panel represented the

Mountain Plains, Southwest, Southeast, Northeast, and Midwest regions as classified by the

United States Department of Agriculture (USDA) (Table 7). Student enrollment in the districts in

which they practiced ranged from less than 2,799 to 65,000 or greater students. The majority

(57%) of school districts represented have programs with more than 20,000 students. Experience

in SN programs ranged from one to greater than 20 years. Three SN directors have held their

current position at least 11 years. All participants completed bachelor's degrees, three of whom

have completed at least a Master's degree. Credentials and certifications included School

Nutrition Association (SNA) certified (43%), School Nutrition Specialist (SNS) credentialed

(14%), State Department of Education certified (14%), Registered Dietitian (14%), and Licensed

Dietitian/Nutritionist (14%).

Table 7

Personal and Program Characteristics of Expert and Panel (N=7)

Demographic Question	Frequency	%
How many years have you worked in SN programs?		
5 years or less	1	14%
6 to 10 years	1	14%
11 to 15 years	2	29%
16 to 20 years	1	14%
Greater than 20 years	2	29%
How long have you been in your current position?		
Less than 1 year	1	14%
1 to 5 years	2	29%
6 to 10 years	1	14%
11 to 15 years	2	29%
Greater than 20 years	1	14%

(Table 7 continues)

(Table 7 continued)

Personal and Program Characteristics of Expert and Panel (N=7)

Demographic Question	Frequency	%
What is your certification/credentialed status? (Choose all that apply)		
SNS credentialed	1	14%
State Department of Education certified	1	14%
SNA certified	3	43%
Registered Dietitian	1	14%
Licensed Dietitian/Nutritionist	1	14%
What is your highest level of education?		
Baccalaureate degree	2	29%
Some graduate credits	2	29%
Master's degree	1	14%
Graduate degree beyond Master's	2	29%
In which USDA region do you work?		
Midwest	1	14%
Mountain Plains	1	14%
Northeast	1	14%
Southeast	2	29%
Southwest	2	29%
What is the approximate student enrollment of your school district?		
2,799 or less	1	14%
2,800 to 9,999	2	29%
20,000 to 44,999	1	14%
65,000 or greater	2	29%

Expert Panel Pre-Meeting Review of Survey Guide

Six of the seven expert panel members reviewed and returned their evaluation of the draft

survey guide (Table 8). All expert panel members strongly agreed that the guide presented an

inclusive overview of the survey process, and that it is a useful tool for SN directors and

managers. Expert panel members agreed or strongly agreed that the information was concise and

was organized logically using language appropriate for SN professionals. All expert panel

members also agreed or strongly agreed that the guide offers sufficient guidance,

recommendations, and instructions for SN directors planning to administer the survey(s).

Table 8

Results of Expert Panel Evaluation of Draft Survey Guide

Evaluation Question	Frequency			
	Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**
The guide presents an inclusive overview of the survey process.				6
The guide topics are organized in a logical sequence.			1	5
The guide uses language that is familiar to SN professionals.			3	3
The information is presented concisely but in enough detail to clarify the topic/issue.			1	5
The guide offers sufficient recommendations for SN directors planning to administer the survey(s).			1	5
The guide assists SN directors in selecting the customer service survey appropriate for the SN program.			1	5
The guide presents specific instructions for conducting the survey(s).			1	5
The guide is a useful tool for SN directors and managers.				6

Expert Panel Discussion

Expert panel members suggested that the benefits of increasing meal participation should be added to the introduction to provide SN professionals and school administrators incentives to administer the survey(s). In addition, the guide should give an indication of the time, effort, and resources required to administer the survey(s) successfully. It should also be mentioned that survey administration in itself is only one step in the continuous quality improvement process.

Members concurred that the team approach to planning the survey administration is beneficial. However, it should be emphasized that the team composition will depend on the needs and policies of the district regarding research involving students. Wellness coordinator/team, technology specialists, point-of-sale (POS) representatives, parent groups, nurses, and school/district evaluation specialists may also be included in the list of possible team members. Minor revisions were suggested for the sub-section on "Timing of Surveys" to provide more accurate descriptions.

Several expert panel members indicated that detailed sections providing a description of the surveys, guidance for choosing which survey to use, directions for choosing the number and type of respondents, and timelines for survey administration are more useful for SN directors in a bulleted format rather than in narrative paragraphs. Members recommended that the section entitled "Choosing the Right Survey" be revised to read "Survey Options," because some districts may prefer to establish benchmarks for both non-participants and frequent eaters by using the surveys simultaneously. Members felt it was important to explain that although there are commonalities between the two surveys, the questions are not identical because they are addressing different issues and must be framed differently. All members commented that templates for parental consent, letters to school administrators, and memos to teachers provided

in the Appendices are useful, especially for SN directors who may be administering student surveys for the first time. Detailed checklists for the survey administration timeline were developed with guidance from the expert panel members.

There was a general consensus among the panel members that Microsoft Excel templates for tabulating and interpreting results are needed. Providing these tools will reduce the anxiety of SN directors about handling the data they collect from the surveys. According to the panel, the Microsoft Excel template must be able to present means, frequencies, and factor scores that will help SN directors create reports for the SN staff, school/district administration, parents, community, and the media. Step-by-step instructions with graphics would help SN directors in utilizing the Microsoft Excel templates. Expert panel members agreed that for *The Non-Participation Survey*, scores of 3.5 and above in Section I should be given the highest priority in determining areas of improvement. On the other hand, panel members suggested that for *The School Lunch Experience Survey,* mean scores of 4 and above are desirable in Section I. Scores between 3 and 4 are acceptable, while scores of 3 and below should be given priority in determining areas of improvement. In addition, a revision was proposed to change the section heading from "Understanding the Survey Results" to "Tabulating and Interpreting Results" to better reflect the content of the section.

The expert panel members were in agreement that the section "Developing a Customer Service Improvement Plan" should be revised within the framework of the Continuous Quality Improvement Process. As with the Microsoft Excel templates, panel members advised that step-by-step instructions for completing the action plans would be beneficial for SN directors. Providing checklists and easy to follow examples at each step would be effective.

CONCLUSIONS AND RECOMMENDATIONS

Research Study Conclusions and Applications

Results of the study showed that 21 key indicators impacting the dining experience of high school students factor into three dimensions, namely, food quality, program reliability, and staff responsiveness and empathy. Program reliability reflects student expectations on the delivery of food and services in a consistent, timely, and reliable manner. Staff responsiveness and empathy include student concerns regarding staff attitude towards work, service efficiency, and staff behavior towards students. Food quality includes characteristics that focus on variety, taste, freshness, appearance, aroma, and proper doneness of menu items.

Results implied that enhancing the appearance, taste, and proper doneness of menu items will have the greatest effects on improving student evaluations of food quality in general. This is particularly important because results indicated that food quality had the greatest effect on the students' evaluation of their overall dining experience. Results suggest that school nutrition (SN) directors and managers should also focus on staff friendliness and attitude toward work, because these have the greatest effects on the students' evaluation of the overall service quality.

The top five reasons for eating school lunch were "I am hungry"; "I didn't bring anything to eat"; "It's convenient"; "I have no choice"; and "My friends eat school lunches." The three least cited reasons for eating school lunches were "I know what is being served"; "I get to try different foods"; and "I get a balanced meal." SN professionals can use this information to focus marketing efforts on promotional messages that will support the reasons why high school

students choose to eat school lunches. A few examples are illustrated below:

- Highlight that although high school students may not have the choice to leave campus, the SN program conveniently provides them a wide variety of lunch options when they participate in the NSLP.

- For students whose main reason for participating is that their friends eat school lunches, promote the school lunch as an opportunity to engage in a social dining experience. In addition, design and/or decorate the dining area to support socialization among students.

- Focus on marketing the convenience and variety that the SN program offers versus trying to market the "balanced meal."

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. The survey is appropriate for school nutrition (SN) programs that already have high rates of participation in the high school level and would like to retain students by increasing customer satisfaction. In addition, the survey is suitable for SN programs that have low potentials for growth (e.g., the cafeteria is not equipped to support a large increase in participation, but would like to keep students who already participate). Lastly, the survey would also be useful to SN programs that have large percentages of paying students at the high school level. Implementation of the survey will aid SN professionals in establishing performance benchmarks and improving their programs based on customer feedback. The results of the survey can help SN directors focus improvement efforts on key factors that can influence the students' perception of, and satisfaction with, their school lunch experience.

The validated questionnaire is composed of three parts. Section I of the survey provides

student perceptions of specific program characteristics that contribute to the dining experience of

high school students who participate in the NSLP. Students are instructed to use the phrase

"When I eat school lunches…" before each of 24 statements about SN program characteristics

and indicate their level of agreement with each statement by using a 5-point scale, ranging from

5 (*strongly agree*) to 1 (*strongly disagree*). The last three statements provide an overall

evaluation of food quality, service, and student dining experience. Section II asks students to

choose the top five (out of 14) statements that influence the decision to eat school lunches

frequently. Section III includes questions on grade level, frequency of eating school lunches, and

gender to provide the SN director demographic information to further understand trends within

the subgroups of students. Individual programs may choose to include a section for

student comments.

Guidelines for planning and administering the survey are provided in the Web-based

resource, *High School Student Satisfaction and Non-Participation Survey Guide: Internal

Benchmarking for School Nutrition Programs.* The resource contains seven sections that are

designed to guide the SN director and/or manager through the survey process. The

"Introduction" provides a brief overview of the resource and the benefits of conducting the

customer service surveys. "Planning for Survey Administration" provides the SN director and/or

manager guidance for choosing members of the survey team, timing of surveys, and frequency of

survey administration. The section "Survey Options" not only describes *The Non-Participation

Survey* and *The School Lunch Experience Survey,* it also provides guidance for deciding which

survey to utilize and how to select participants. Contained in the section "Administering the

Survey" are checklists for SN directors and/or managers to refer to as they go through the survey

process from pre-planning to the day after the survey is completed. Step-by-step instructions for using the Microsoft Excel templates are provided in the section "Tabulating and Interpreting Results," while instructions for utilizing results are provided in the section "Developing a Customer Service Action Plan Using the Continuous Quality Improvement Process." The "Appendices" includes copies of the surveys, parental consent templates, student assent statements, and memos to principals and/or teachers for surveys.

Education and Training Implications

The following are recommendations for additional education and training:

- There is a need to develop training modules for familiarizing SN directors and/or managers with *The Non-Participation Survey, The School Lunch Experience Survey,* and the Web-based resource guide. At the end of the training, SN professionals should be able to determine which survey and data gathering methodology is best suited to establish benchmarks for their high school SN programs.

- Training modules are needed to help SN staff better understand the role of administering the customer service surveys in the Continuous Quality Improvement Process for the SN program as a whole. At the end of the training, SN professionals should be able to develop Customer Service Action Plans to improve high school student participation and satisfaction.

- Training modules are needed for guiding SN directors in conducting focus groups with high school students in the effort to determine solutions for addressing issues identified from survey results. Modules should also include guidance for conducting corresponding focus groups with the SN staff to find efficient, effective, and creative solutions for addressing these issues.

Limitations and Recommendations for Further Research

The Web-based guide was developed utilizing expert advice from a small number of practicing professionals. An evaluation system for SN directors using the developed materials is needed to validate the usefulness and effectiveness of the guide and the surveys. It would be beneficial to investigate district administrators' and school principals' evaluations of the guide to provide feedback about their role in planning and administering the survey.

Outcomes of the study and feedback from participating directors showed there is a need to develop a compilation of best practices and strategies for addressing unsatisfactory scores. This will help SN professionals in developing Customer Service Action Plans using the Continuous Quality Improvement framework as illustrated in the Web-based resource.

REFERENCES

Anderson, E., Fornell, C., & Lehmann, D. (1994). Customer satisfaction, market share, and profitability: Findings from Sweden. *Journal of Marketing, 58*(3), 53-66.

Asperin, A. E., Nettles, M. F., & Carr, D. H. (2008). *Investigation of factors impacting participation of high school students in the National School Lunch Program*. University, MS: National Food Service Management Institute.

Anderson, J. C., & Gerbing, D. W. (1988). Structural modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411-423.

Bitner, M. J. (1990). Evaluating service encounters: The effects of physical surroundings and employee responses. *Journal of Marketing, 54*, 69-82.

Bojanic, D. C., & Kashyap, R. (2000). A customer oriented approach to managing noncommercial foodservice operations. *Journal of Restaurant & Foodservice Marketing, 4*(1), 5-18.

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.

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.

Jones, M., & Suh, J. (2000). Transaction-specific satisfaction and overall satisfaction: An empirical analysis. *Journal of Services Marketing, 14* (2), 147-159.

Kandampully, J., Mok, C., & Sparks, B. (2001). *Service Quality Management in Hospitality, Tourism, and Leisure.* New York: The Haworth Hospitality Press.

Lambert, L., Carr, D., & Hubbard, S. (2006). *Continuous quality improvement process tailored for the school nutrition environment.* University, MS: National Food Service Management Institute.

Meyer, M. K., & Conklin, M. T. (1998). Variables affecting high school students' perceptions of school foodservice. *Journal of the American Dietetic Association, 98*(12), 1424-1429.

Meyer, M. K., Conklin, M., & Carr, D. (1997). *Child Nutrition Program Director/Supervisor's Survey Guide.* University, MS: National Food Service Management Institute.

Oliver, R. L. (1997). *Satisfaction: A behavioral perspective on the consumer*. New York: McGraw-Hill.

Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing*, *63*, 33-44.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Parasuraman, A., Zeithaml, V. A., Berry, L. L. (1985, Fall). A conceptual model of service quality and its implications for future research. *Journal of Marketing, 49*, 41-50.

Parasuraman, A., Zeithaml, V. A., Berry, L. L. (1988). SERVQUAL: a multi-item scale for measuring consumer perceptions of the service quality. *Journal of Retailing, 64*(1), 12-40.

Parasuraman, A., Zeithaml, V. A., Berry, L. L. (1991, Winter). Refinement and reassessment of the SERVQUAL scale. *Journal of Retailing, 67*(4), 420-450.

Appendix

High School Student Satisfaction and Non-Participation Survey Guide

Internal Benchmarking for School Nutrition Programs

NATIONAL FOOD SERVICE MANAGEMENT INSTITUTE

The University of Mississippi

High School Student Satisfaction and Non-Participation Survey Guide

Internal Benchmarking for School Nutrition Programs

Applied Research Division • The University of Southern Mississippi

High School Student Satisfaction and Non-Participation Survey Guide

Internal Benchmarking for School Nutrition Programs

National Food Service Management Institute
The University of Mississippi

Item Number R-147-09 (GY07)
2009

National Food Service Management Institute
The University of Mississippi
Building the Future Through Child Nutrition

The National Food Service Management Institute was authorized by Congress in 1989 and established in 1990 at The University of Mississippi in Oxford and is operated in collaboration with The University of Southern Mississippi in Hattiesburg. The Institute operates under a grant agreement with the United States Department of Agriculture, Food and Nutrition Service.

Purpose
The purpose of the National Food Service Management Institute is to improve the operation of child nutrition programs through research, education and training, and information dissemination.

Mission
The mission of the National Food Service Management Institute is to provide information and services that promote the continuous improvement of child nutrition programs.

Vision
The vision of the National Food Service Management Institute is to be the leader in providing education, research, and resources to promote excellence in child nutrition programs.

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Acknowledgments

Table of Contents

Introduction

The National Food Service Management Institute, Applied Research Division (NFSMI, ARD) conducted a series of multi-faceted studies to address both high school student satisfaction and declining participation in the National School Lunch Program (NSLP). Two high school foodservice surveys were developed as a result of these studies, namely *The School Lunch Experience Survey* (Asperin, Nettles, & Carr, 2009) and *The Non-Participation Survey* (Asperin, Nettles, & Carr, 2008). An expert panel of school nutrition (SN) directors assisted in pilot testing the surveys and in developing this resource. The *High School Satisfaction and Non-Participation Survey Guide* is designed to provide step-by-step instructions for using the surveys. This resource also includes research-based information from other NFSMI, ARD resources on customer service (Meyer, Conklin, & Carr, 1997) and continuous quality improvement (Lambert, Carr, & Hubbard, 2006).

This resource contains six other sections to guide the SN director and/or manager through the survey process:

- Planning for Survey Administration provides the SN director and/or manager guidance for choosing members of the survey team, timing of surveys, and frequency of survey administration.
- Survey Options describes *The School Lunch Experience Survey* and *The Non-Participation Survey*, and provides guidance for deciding which survey to utilize and how to select participants.
- Administering the Survey contains checklists for the SN director and/or survey team to refer to as they go through the survey process from pre-planning to the day after the survey is completed.
- Tabulating and Interpreting Results provides step-by-step instructions for using the Microsoft Excel templates.
- Developing a Customer Service Action Plan Using the Continuous Quality Improvement Process provides instructions for utilizing survey results to develop improvement plans.
- Appendices include copies of the surveys, parental consent templates, student assent statements, and memos to principals and/or teachers for surveys.

Focus groups with high school students have shown that students who eat school lunch frequently have different concerns from students who eat lunch two or less times a week. Measuring satisfaction focuses on the concerns of the first group, while measuring factors that influence non-participation addresses the concerns of the second group. The surveys outlined in this guide are research-based tools generalizable for use with the high school population (grades 9 through 12), regardless of district size. The surveys were designed for use by SN directors and/or managers as benchmarking and needs assessment tools for addressing student satisfaction and non-participation issues within the SN program. It is important for SN directors, managers, and staff to understand the factors that drive high school student satisfaction and influence declining participation in the NSLP, because these affect the overall success of the program.

Use of the Web-based resource and implementation of the survey(s) will aid SN professionals in establishing performance benchmarks. Valid and reliable data guide decision-making and empower the SN director, manager, and staff to address customer service issues in the effort to increase student satisfaction and participation. Although planning and administering the survey(s) may take considerable time, effort, and coordination, results provide a launching point for creating continuous improvement plans that will help SN directors, managers, and staff provide better services for high school students.

Although planning and administering the survey(s) may take considerable time, effort, and coordination, results provide a launching point for creating continuous improvement plans that will help SN directors, managers, and staff provide better services for high school students.

Planning for Survey Administration

Many school districts and/or schools have policies on conducting surveys with the student population. Some districts may require approval from the school board and/or parental consent before surveying students. It may take several months to be placed on the school board agenda and to obtain parental consent, so planning ahead is critical. In addition, it is important to check with the state agency overseeing SN programs for policies regarding surveys.

Team Approach to Survey Administration

To administer the customer service survey(s) successfully, it would be advantageous for the SN director to obtain support from the district and school community. Listed below are key individuals or groups that the SN director can coordinate with in planning and administering the survey(s). The SN director may choose only the appropriate resources depending on district structure and need.

Superintendent
It is recommended that the superintendent be included in the communication and approval process for surveying students. This is particularly important when district mandated research protocols are in place (e.g., parental consent, student assent).

School Administrators
It may be helpful to attend an administrative staff meeting to explain the survey process and the value of conducting a customer service survey. Work with the school administration to determine the process for contacting survey participants. A parental consent form is available, if needed (Appendices A-2 and B-2).

Principal
Involve the high school principal(s) in planning survey administration. He/She can be very helpful in the discussion on where and when to conduct the survey. The principal will be the key in gaining teacher support to assist with the survey process.

> To administer the customer service survey(s) successfully, it would be advantageous for the SN director to obtain support from the district and school community.

Teachers

Involve teachers in coordinating the survey process and meet with them to answer any questions or concerns. Teachers can provide a controlled environment in which students can take the survey(s). Schedule the survey(s) far enough in advance to allow teachers to incorporate this activity into their plans for classroom instruction.

School Nutrition Staff

Share plans for conducting the survey with the SN manager(s) and staff. It is important to let staff know that the survey is not meant to be punitive or critical, but that it is intended to provide a better understanding of what their customers want. Survey results give staff specific areas to focus on for improved customer service.

School Nutrition Advisory Council or Student Council

Students could assist with distributing and collecting surveys and making announcements to other students about the importance of the survey. They could be great peer-to-peer marketing tools for encouraging other students to participate in the survey.

Parents

In some cases, districts require parental consent every time students are asked to complete a survey. It is important that parents understand why the survey is being conducted and why their child's participation is valuable to program improvement.

Obtaining the support of the following individuals/groups may also be beneficial:

- School Board members
- District or school technology specialist
- Point-of-Sale (POS) provider and/or technical assistance team
- Wellness or health coordinator, including school nurses
- District or school evaluations coordinator (for assistance in survey distribution, formatting, and data encoding)

Timing of Surveys

The survey(s) will take approximately 30 minutes. This includes time for giving instructions, distributing the survey, and completing the survey. Consider using the cafeteria, library, or a classroom so that the students have tables or desks on which to take the survey. Considerations when scheduling survey administration are provided on the next page.

Beginning to Mid-Point of the School Year
SN directors recommend that the school year be in session for a minimum of one month (or at least one menu cycle) before a survey is conducted. Surveys conducted during the early part of the school year tend to yield higher survey scores because the program is still relatively new and students have not tired of the menu items. However, higher survey results may not be as beneficial in targeting areas that need improvement.

End of the School Year
Scheduling survey administration at this time may be difficult due to standardized academic year-end testing. In addition, lower scores may be observed because students tend to be tired of menu items. However, this will help in identifying specific areas for improvement.

Days of the Week
The best days of the week to conduct the survey are Tuesday, Wednesday, and Thursday. Carefully check the school calendar to ensure that scheduled field trips, standardized testing, special school activities, and themed days in the cafeteria (e.g., holidays, Halloween, Valentines, etc.) do not coincide with the survey schedule. It is suggested that the date of the survey be placed on the school calendar.

Time of the Day
Yield to principal's and/or teachers' decision for most appropriate time to conduct the survey.

Number of High Schools
If the survey is being conducted at more than one high school in the district, the survey should be conducted as close as possible to the same day and time in each school. This will allow appropriate comparisons to be made between schools.

Frequency of Survey Administration

It is recommended that the survey(s) be done only once during the year. Results of the first survey(s) become the SN program's baseline for internal benchmarking and the foundation for an improvement plan. Once an action plan for improvement is implemented, it takes time for changes to take effect and manifest results. If follow-up surveys will be conducted, it is suggested that these be repeated at the same time of the year. This increases the reliability of comparisons between established benchmarks and new data.

Points to consider when scheduling survey administration:
- *Time period in the school year*
- *Days of the week*
- *Time of the day*
- *Number of high schools*

Once an action plan for improvement is implemented, it takes time for changes to take effect and manifest results.

Survey Options

Both *The School Lunch Experience Survey* and *The Non-Participation Survey* are geared towards improving the SN program. However, using the appropriate survey is key in measuring operational performance and implementing action plans to achieve desired results. In some cases, the surveys may be administered simultaneously depending on the SN director's desired outcome.

> *Using the appropriate survey is key in measuring operational performance and implementing action plans to achieve desired results*

Description of Surveys

Survey	The Non-Participation Survey: Understanding Why High School Students Do Not Eat School Lunches	The School Lunch Experience Survey: Making your opinions known
Purpose	Identify reasons why high school students choose not to eat school meals provided by SN programs operating within the guidelines of the NSLP.	Provide SN directors and managers a benchmark of student perceptions and satisfaction of SN programs operating within the guidelines of the NSLP.
When to use the survey	• SN program has very low rate of participation at the high school level • Number of free/reduced price eligible students is greater than average daily participation	• SN program already has a high rate of participation at the high school level • SN program has low potential for growth (e.g., the cafeteria is not equipped to support a large increase in participation, but would like to keep students who already participate) • SN program has a large percentage of paying students
Applications	Results can help SN directors to • Focus improvement efforts on key factors that can influence the student's decision to start eating school meals more frequently; and • Prioritize which factors to address based on student feedback, as well as their ability to change these at the local level.	Benchmarking allows SN directors to • Establish minimum performance and set targets for factors that need to be improved; • Compare SN programs within a school district (if the district has two or more high schools); and • Measure changes in a single program if the survey is conducted periodically.

Both surveys are divided into four general sections as described in the table below. Although there are commonalities between the two surveys, the questions are not identical. The statements included have been derived statistically and are found to measure the students' perceptions regarding the SN program and their reasons for participating or not participating in the program.

Survey	The Non-Participation Survey: Understanding Why High School Students Do Not Eat School Lunches	The School Lunch Experience Survey: Making your opinions known
Section I	**Reasons for not eating school lunches** Provides specific reasons why students do not eat school lunches offered by the SN program Students are asked to use the phrase "My reason for not eating school lunches is that…" before each of 27 statements about SN program characteristics.	**Your lunch experience** Provides student perceptions of specific program characteristics that contribute to student satisfaction Students are asked to use the phrase "When I eat school lunches…" before each of 24 statements about SN program characteristics. The last three statements offer the SN director an overall evaluation of food quality, service, and student dining experience.
	Students are then instructed to indicate their level of agreement with each statement by using a 5-point scale, ranging from 5 (strongly agree) to 1 (strongly disagree).	
Section II	**Deciding to eat school lunches** Provides a quick snapshot of key factors that will influence the student's decision to start eating school lunches more frequently 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).	**Top reasons for eating school lunches** Provides a quick snapshot of key factors that influence the student's decision to eat school lunches frequently Students are asked to choose the top five (out of 14) statements as their reasons for eating school lunch.
Section III	**Tell us about you** Demographic questions on grade level and gender are included to provide the SN director 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.	
Section IV (Optional)	Individual programs may choose to include a section for student comments and other demographic questions, such as lunch period, high school campus (for districts with more than one high school conducting the survey), etc.	

Selecting Participants

The validity and usefulness of research findings greatly rely on the importance of sampling the appropriate group of students. To understand the reasons behind satisfaction and non-participation at the high school level, directors must first be able to identify the correct sample. It is recommended that the surveys be distributed as evenly as possible across grade levels.

The Non-Participation Survey

Because *The Non-Participation Survey* is designed to explore reasons why high school students do not choose to eat school lunches, the appropriate sample should be chosen from students who eat school lunches two or less times per week (or eight or less times a month). The table below will guide SN directors in determining the appropriate number of surveys to distribute. A second round of surveys should be distributed if the number of completed surveys is less than the required number indicated on the table.

> The validity and usefulness of research findings greatly rely on the importance of sampling the appropriate group of students.

The Non-Participation Survey		
Number of students who eat two or less times per week	Number of students to select for survey	Number of completed surveys required
50	50	40
100	90	80
150	120	110
200	145	130
250	165	150
300	190	170
350	205	185
400	220	200
450	230	210
500	240	220
750	280	255
1000	310	280
1250	325	295
1500	335	305
1750	360	325
Over 2000	365	330

SN directors have suggested the following methods for selecting participants:

- Use the point-of-sale (POS) system to electronically select a pool of students who eat school lunches two or less times per week. Contact the POS provider with assistance in generating a list of students who meet the criteria.
- In the absence of an automated POS system, check meal and/or free and reduced price eligibility rosters to identify the students who have eaten school lunch infrequently over the span of one month.
- Check that students chosen for the survey are not on the dropouts or frequent absentee lists.

The Non-Participation Survey

The appropriate sample should be chosen from students who eat school lunches two or less times per week (or eight or less times a month).

The School Lunch Experience Survey

The appropriate sample for *The School Lunch Experience Survey* is composed of students who eat school lunches an average of three or more times per week. Because the rate at which students complete and return the surveys has been shown to be lower for this survey, a larger number of distributed surveys is required for the information to be reliable. The table below will guide SN directors in determining the appropriate number of surveys to distribute. A second round of surveys should be distributed if the number of completed surveys is less than the required number indicated on the table.

> **The School Lunch Experience Survey**
>
> *The appropriate sample should be chosen from students who eat school lunches three or more times per week.*

The School Lunch Experience Survey		
Average daily participation at SN site	Number of surveys to be distributed	Number of completed surveys required
50	50	40
100	100	80
150	140	110
200	165	130
250	190	150
300	215	170
350	230	185
400	250	200
450	265	210
500	275	220
750	320	255
1000	350	280
1250	370	295
1500	380	305
1750	405	325
2000	415	330
2500	420	335
3000	425	340
Over 3000	440	352

The following methods for recruiting respondents have been suggested by SN directors:

- Use the POS to generate a list of students who eat school meals at least three times a week.
- Use the POS to electronically select a meal period with the highest percentage of frequent eaters. Invite students who belong to these meal periods to participate in the survey.
- Work with student leaders (e.g., Student Council, Leadership Council, presidents and vice presidents of student organizations) in distributing and administering the surveys.
- Work with teachers to administer the survey in their classes (e.g., health, nutrition).
- Work with school administrators to allow students to complete the survey during study hall, assembly, or homeroom.
- Work with team coaches to set aside time during practice to complete the survey. Market the importance of good nutrition for athletes.
- Ask the librarian to place a stack of surveys at the library check-out desk and to make a drop box available for students to submit completed surveys.
- Consider the possibility of combining the survey with the school satisfaction survey packet that students and/or parents receive at the end of the school year. Support from school administrators is vital for this option.

Administering the Survey

Once the appropriate survey has been chosen and approval from the school board or district administration has been obtained, the SN director must plan accordingly. This section provides timelines to guide the SN director in administering the survey.

Pre-Planning
- About two months or so before survey administration, obtain the required approvals (superintendent, principal, school board), as necessary.
- Ensure that all necessary documentation is in order before administering the survey.
- Contact and organize your survey team. This is particularly important for larger districts that require coordination between multiple high schools.

One Month Prior to Conducting the Survey
- Decide how the student sample will be selected. For *The Non-Participation Survey*, generate a list of high school students who do not eat school lunches frequently.
- Determine how the survey will be conducted and which individuals will be involved (e.g., teachers, technical support, POS provider). The following are some examples:
    - In-classroom pen and paper method;
    - Take home pen and paper method;
    - Web survey through district's Web site or other internet survey provider;
    - Internet-based survey via student e-mails; and
    - Online survey through POS provider's software.
- Determine if translations of the survey or parental consent forms are needed for high schools with multilingual student populations.
- Determine if any assistance for high school students with special needs have to be arranged to assist in survey completion.
- Work with appropriate school administrators to schedule the survey and to identify a venue.
- Inform principals and/or teachers of the upcoming survey (Appendices A-4 and B-4).
- Send consent forms to parents (Appendices A-2 and B-2), if required by district.

- Inform high school students that you will be conducting a survey and would appreciate their feedback.
  - This can be done as part of daily announcements, in a newsletter, direct mail, or on a monthly menu.
  - It is vital that students be informed of the important role they play in improving their SN program.
- Determine what token of appreciation you are going to provide the teachers and students involved in the survey process. For example, these could be personal "Thank You" notes, recognition in the school newsletter, or certificates of appreciation.

Two Weeks Prior to Conducting the Survey
- Remind students and teachers of the upcoming survey.
- Remind parents of the deadline for submitting parental consent forms, if applicable.
- Meet with the SN manager, teacher, or other school staff who will be administering the survey. Go over procedures for the survey, and provide clarifications for any questions and concerns.
- If using an alternative method of data collection, such as an online survey, follow-up with the service provider to ensure that it will be ready on schedule.

One Week Prior to Conducting the Survey
- If the paper and pencil method will be used, prepare a survey packet for each high school participating in the survey. Each packet should contain the following:
  - Appropriate number of surveys. Make sure that surveys are coded for each school when doing a multi-school survey. This may be done by using different colored sheets for each school, stamping the school name or identifying seal/logo in the upper right hand corner, or numbering the surveys and keeping a log of the survey numbers that are distributed to each school.
  - Copy of instructions for school administrator and/or teacher(s) who will administer the survey.
  - Student Assent (Appendices A-3 and B-3) statement to be read to students prior to survey completion. Providing this information ahead will allow school administrators and/or teachers to contact you should they have questions.

- If alternative methods of data collection will be used, such as an online survey, conduct a small test of the method to ensure that the tool is capturing data correctly.
- Check that the student assent statement is included in the survey tool if it will not be proctored by a school administrator/teacher.
- Distribute the surveys to each high school (i.e., survey packets, links to Web-based survey, and log-in information, if necessary).

Day After the Survey is Completed
- Follow-up to ensure that all school administrators and/or teachers have returned completed surveys. For various reasons, some may not be able to conduct the survey on the day scheduled.
- Showing appreciation goes a long way toward support and participation. Thank principals, teachers, students, and all groups that helped with the survey process.

Tabulating and Interpreting Results

NFSMI, ARD has developed easy-to-use Microsoft Excel templates that will enable SN directors to tabulate and analyze student responses. This section presents instructions for tabulating and interpreting the results of the survey(s). Both templates have three worksheets separated by tabs at the bottom of the screen.
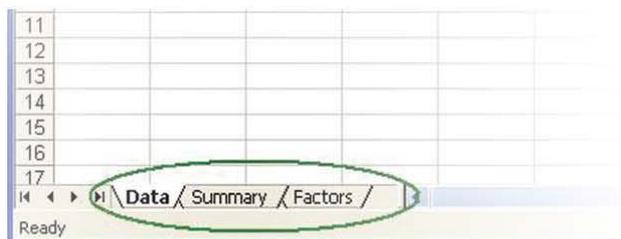
- Data (stores student responses)
- Summary (tabulates averages and frequencies of responses)
- Factors (displays factor and item averages)

Data Worksheet: Entering Student Responses

Step 1
Download appropriate template from the NFSMI Web site (http://www.nfsmi.org)
- For *The Non-Participation Survey* template, download the Microsoft Excel file "Non-Participation Survey Results".
- For *The School Lunch Experience Survey* template, download the Microsoft Excel file "School Lunch Experience Survey Results".

Step 2
Open appropriate Microsoft Excel file and click on the Data tab

Step 3
Enter student responses

The Non-Participation Survey Data

Keep in mind that the purpose of this survey was to discover why students in your program chose not to eat school meals. Thus, these results should reflect only the answers of students who eat at your cafeteria two or less times a week. Before preparing to input data, divide all surveys into two groups based on responses for Section III, Question 2. Input responses only from students who indicated that they ate an average of "Two or less" school lunches a week.
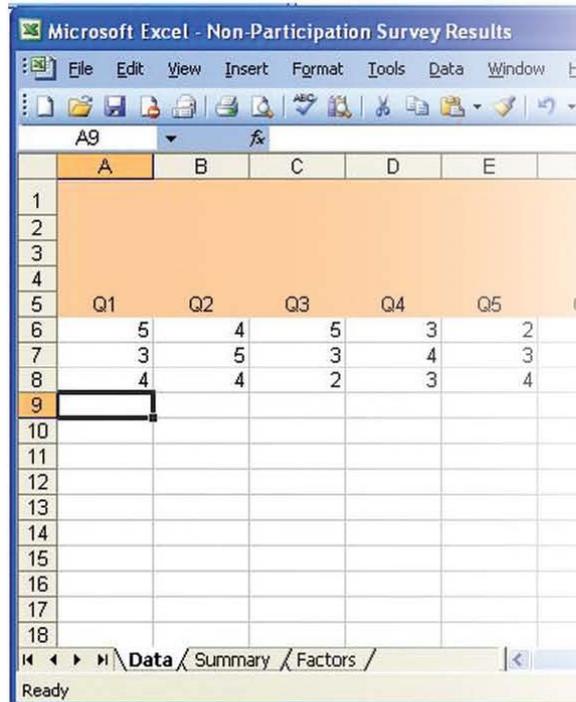
	Microsoft Excel - Non-Participation Survey Results				
	A	**B**	**C**	**D**	**E**
1					
2					
3					
4					
5	Q1	Q2	Q3	Q4	Q5
6	5	4	5	3	2
7	3	5	3	4	3
8	4	4	2	3	4
9					
10					

- Each row represents one student and each column represents a question on the survey.
- To enter data for each student, work from left to right.
- To enter data for multiple students, work from top to bottom.
- Columns A to AA correspond to Section I (Q1-Q27).
- Columns AB to AN correspond to Section II (Q1-Q13).
- Columns AO and AP correspond to Section III (Grade and Gender).

Starting on row six, enter student responses by using the following scale for Sections I and II

5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree, NR=No response

Column AO corresponds to the student's grade level
1=9th grade, 2=10th grade, 3=11th grade, 4=12th grade

Column AP corresponds to the student's gender
1=Male, 2=Female

The School Lunch Experience Survey Data

Keep in mind that the objective of this survey is to measure the perceptions and satisfaction of students who eat school lunches frequently. Thus, these results should reflect only the answers of students who eat at your cafeteria three or more times a week. Before preparing to input data, divide all surveys into two groups based on responses for Section III, Question 2. Input responses only from students who indicated that they ate an average of "Three or more" school lunches a week.

- *Each row represents one student and each column represents a question on the survey.*
- *To enter data for each student, work from left to right.*
- *To enter data for multiple students, work from top to bottom.*
- *Columns A to X correspond to Section I (Q1-Q24).*
- *Columns Y to AL correspond to Section II (Choices 1-14).*
- *Columns AM to AN correspond to Section III (Grade and Gender).*

Starting on row six, enter student responses by using the following scale for Section I
5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, 1=Strongly Disagree, NR=No response

Columns Y to AL corresponds to the 14 reasons why high school students eat school lunches
1= Yes (checked), 2= No (not checked)

Example

A student chooses the following as her reasons for eating school lunches: "It's convenient", "I am hungry", "I like the variety of menu items", "It fits my schedule", and "It's affordable". These items should have a 1 and the rest of the columns should have a 2, as shown below.

	Y	Z	AA	AB	AC	AD	AE
4							
5	Convenience	Like food	Hungry	Balanced Meal	No Food	Different foods	No Choice
6	1	2	1	2	2	2	2

AF	AG	AH	AI	AJ	AK	AL
Variety	Friends	Pre-Pay	Know Menu	Schedule	After School	Affordable
1	2	2	2	1	2	1

Column AM corresponds to the student's grade level
1=9th grade, 2=10th grade, 3=11th grade, 4=12th grade

Column AN corresponds to the student's gender
1=Male, 2=Female

Summary Worksheet: Interpreting the Data

After entering all student responses on the Data worksheet, the SN director can click on the "Summary" tab to see means (averages), frequencies, and percentages for each question on the survey. The mean is the average score for all of the students who answered that item. Frequencies show how many students selected each possible option for a given question (e.g., for gender, frequencies will show how many students responded "male" and how many responded "female"). The same information is also provided as percentages. Formulas have been imbedded in the worksheets so that these statistics are calculated as data is entered. The following examples illustrate how the Summary worksheet can be interpreted.

The Non-Participation Survey Results

- Rows 1 to 17 display the means, frequencies, and percentages for all questions in Section I.
- Rows 20 to 36 display the means, frequencies, and percentages for all questions in Section II.
- Rows 39 to 51 display the frequencies and percentages for both questions in Section III.
- Totals only reflect the number of valid responses per question. These do not reflect students who left the questions blank.

Example
Section I

- In this section, students are asked to respond by using the phrase "My reason for not eating school lunches is that…" before each of 27 statements about SN program attributes.

- Keep in mind that the purpose of this section was to discover why students in your program chose not to eat school meals. Because of this, most of the items were written in the negative so that it was easier for the students to respond to the questions.

- The statement for Q1 reads, "The food does not taste good." According to the results, 27 students (51.92%) strongly agree that they do not eat school lunches because the food does not taste good and only 3 (5.77%) students say that this is not a primary reason why they do not eat school lunch.

	A	B	C	D
1	**SECTION I**			
2		Q1	Q2	Q3
3	**MEAN**	3.94	4.38	4.31
4	**Frequency**			
5	SD	3	2	4
6	D	2	1	2
7	N	17	8	5
8	A	3	5	4
9	SA	27	36	37
10	Total*	52	52	52
11				
12	**PERCENTAGE**			
13	SD	5.77	3.85	7.69
14	D	3.85	1.92	3.85
15	N	32.69	15.38	9.62
16	A	5.77	9.62	7.69
17	SA	51.92	69.23	71.15
18				

- Given the average rating as a 3.94 for Q1, the SN director can conclude that in general, students who do not eat school lunches will most likely perceive that food does not taste good and will rate this question a 4 (Agree) out of 5.

- Looking at the means for Q1, Q2, and Q3, the SN director can assume that Q2, "I prefer to eat what I bring from home" and Q3, "The amount of food is inadequate" are stronger reasons for students who choose not to eat school lunches. However, it may be advantageous for the SN director to ask students if the taste of the food and the serving portions are reasons why they prefer to eat what they bring from home.

- SN directors have suggested that scores of 3.5 and above in this section should be given the highest priority in determining areas of improvement.

> **The Non-participation Survey, Section I**
>
> SN directors have suggested that scores of 3.5 and above in this section should be given the highest priority in determining areas of improvement.

Section II
- In this section, students are asked to use the phrase, "I would be more likely to eat school lunches if…" before each of 13 statements.
- The statement for Q1 reads, "The overall quality (taste, appearance, temperature) of the food served were better."

		Q1	Q2	Q3
SECTION II				
		Q1	Q2	Q3
MEAN		3.94	4.38	4.31
Frequency				
	SD	8	1	9
	D	4	3	4
	N	24	5	7
	A	8	11	22
	SA	8	32	9
Total*		52	52	51
PERCENTAGE				
	SD	15.38	1.92	17.65
	D	7.69	5.77	7.84
	N	46.15	9.62	13.73
	A	15.38	21.15	43.14
	SA	15.38	61.54	17.65

- Based on the results, 24 students neither agreed nor disagreed with the statement. The SN director can conclude that among the 52 students who answered, only 16 (30.77%) would be inclined to eat school lunches more frequently if the food quality improved.
- Looking at the means for Q1, Q2, and Q3, the SN director can assume that Q2, "There were more variety in the menu from day to day" and Q3, "There were more healthy options available" have higher scores than Q1. Addressing Q2 and Q3 will most likely have a greater impact on the students' decision to start eating school lunch more frequently.
- With a vast majority of students agreeing or strongly agreeing with Q2 (82.69%) and Q3 (60.79%), a review of the menu is recommended. Revisions to the menu that include greater variety from day to day and more healthy options can increase student participation.

Section III

- This section will assist the SN director in determining if the diversity of the students sampled was adequate.
- Based on the table, the majority of the students sampled (42%) were seniors and only 10% accounted for freshmen. An unbalanced sample such as this may skew the data and produce results that do not reflect the average evaluations of students who do not eat school lunches.

	SECTION III		SECTION III
			Frequency	Percentage
	GRADE		
	9	5	10.00
	10	12	24.00
	11	12	24.00
	12	21	42.00
	Total*	50	
	GENDER		
	Male	24	48.98
	Female	25	51.02
	Total*	49	

- The table shows that there is a fairly even split between males (24) and females (25). This is critical in minimizing bias.
- The two totals are different because one student chose not to indicate his/her gender. The worksheet was designed to eliminate missing data.

The School Lunch Experience Survey Results

	A	B	C
1	SECTION I		
2		Q1	Q2
3	MEAN	4.33	4.37
4	Frequency		
5	SD	2	3
6	D	2	1
7	N	9	7
8	A	3	4
9	SA	36	37
10	Total	52	52
11			
12	PERCENTAGE		
13	SD	3.85	5.77
14	D	3.85	1.92
15	N	17.31	13.46
16	A	5.77	7.69
17	SA	69.23	71.15
18			
19			

- Rows 1 to 17 display the means, frequencies, and percentages for all questions in Section I.
- Rows 20 to 29 display the frequencies and percentages for all questions in Section II.
- Rows 32 to 44 display the frequencies and percentages for questions in Section III.
- Totals only reflect the number of valid responses per question. These do not reflect students who left the questions blank.

Example
Section I

- In this section, students are asked to use the phrase "When I eat school lunches…" before each of 24 statements about SN program attributes.

- The statement for Q1 reads, "The food served is fresh." According to the results, about half (50.98%) of the students neither agreed nor disagreed with the statement. The SN director can assume that one out of every two students who eat frequently at the cafeteria will most likely rate this item a 3. This is an indication of student perception that freshness is acceptable, but could be improved.

	A	B	C	D
1	**SECTION I**			
2		Q1	Q2	Q3
3	**MEAN**	3.06	4.08	3.10
4	**Frequency**			
5	SD	2	1	2
6	D	9	3	10
7	N	26	8	23
8	A	12	19	13
9	SA	2	21	3
10	**Total**	51	52	51
11				
12	**PERCENTAGE**			
13	SD	3.92	1.92	3.92
14	D	17.65	5.77	19.61
15	N	50.98	15.38	45.10
16	A	23.53	36.54	25.49
17	SA	3.92	40.38	5.88

- In comparison, a majority of students agreeing (36.54%) or strongly agreeing (40.38%) with Q2, "The staff understands my meal time needs" indicates that students perceive staff performance on this item as above average. The SN director should consider this an area of strength.

- The pattern of responses in each rating category for Q1 and Q3, "The food tastes good" are very similar. Since both of these are related to food quality, the SN director can further investigate if the perception of freshness is affecting the students' evaluation of taste, or vice versa. If so, improving one item would most likely improve perceptions of the other.

- SN directors have suggested that for program excellence, mean scores of 4 and above are desirable in this section. Scores between 3 and 4 are acceptable, while scores of 3 and below should be given priority in determining areas of improvement.

The School Lunch Experience Survey, Section I

SN directors have suggested that for program excellence, mean scores of 4 and above are desirable in this section. Scores between 3 and 4 are acceptable, while scores of 3 and below should be given priority in determining areas of improvement.

Section II

- In this section, high school students are asked to choose the top five (out of 14) statements as their reasons for eating school lunch.
- Based on the example below, the top reasons for this group of students were: "I am hungry" (94.23%); "I didn't bring anything to eat" (69.23%); "It's convenient" (55.77%); "I have no choice" (40.38%); and "My parents/I pay in advance" (40.38%).
- Only 7.69% of students participate primarily because they are able to get a balanced meal. Likewise, only a minority (13.46%) of students view being able to try different foods and knowing what is being served as key reasons for participating.

	SECTION II					
						Different
	Convenience	Like food	Hungry	Balanced Meal	No Food	foods
Frequency						
Yes	29	11	49	4	36	7
No	23	41	3	48	16	45
Total	52	52	52	52	52	52
PERCENTAGE						
Yes	55.77	21.15	94.23	7.69	69.23	13.46
No	44.23	78.85	5.77	92.31	30.77	86.54

No Choice	Variety	Friends	Pre-Pay	Know Menu	Schedule	After School	Affordable
21	10	20	21	7	13	12	14
31	42	32	31	45	39	40	38
52	52	52	52	52	52	52	52
40.38	19.23	38.46	40.38	13.46	25.00	23.08	26.92
59.62	80.77	61.54	59.62	86.54	75.00	76.92	73.08

Section III

- This section will assist the SN director in determining if the diversity of the high school students sampled was adequate.
- Based on the table, the sampling from the different grade levels was adequate. However, the table shows that the majority of the students sampled (62.75%) were female. This should be taken into account when interpreting the responses obtained in Sections I and II. The SN director may also consider recruiting additional male respondents. An additional three male respondents from each grade level would provide a more balanced sample.

	SECTION III		SECTION III
	GRADE	Frequency	Percentage
	9	12	23.53
	10	15	29.41
	11	11	21.57
	12	13	25.49
Total*		51	
	GENDER	Frequency	Percentage
	Male	19	37.25
	Female	32	62.75
Total*		51	

Error Checking

- When the symbol "#DIV/0!" appears on the Summary worksheet, it means that the appropriate data has not been entered on the Data worksheet. Check that no columns on the Data tab are left blank (refer to the example below).

	A	B	C	D	E
	SECTION I				
		Q1	Q2	Q3	Q4
	MEAN	6.29	1.88	4.10	#DIV/0!
	Frequency				
	SD	0	27	4	0
	D	1	2	3	0
	N	4	10	7	0
	A	9	2	8	0
	SA	36	9	30	0
Total*		50	50	52	0
	PERCENTAGE				
	SD	0.00	54.00	7.69	#DIV/0!
	D	2.00	4.00	5.77	#DIV/0!
	N	8.00	20.00	13.46	#DIV/0!
	A	18.00	4.00	15.38	#DIV/0!
	SA	72.00	18.00	57.69	#DIV/0!

Summary Worksheet

	A	B	C	D
4				
5	Q1	Q2	Q3	Q4
6	4	3	3	
7	3	0	2	
8	4	3	NR	
9	55	2	5	
10	4	3	1	
11	4	1	4	
12	4	0	NR	
13	3	0	3	
14	4	5	4	
15	42	2	3	
16	4	1	4	
17	4	5	5	

Data Worksheet

- If any of the means for Section I are greater than 5.0, check the Data worksheet for errors (e.g., double key strokes such as "55" instead of 5, "42" instead of "4" for Column A and "2" for Column B).
- If averages are unusually (and unexpectedly) low, check the Data worksheet and make sure that when students did not respond to a question, it was recorded as NR (no response) instead of zero.

Factors Worksheet: Understanding Factor Scores

After a series of pilot tests with high school students across the United States, the characteristics or indicators for Section I were grouped into factors that represent operational aspects of the SN program. Below is a table comparing the factors and related survey statements.

The Non-Participation Survey	The School Lunch Experience Survey
Food Quality • The food does not taste good. • I do not like what is served. • The food does not appear nutritious. • I can not recognize what the food is. • The food choices do not change. • The food does not appear fresh. • The choices offered are not those on the menu. • The food is not cooked correctly. • The food does not look healthy. • The food does not look appealing. • The overall food quality is poor.	**Food Quality** • The food served is fresh. • The food tastes good. • There is a variety of food items that I can choose from. • The food smells good. • The flavors of the food go well together. • There is a variety in the menu from day to day. • The food looks appealing. • The food is cooked to the proper doneness. • The food has a homemade quality.
Staff • The staff is not friendly. • The staff does not speak to me. • The staff is not always pleasant. • The cafeteria appears unclean.	**Staff Responsiveness and Empathy** • The staff understands my meal time needs. • The menu provides healthy meal options. • The staff looks like they enjoy their work. • The service is friendly. • I know that I can offer suggestions.
Food Access • The amount of food is inadequate. • The food I like is gone when I get to the cafeteria. • I have to go to different lines to get the food I want. • I do not get enough food. • They run out of food.	**Program Reliability** • The amount of food I get is enough. • There is enough seating space in the dining area. • The serving portions are consistent. • I know what is being served before I get to the cafeteria. • I could purchase other items (a la carte) if I don't want the full meal. • I have enough time to eat. • The quality of the food is consistent.
Dining Area Capacity • There is not enough space in the dining room. • There are not enough places to sit.	
Schoolwork • I need time to catch up on school work. • I'm busy with school projects.	
Food from Home • I prefer to eat what I bring from home. • I bring my own food. • My parents purchase food for me to take to school.	

The indicators are grouped together because they are highly associated with each other. Together, they can provide a snapshot of student perceptions for each factor. Although there are similarities between the indicators used in the two surveys, the number of factors and the grouping of indicators within the factors are not identical. This shows that students who eat two or less times a week may have different perceptions and concerns about the SN program compared to students who eat frequently.

Example
Interpreting The Non-Participation Survey Results
- The six factors affecting non-participation can be classified as internal or external to the SN operation. Food Quality, Food Access, and Staff are operationally controllable and could be addressed internally. Dining Area Capacity, Schoolwork, and Food from Home are generally external to SN program operations and may be addressed with the assistance of other stakeholders (e.g., district and/or school administration, teachers, parents, other community members).
- SN directors have suggested that improvement plans should give higher priority to factors that are operationally controllable. These would most likely have the greatest impact on increasing participation rates.
- Looking at the example on the next page, Food Access (3.92) is the biggest operational concern of students, closely followed by Food Quality (3.89), and Staff (3.51).
- In examining the indicators within Food Access, the primary concerns of the students are that the amount of food is inadequate, the cafeteria runs out of food, and the food they like is not available when they get to the cafeteria. Operationally, these could be addressed by observing and analyzing menu forecasting practices, consistency of serving portions, production schedules, and adherence to standardized recipes.
- To improve Food Quality, it is apparent that one approach is to present the food better so high school students will perceive it as nutritious, fresh, healthy, and appealing.

Microsoft Excel - Non-Participation Survey Results

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	A	B	C	D	E
1	Question number	FACTORS	Means	Valid Responses	
2		FOOD QUALITY	3.89		
3	1	The food does not taste good.	3.94	52	
4	6	I do not like what is served.	2.92	52	
5	8	The food does not appear nutritious.	4.56	52	
6	13	I can not recognize what the food is.	3.42	52	
7	14	The food choices do not change.	3.94	51	
8	16	The food does not appear fresh.	4.46	52	
9	17	The choices offered are not those on the menu.	3.31	51	
10	18	The food is not cooked correctly.	4.31	49	
11	20	The food does not look healthy.	4.18	50	
12	22	The food does not look appealing.	4.14	51	
13	27	The overall food quality is poor.	3.62	52	
14					
15		FOOD ACCESS	3.92		
16	3	The amount of food is inadequate.	4.31	52	
17	10	The food I like is gone when I get to the cafeteria.	4.20	49	
18	12	I have to go to different lines to get the food I want.	3.70	50	
19	23	I do not get enough food.	3.13	52	
20	24	They run out of food.	4.31	49	
21					
22		DINING AREA CAPACITY	3.87		
23	4	There is not enough space in the dining room.	4.12	52	
24	19	There are not enough places to sit.	3.63	51	
25					
26		STAFF	3.51		
27	5	The staff is not friendly.	3.52	52	
28	15	The staff does not speak to me.	3.44	52	
29	25	The staff is not always pleasant.	3.40	52	
30	26	The cafeteria appears unclean.	3.67	52	
31					
32		SCHOOLWORK	3.45		
33	11	I need time to catch up on school work.	3.38	52	
34	21	I'm busy with school projects.	3.51	51	
35					
36		FOOD FROM HOME	3.94		
37	2	I prefer to eat what I bring from home.	4.38	52	
38	7	I bring my own food.	4.21	52	
39	9	My parents purchase food for me to take to school.	3.21	52	
40					

◄ ► ►I \ Data / Summary \ Factors /

Ready

Example
Interpreting The School Lunch Experience Survey Results
- In addition to Food Quality, Program Reliability, and Staff Responsiveness and Empathy, the Factors worksheet for The School Lunch Experience Survey also includes an Overall Evaluation that provides the director with a snap-shot of student evaluations for food quality, service quality, and overall quality of the dining experience.
- SN directors suggested that the factor with the lowest score should be given the highest priority when planning for improvement. However, they cautioned against completely ignoring the factor with the highest score. All the indicators within the factors should be examined for poor performance.
- Looking at the example given on the next page, students perceived that the SN program performed best in the factor Program Reliability (3.86). However, the item "The serving portions are consistent" (3.20) received one of the lowest scores across the three factors and should be addressed.
- In examining the indicators within Food Quality, students rated freshness (3.06), taste (3.10), and homemade quality (3.22) of the foods the lowest. Improving these three indicators, especially the freshness of the food items, would most likely improve the students' evaluations of other food quality indicators.
- Based on the example, students evaluated the quality of service (3.78) higher than food quality (3.18). Seeing that the overall quality of dining experience (3.29) is rated lower than the quality of service, it is evident that even if the staff does well, food quality still strongly influences the students' evaluation of the overall dining quality.

Microsoft Excel - School Lunch Experience Survey Results

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	A	B	C	D	E
1	Question number	FACTORS	Means	Valid Responses	
2		FOOD QUALITY	3.40		
3	1	The food served is fresh.	3.06	51	
4	3	The food tastes good.	3.10	51	
5	4	There is a variety of food items that I can choose from.	3.31	52	
6	5	The food smells good.	3.50	52	
7	8	The flavors of the food go well together.	3.87	52	
8	10	There is a variety in the menu from day to day.	3.84	50	
9	11	The food looks appealing.	3.35	52	
10	12	The food is cooked to the proper doneness.	3.39	51	
11	13	The food has a homemade quality.	3.22	51	
12					
13		PROGRAM RELIABILITY	3.86		
14	7	The amount of food I get is enough.	4.12	52	
15	16	There is enough seating space in the dining area.	4.46	52	
16	17	The serving portions are consistent.	3.20	51	
17	18	I know what is being served before I get to the cafeteria.	4.14	50	
18	19	I could purchase other items (à la carte) if I don't want the full meal.	3.60	50	
19	20	I have enough time to eat.	3.96	51	
20	21	The quality of the food is consistent.	3.53	51	
21					
22		STAFF RESPONSIVENESS AND EMPATHY	3.63		
23	2	The staff understands my meal time needs.	4.08	52	
24	6	The menu provides healthy meal options.	3.10	51	
25	9	The staff look like they enjoy their work.	3.60	52	
26	14	The service is friendly.	3.96	51	
27	15	I know that I can offer suggestions.	3.43	51	
28					
29		OVERALL EVALUATION			
30					
31	22	The overall quality (taste, appearance, temperature) of the food served is good.	3.18	51	
32	23	The overall quality of the service is good.	3.78	51	
33	24	The overall quality of my dining experience is good.	3.29	51	
34					
35					

Data / Summary / Factors /

Ready

Other Suggestions from School Nutrition Directors

- Ask the following contacts for help with statistical data analysis if you require more information than the templates provide:
  - Faculty, graduate students, or extension specialists at nearby colleges or universities;
  - High school teachers (especially those teaching math, statistics, or business courses); and
  - District or school technology officer (for converting online survey data base or scantron automated results into an uploadable data file for Microsoft Excel).
- Seek assistance from district's superintendent or public relations officer to create a proactive media release statement reporting top positive results as well as actionable negative points with an accompanying plan for improvement. This report may be given to parents, students, and community members via the SN program's Web site, school newsletter, and local print or broadcast media in the form of public service announcements or featured articles.

Developing a Customer Service Action Plan Using the Continuous Quality Improvement Process

Results of both *The School Lunch Experience Survey and The Non-Participation Survey* can be used to develop a Customer Service Action Plan (Appendix C) geared towards advancing the SN program. The modified Problem Solving Discipline Approach (Rampersad, 2001) outlined in NFSMI's *Continuous Quality Improvement Process Tailored to the School Nutrition Environment* (Lambert, et al., 2006) can guide SN directors and managers in creating a realistic, achievable, and actionable plan to accomplish operational changes.

The Continuous Quality Improvement (CQI) process involves six steps:
Step 1: Define area(s) for improvement
Step 2: Identify all possible causes
Step 3: Develop a CQI Action Plan
Step 4: Implement the CQI Action Plan
Step 5: Evaluate measurement outcome(s) for program improvement
Step 6: Standardize the CQI process

As with survey administration, a team approach to CQI is advisable. It is important to include diverse perspectives by involving SN staff with different degrees of work experience, education levels, job responsibilities, and cultural backgrounds (Lambert et al., 2006). Involving SN staff is essential, because they are individually and collectively responsible for most customer service outcomes. Other stakeholders such as principals, students, teachers, parents, or custodians may also be asked for specific input when/if necessary.

The CQI process

Step 1
Define area(s) for improvement

Step 2
Identify all possible causes

Step 3
Develop a CQI Action Plan

Step 4
Implement the CQI Action Plan

Step 5
Evaluate measurement outcome(s) for program improvement

Step 6
Standardize the CQI process

Step 1
Define area(s) for improvement
- Discuss survey results with SN staff. Highlight and commend excellent performance first before introducing areas requiring immediate improvement.
- Based on survey results, identify the factors that students perceive as the areas that need most improvement.
  - For *The Non-Participation Survey*, a HIGH score in Section I often reflects the students' perception that the SN program is NOT doing well in that category. For example, a 4.10 on the item "The food does not taste good" means that the students agree and therefore perceive that the palatability of the food needs to improve. Higher factor averages indicate your greatest challenge or area of improvement.
  - For *The School Lunch Experience Survey*, the higher the item and/or factor score, the better is the students' perceptions of their dining experience. These indicate your areas of strength. Factors with the lowest scores should be given the priority and would likely have the most significant impact on program improvement.
- These factors may vary per SN site, thus conducting individual meetings with managers is advisable to review the scores specific to each SN site.

Step 2
Identify all possible causes
- With the CQI team, list all the possible causes that may have contributed to the unfavorable scores on the survey(s). Remember that CQI focuses on program advancement by improving processes instead of finding fault with individuals (Spears & Gregroire, 2007).
- These underlying causes may include, but are not limited to:
  - Materials (e.g., ingredients, non-food supplies);
  - Methods (e.g., batch cooking, menu planning, service protocols);
  - Staff (e.g., skills training, number of staff, staffing schedules);
  - Facilities (e.g., equipment, kitchen lay-out, seating capacity);
  - Environment (e.g., air conditioning, cleanliness); and
  - Other operational aspects (e.g., budget, communications/information, time, utilities).

Factors for improvement may vary per SN site, thus conducting individual meetings with managers is advisable to review the scores specific to each SN site.

- Factors that need improvement may be the same across multiple SN sites (e.g., Food Quality), but the underlying reasons may be different for each high school (e.g., taste, doneness, aroma, visual appeal).
- After the team determines the causes, select those that have the greatest impact on the factor to be improved, and use these to develop the CQI Action Plan as outlined in Step 3.

Step 3
Develop a CQI Action Plan
- List measurable key actions for improvement.
- Specify how improvement will be measured (desired outcome).
- Identify the person responsible for completing the key actions.
- Agree on the time frame or schedule for completion.
- Prioritize the action steps based on factors(s) that need the most immediate improvement.
- Assess commonalities across multiple school sites. Develop over-all strategies for factors, but tailor key actions to individual SN sites.
- On the following page is an example of how the Action Plan should be filled out given the following scenario:

    The School Lunch Experience Survey was conducted in early October and the SN program received the lowest scores for the following factors and items.
    1) Program Reliability: The serving portions are consistent.
    2) Food Quality: The food looks appealing.

Step 4
Implement the CQI Action Plan
- Share the CQI Action Plan and expected outcomes with SN staff. Explain their role and importance in program improvement. The success of CQI implementation hinges on the active involvement of SN staff.
- Within the SN site, the manager should be prepared to provide staff with assistance and ask for support from the director when warranted.
- During the period of implementation, the SN director should conduct informal observations to monitor progress, provide constructive feedback, and/or assist in addressing roadblocks when necessary.

Customer Service Area to be Improved _____ Program Reliability _____ **Priority** 1

Key Actions	Measurement	Person Responsible	Time Line
1. Train staff on following standardized recipes and appropriate portion control	1. 100% of staff will participate in training	1. SN Manager	1. October
2. Serving portions are consistent for every student served	2. Number of portions sold (PS) plus left over portions (LO) equals yield (Y) as per standardized recipes for month of October	2. SN Assistant	2. October

Evaluating Measurement Outcome

Customer Service Area to be Improved _____ Food Quality _____ **Priority** 2

Key Actions	Measurement	Person Responsible	Time Line
1. Develop a garnishing list to use with menu items	1. Provide garnishing list to SN production staff	1. SN Manager	1. October
2. Train SN staff on garnishing techniques	2. 100% of staff will participate in training	2. SN Manager	2. October
3. Present food items on the serving line in an attractive way	3. At least two main entrées and two side dishes will be garnished daily for the month of November	3. SN Assistant	3. November

Evaluating Measurement Outcome

Step 5
Evaluate measurement outcome(s) for program improvement

- Use quantitative measurements when evaluating implementation success. Examples of these measurements include, but are not limited to, numbers and percentages, participation rates, meals per labor hour, plate waste, food costs, and equipment usage. Information from profit and loss statements, point-of-sale (POS) reports, production sheets, inventory records, HACCP documentation, follow-up surveys, and staffing records may also be useful in quantifying improvement.
- Schedule follow-up meeting(s) to review actions completed, commend improvement, discuss any concerns, and identify future actions.
- If the measurement outcome does not meet the anticipated outcome, the CQI team can agree to do one of three recommendations:
    1) Determine corrective action, set a new deadline for completion, and reevaluate the measurement outcome;
    2) Return to Step 1 and redefine the area of improvement; or
    3) Return to Step 3 to re-evaluate the action plan chosen by the CQI team.
- Communicate updated Action Plan to SN staff and pertinent stakeholders when needed (e.g., school administrators, custodian staff, district staff).
- On the following page is an example with the Evaluation Measurement Outcome section completed.

Customer Service Area to be Improved _____ Program Reliability _____ **Priority** | 1 |

Key Actions	Measurement	Person Responsible	Time Line
1. Train staff on following standardized recipes and appropriate portion control	1. 100% of staff will participate in training	1. SN Manager	1. October
2. Serving portions are consistent for every student served	2. Number of portions sold (PS) plus left over portions (LO) equals yield (Y) as per standardized recipes for month of October	2. SN Assistant	2. October

Evaluating Measurement Outcome

1. 97% of staff participated in training. *Note: Provide on-the-job training for staff who were absent during training*

2. Data from production sheets and POS:
- 90% : PS + LO = Y
- 6% : PS + LO < Y
- 4%: PS + LO > Y

Note: Track and re-evaluate for month of November.

Customer Service Area to be Improved _____ Food Quality _____ **Priority** | 2 |

Key Actions	Measurement	Person Responsible	Time Line
1. Develop a garnishing list to use with menu items	1. Provide garnishing list to SN production staff	1. SN Manager	1. October
2. Train SN staff on garnishing techniques	2. 100% of staff will participate in training	2. SN Manager	2. October
3. Present food items on the serving line in an attractive way	3. At least two main entrées and two side dishes will be garnished daily for the month of November	3. SN Assistant	3. November

Evaluating Measurement Outcome

1. 100% of production staff were given copies of garnishing list

2. 100% of staff attended training

3. 98% of main entrées were garnished; 92% of side dishes were garnished
Note: Re-evaluate in December

Step 6
Standardize the CQI process

- Based on perceived impact on the program (participation rates, bottom line, customer feedback), the CQI team determines which improvement initiatives should be sustained, discontinued, or reassessed.
- If the CQI team determines that the outcomes of the Action Plan are acceptable and impacts to program improvement are significant, these should be incorporated into daily operations in the form of policies and/or procedures.
- Using the example on the previous page, if POS records show that garnished entrées and side dishes are sold significantly more than items that are not, then garnishing protocols should be included in standardized recipes for all menu items.

Summary

Measuring student perceptions is important for establishing internal benchmarks that lead to program improvement. Because customer feedback impacts decision-making for the SN program, using the correct survey instrument and process will facilitate the gathering of reliable data. Understanding this information to develop solutions will encourage increased participation for high school students who do not eat school lunches frequently, as well as facilitate customer satisfaction and retention for students who already take part in the NSLP.

References

Asperin, A. E., Nettles, M. F., & Carr, D. (2008). *Investigation of factors impacting participation of high school students in the National School Lunch Program.* (Technical Report Item No. R-133-08). University, MS: National Food Service Management Institute.

Asperin, A. E., Nettles, M. F., & Carr, D. (2009). *Exploring factors that affect the school lunch experience of high school students participating in the National School Lunch Program.* (Technical Report Item No. R-147-09). University, MS: National Food Service Management Institute.

Lambert, L., Carr, D., & Hubbard, S. (2006). *Continuous quality improvement process tailored for the school nutrition environment.* (Resource Item No. R-95-05). University, MS: National Food Service Management Institute.

Meyer, M. K., Conklin, M., & Carr, D. (1997). *Child Nutrition Program director/supervisor's survey guide.* (Resource Item No. R-28-97). University, MS: National Food Service Management Institute.

Rampersad, H. K. (2001). *Total quality management: An executive guide to continuous improvement,* (pp 11-18). Heidelberg, Germany: Springer-Verlag.

Spears, M. C., & Gregoire, M. B. (2007). Managing Quality. In *Foodservice organizations: A managerial and systems approach,* (6th ed., pp. 33-51). Upper Saddle River, NJ: Prentice Hall.

Appendix A

The Non-Participation Survey

Understanding Why High School Students Do Not Eat School Lunches

Appendix A-1

The Non-Participation Survey

The Non-Participation Survey
Understanding Why High School Students Do Not Eat School Lunches

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

Correct ●●●   ◄ Use No. 2 Pencil Only   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

Page 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.

1. What is your grade in school?
   ○ 9th Grade ○ 10th Grade ○ 11th Grade ○ 12th Grade

2. On average, how many times PER WEEK do you eat school lunch?
   ○ Two or less ○ Three or more

3. What is your gender?
   ○ Male ○ Female

Thank you for your time and input!

Page 2

Parental Consent (Template)

Authorization to Participate in Survey

The Non-Participation Survey
Understanding Why High School Students Do Not Eat School Meals

Dear Parent/Guardian:

The school nutrition (SN) program at your son/daughter's school is conducting a survey to learn more about the reasons why high school students choose not to eat school meals. This survey will be given to students in your son/daughter's high school on (insert date, time, and location) and will last approximately 15 to 30 minutes.

Participation in this project is completely voluntary and you have the right to refuse to allow your son/daughter to participate. He/She has the right to refuse to participate even if you give your permission. He/She may refuse to answer any of the questions on the survey and may withdraw from the survey at any time without penalty, prejudice, or loss of benefits.

Your son/daughter's survey will be anonymous as there will be no identifying codes linking him/her name to the survey. All information from the completed survey will be kept confidential. Information from all the completed surveys will be reported in summary form only. There is no known risk to your son/daughter for participating in this study other than the time it takes to complete the survey. The survey results will be used by the SN program to better address the needs of high school students.

Please sign and return this form to your child's teacher. If you have any questions about the survey, you may contact (insert SN director's name) via e-mail at (insert e-mail address) or by phone at (insert phone number).

_____

☐ I allow my son/daughter to participate in the foodservice survey
☐ I do not allow my son/daughter to participate in the foodservice survey

_____   _____   _____

Name of Student   Signature of Parent/Guardian   Date

Student Assent

The Non-Participation Survey
Understanding Why High School Students Do Not Eat School Meals

You have been chosen to answer a survey that will help us understand the reasons why high school students choose not to eat school lunches frequently.

Please complete the survey; it will take you approximately 15 to 30 minutes. The first part of the survey asks you to indicate the reasons why you choose not to eat lunch at the cafeteria. The second part asks how much each of these statements will affect your decision to start eating school lunches more frequently. The last part asks that you indicate your grade level and gender.

As you take the survey, you will notice that there are some statements that sound similar. We encourage you to answer all the questions because this will help us understand your concerns. However, if there are any statements you don't know the answer to, that's O.K. If there are any statements that for some reason you don't want to answer, that's O.K., too. Please be honest and keep in mind that there are no right or wrong answers. Your responses are anonymous and there are no identifying codes linking you to the survey.

Thank you for providing us the feedback! Your answers will help us improve the school nutrition program to better meet your needs.

Appendix A-4
Memo to principal and/or teacher(s)

To: (insert name of school administrator)
From: (insert name of SN director)
Date: xx/xx/xxxx
Re: School Nutrition Survey

The school nutrition (SN) program is conducting a foodservice survey at your high school as part of our continuous improvement efforts. *The Non-Participation Survey* will identify why students at your high school choose not to eat meals through the National School Lunch Program.

The survey we are using was tested and validated by the National Food Service Management Institute, Applied Research Division (NFSMI, ARD). NFSMI is a federally funded organization with the mission of carrying out activities through applied research, education, and training to improve the general operation and quality of Child Nutrition Programs nationwide.

Please review the following instructions for conducting the survey:
1. Students will complete the survey on (insert date) at (insert time).
2. The SN program director (or authorized representative) will deliver the survey packets to each school administrative office one week prior to conducting the survey.
3. The administrative assistant will place the survey packet into the principal's mail box.
4. The principal (or authorized representative) will meet selected students at (insert time and venue).
5. The survey will take approximately 30 minutes. This includes time for giving instructions, distributing the survey, and completing the survey.
6. Once all of the surveys are completed, the principal (or authorized representative) will collect and return them to the administrative assistant.
7. The SN program director (or authorized representative) will collect the surveys from the administrative assistant.

We appreciate your assistance in conducting this survey with our high school students. Thank you for supporting our goal to increase participation in our program. Should you have any questions regarding the instructions for conducting the survey, please do not hesitate to contact me at (insert phone number). Results of the survey will be made available for your review.

Note
Specific instructions (#1-7) are examples only and may be modified according to survey method as determined by the SN director and/or district/school administrators.

Appendix B

The School Lunch Experience Survey
Making your opinions known

Appendix B-1

The School Lunch Experience Survey

The School Lunch Experience Survey
Making your opinions known

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

Correct ●●● ◁ Use No. 2 Pencil Only ▐▐▐ Incorrect ⊗⊙⊘

We want to know what you think! This survey is your chance to let us know how we're doing. Please take a few minutes to provide feedback on the quality of your dining experience at the school cafeteria.

SECTION I. Your lunch experience

Instructions:
Listed below are several features of school lunch programs. As you respond, use the phrase, "When I eat school lunches..." before each statement and then indicate your level of agreement by using the scale 5 (Strongly Agree) to 1 (Strongly Disagree).

When I eat school lunches...	Strongly Agree				Strongly Disagree
1. The food served is fresh.	⑤	④	③	②	①
2. The staff understands my meal time needs.	⑤	④	③	②	①
3. The food tastes good.	⑤	④	③	②	①
4. There is a variety of food items that I can choose from.	⑤	④	③	②	①
5. The food smells good.	⑤	④	③	②	①
6. The menu provides healthy meal options.	⑤	④	③	②	①
7. The amount of food I get is enough.	⑤	④	③	②	①
8. The flavors of the food go well together.	⑤	④	③	②	①
9. The staff look like they enjoy their work.	⑤	④	③	②	①
10. There is variety in the menu from day to day.	⑤	④	③	②	①
11. The food looks appealing.	⑤	④	③	②	①
12. Food is cooked to the proper doneness.	⑤	④	③	②	①
13. The food has a homemade quality.	⑤	④	③	②	①
14. The service is friendly.	⑤	④	③	②	①
15. I know that I can offer suggestions.	⑤	④	③	②	①
16. There is enough seating space in the dining area.	⑤	④	③	②	①
17. The serving portions are consistent.	⑤	④	③	②	①
18. I know what is being served before I get to the cafeteria.	⑤	④	③	②	①
19. I could purchase other items (a la carte) if I don't want the full meal.	⑤	④	③	②	①
20. I have enough time to eat.	⑤	④	③	②	①
21. The quality of the food is consistent.	⑤	④	③	②	①
22. The overall quality (taste, appearance, temperature) of the food served is good.	⑤	④	③	②	①
23. The overall quality of the service is good.	⑤	④	③	②	①
24. The overall quality of my dining experience is good.	⑤	④	③	②	①

Page 1

Appendix B-1

The School Lunch Experience Survey (continued)

SECTION II. Top reasons for eating school lunches

| Instructions: |
| Read the statements below. Please choose the TOP FIVE REASONS why you eat school lunches. |

- It's convenient
- I like the food
- I am hungry
- I get a balanced meal
- I didn't bring anything to eat
- I get to try different foods
- I have no choice

- I like the variety of menu items
- My friends eat school lunches
- My parents/I pay in advance
- I know what is being served
- It fits my schedule
- It prepares me for after school activities
- It's affordable

SECTION III. Tell us about you

| Instructions: |
| Please answer the following questions. |

1. What is your grade in school?
   - 9th Grade
   - 10th Grade
   - 11th Grade
   - 12th Grade

2. On average, how many times PER WEEK do you eat school lunch?
   - Two or less
   - Three or more

3. What is your gender?
   - Male
   - Female

Thank you for your time and input!

Page 2

Authorization to Participate in Survey

The School Lunch Experience Survey
Making your opinions known

Dear Parent/Guardian:

The (SN) program is conducting a survey at your son/daughter's school to learn more about the factors that impact the satisfaction of high school students with the school lunch program. This survey will be given to students in your son/daughter's high school on (insert date, time, and location) and will last approximately 15 to 30 minutes.

Participation in this project is completely voluntary and you have the right to refuse to allow your son/daughter to participate. He/She has the right to refuse to participate even if you give your permission. He/She may refuse to answer any of the questions on the survey and may withdraw from the survey at any time without penalty, prejudice, or loss of benefits.

Your son/daughter's survey will be anonymous as there will be no identifying codes linking his/her name to the survey. All information from the completed survey will be kept confidential. Information from all the completed surveys will be reported in summary form only. There is no known risk to your son/daughter for participating in this study other than the time it takes to complete the survey. The survey results will be used by the SN program to better address the needs of high school students.

Please sign and return this form to your child's teacher. If you have any questions about the research, you may contact (insert SN director's name) via e-mail at (insert e-mail address) or by phone at (insert phone number).

_____

☐ I allow my son/daughter to participate in the foodservice survey
☐ I do not allow my son/daughter to participate in the foodservice survey

_____   _____
Name of Student   Signature of Parent/Guardian   Date

Assent Statement for High School Students

The School Lunch Experience Survey
Making your opinions known

You have been chosen to answer a survey that will help us understand what you think of the school lunch program.

It will take about 15 to 30 minutes to complete the survey. The first part asks about your opinions about the school lunch program. The second part of the survey asks you to indicate the reasons why you choose to eat lunch at the cafeteria. The last part asks that you indicate your grade level, how often you eat school lunches, and your gender.

As you take the survey, you will notice that there are some statements that sound similar. We encourage you to answer all the questions because this will help us understand your concerns. However, if there are any statements you don't know the answer to, that's O.K. If there are any statements that for some reason you don't want to answer, that's O.K., too. Please be honest and keep in mind that there are no right or wrong answers. Your responses are anonymous and there are no identifying codes linking you to the survey.

Thank you for providing us the feedback! Your answers will help us improve the school nutrition program to better meet your needs.

Appendix B-4

Memo to principal and/or teacher(s)

To: (insert name of school administrator)
From: (insert name of SN director)
Date: xx/xx/xxxx
Re: School Lunch Experience Survey for High School Students

The school nutrition (SN) program is conducting The School Lunch Experience Survey as part of our continuous improvement efforts and ongoing assessment of customer satisfaction. The survey will determine students' perceptions of our school lunch program regarding food quality, service, and their overall dining experience.

The survey we are using was tested and validated by the National Food Service Management Institute, Applied Research Division (NFSMI, ARD). NFSMI is a federally funded organization with the mission of carrying out activities through applied research, education, and training to improve the general operation and quality of Child Nutrition Programs nationwide.

Please review the following instructions for conducting the survey:
1. Students will complete the survey on (insert date) at (insert time).
2. The SN program director (or authorized representative) will deliver the survey packets to each school administrative office one week prior to conducting the survey.
3. The administrative assistant will place the survey packets into the homeroom teachers' mail boxes.
4. Homeroom teachers will pick up the packets and distribute the surveys to students at the stated date and time.
5. The survey will take approximately 30 minutes. This includes time for giving instructions, distributing the survey, and completing the survey.
6. Once all of the surveys are completed, the teacher will collect and return them to the administrative assistant.
7. The SN program director (or authorized representative) will collect the surveys from the administrative assistant.

We appreciate your assistance in conducting this survey with our high school students. Thank you for supporting our goal to provide better service and improve customer satisfaction. Should you have any questions regarding the instructions for conducting the survey, please do not hesitate to contact me at (insert phone number). Results of the survey will be made available for your review.

Note
Specific instructions (#1-7) are examples only and may be modified according to survey method as determined by the SN director and/or district/school administrators.

Appendix C

Continuous Quality Improvement
Action Plan

Continuous Quality Improvement
Action Plan Form

_____   _____
High School Name   (Date Developed)   District Name

Instructions

Determine the customer service area(s) to be improved. Complete key actions, measurement criteria, person responsible for action, and time line for completion. Use additional forms if necessary. At the time that action is due, evaluate progress based on measurement criteria and complete the section "Evaluating Measurement Outcome".

Customer Service Area to be Improved _____			Priority [ ]
Key Actions	Measurement	Person Responsible	Time Line
Evaluating Measurement Outcome			

National Food Service Management Institute

Customer Service Area to be Improved _____ **Priority** [ ]

Key Actions	Measurement	Person Responsible	Time Line

Evaluating Measurement Outcome

Customer Service Area to be Improved _____ **Priority** [ ]

Key Actions	Measurement	Person Responsible	Time Line

Evaluating Measurement Outcome

National Food Service Management Institute

National Food Service Management Institute

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