

The Non-Participation Survey: Understanding Why High School Students Choose Not to Eat School Lunch

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Please note that this study was published before the implementation of Healthy, Hunger-Free Kids Act of 2010, which went into effect during the 2012-13 school year, and its provision for Smart Snacks Nutrition Standards for Competitive Food in Schools, implemented during the 2014-15 school year. As such, certain research may not be relevant today.

ABSTRACT

Purpose/Objectives

The purpose of this project was to develop and validate a survey that will enable school nutrition (SN) directors and managers to identify and address issues affecting the non-participation of high school students in the National School Lunch Program (NSLP).

Methods

The research was conducted in two phases. Qualitative data from Phase I focus groups explored the perceptions and barriers to participation as identified by high school students and school nutrition (SN) professionals. Responses were transcribed, summarized, and classified into common themes used in Phase II survey development. A series of pilot tests were conducted to refine and validate the instrument. Factor analyses were used to statistically collapse responses into meaningful categories reflecting factors affecting non-participation.

Results

Focus group discussions revealed that students who eat school lunch three or more times per week have different concerns than students who eat two or less times per week. Survey development in Phase II focused on measuring factors that affect the non-participation of students who ate two or less times per week. Factor analyses showed that low participation can be attributed to six key issues. Operationally controllable issues included food quality, staff, and access to food. Issues external to the SN program included seating capacity of facilities, food brought from home, and schoolwork. Additionally, students stated that they would be most likely to participate if they saw improvements in the following attributes: overall quality of the food, variety of menu items from day to day, and time spent waiting in line.

Applications to Child Nutrition Professionals

The survey developed specifically targets students who eat in the school cafeteria two or less times a week. Results will be useful in helping SN professionals identify the specific issues that can be improved to increase participation. In addition, results will provide researchers a foundation for developing a best practice guide for addressing participation issues in the high school setting.

INTRODUCTION

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

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

A review of more current literature showed that the continuing decrease in high school participation has been attributed to several key issues, some of which are beyond the SN director's control. Program attributes that are operationally controllable consisted mainly of food quality issues including taste, appearance, freshness, serving temperature, and perceived healthfulness (Fogleman, et al., 1992; Hutchinson, Brown, & Gilmore, 1998; Marples & Spillman, 1995). Other operationally controllable issues included time waiting in line, portion sizes, customer service and dining environment, and perceived lack of variety (Fogleman, et al.; Hutchinson, et al.; Marples & Spillman).

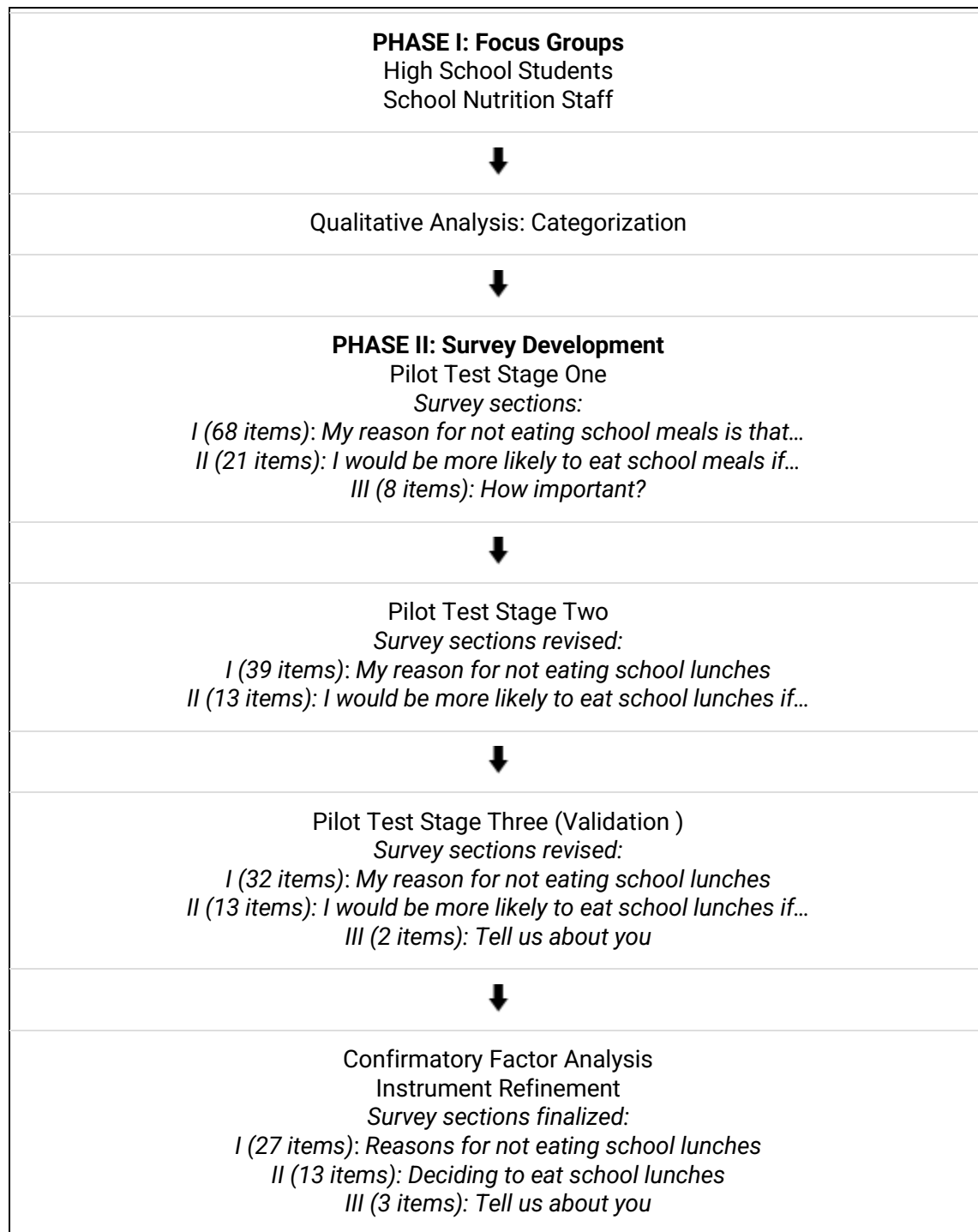
Issues external to the SN program included attributes such as scheduling and length of meal period, condition and seating capacity of facilities, open or closed campuses, competitive foods, and meal prices (Burghardt, Gordon, Chapman, Gleason, & Fraker, 1993; Gilmore, et al., 2000; Gleason, 1995; Griffith,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

Little research has been published in recent years exploring why students do not eat school meals frequently, if at all. Factors previously cited need to be reassessed because the characteristics of high school students may have changed over the past decade. The high school student of today belongs to the "Millennials," also known as Echo Boomers or Gen Y, who dine away from home more often than the generations before (Gale, 2007). They have more experiences with commercial foodservice and may have come to expect the same types of products and services from their school lunch program. Thus, the purpose of this project was to identify issues associated with the participation of high school students in the NSLP. The specific objectives of this project were to develop and validate a high school student survey to assess the reasons why high school students of today choose not to eat in the school lunch program at their high school, identify factors that can influence the student's decision to start eating school meals more frequently, and to make the survey available for use by SN directors nationwide.

METHODOLOGY

To accomplish the project goal, the research was conducted in two phases (Figure 1). Qualitative data from Phase I focus groups explored the perceptions and barriers to participation as identified both by high school students and by SN professionals. In Phase II, a survey was developed based on focus group results. A series of pilot tests were conducted to refine and validate the survey. For both phases, school districts were chosen for their variation in demographics in relation to free and reduced price percentages (high or low), district sizes (small, medium, large), ethnic diversity, location (rural, suburban, urban), and United States Department of Agriculture (USDA) region (Western, Mountain Plains, Midwest, Northeast, Mid-Atlantic, Southeast, and Southwest).

Figure 1. *Research Design Flowchart*



SN directors were provided a passive parental consent template that included an overview of the project and the rights of the students as focus group participants or survey respondents. Parents were informed that their child may refuse to participate even if they have granted their permission. Student assent statements were read on-site prior to beginning high school student focus groups and survey sessions. Students were assured of the confidentiality of their responses and their rights as focus group participants or survey respondents. Similarly, a participant assent statement was read on-site prior to beginning focus groups with SN professionals. Participation signified consent.

In Phase I, eight focus groups of six to eleven participants were completed in four school districts located in different geographic regions as defined by the USDA. Each school district hosted a pair of focus group sessions, one group composed of high school students and one composed of SN professionals. Participating SN directors were asked to recruit high school students to participate in

the focus group, and to provide names of eight to ten SN professionals from their district, as well as adjacent school districts whom they believed might be interested in participating in the SN professionals' focus group. The discussions lasted approximately 90 minutes, and included semi-structured, open-ended questions on issues previously identified as impacting participation.

For high school student focus groups, the questions centered around why they chose to eat or not eat school meals; definitions of quality, value, healthy meals, and choice; characteristics that they liked or did not like about school lunches; and other expectations and/or concerns they had about school lunches. Questions for SN professionals focused on their role in providing a satisfactory lunch experience for the students, perceived reasons for non-participation, and their efforts to address participation issues at the high school level. Focus groups responses were transcribed, summarized, and classified into common themes that were used as the basis for survey development.

In Phase II, a draft survey was administered in 16 districts (25 high schools) across a three-stage pilot test. Although two districts participated in more than one stage, a different set of high schools were chosen for each survey administration. School districts chosen for the survey pilot tests were required to have the capability to generate non-participation reports identifying students who ate school lunches two or less times per week. For every stage, the SN director identified students who met the study criteria and selected a random sample of 30 to 50 students per high school. The process for survey administration varied per district depending on the approach taken by the SN director and district/school administrators. In general, school principals agreed to excuse students for one class period to take the surveys proctored by the SN director and/or manager, nutrition/health teachers, or librarians. The venue for survey administration included, but was not limited to, the library, auditorium, and cafeteria. SN directors reported that on average, 30 minutes was sufficient for administering the survey.

Stage 1 primarily tested survey protocol and student comprehension of the instrument, while Stage 2 data was used to test the factor structure of reasons for non-participation. Stage 3 was designed to ensure instrument validity and reliability. The survey, *Understanding Why High School Students Do Not Eat School Meals*, consisted of three sections. In Section I, students were asked to use the phrase "My reason for not eating school meals is that..." before each of 68 statements, and then to indicate their level of agreement with each statement. Agreement was rated on a 5-point scale, ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). The purpose of the survey was to discover why high school students chose not to eat school meals, thus the majority of survey items were written in the negative to make it easier for students to respond intuitively. Section II asked students to use the phrase "I would be more likely to eat school meals if..." before each of 21 statements, and then indicate to what extent each statement would influence their decision to eat school meals. They responded using a 5-point scale, ranging from 5 (*absolutely yes*) to 1 (*absolutely no*). In Section III, students rated the importance of eight statements as to why they do not eat (*or do not frequently eat*) school meals. Importance was rated on a 5-point scale, ranging from 5 (*very important*) to 1 (*not important*).

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 analyses to control for pattern response bias and decrease measurement error. Tests for multivariate and univariate outliers and violations of assumptions for factor analyses were performed using SPSS version 15.0. Exploratory factor analyses (EFA) with varimax rotation were performed using data from Section 1 (Stages 1 and 2) to establish the factor structure for non-participation. Confirmatory factor analysis (CFA) using Amos Version 7.0 was performed in Stage 3 to confirm the factor structure that resulted from EFA. Indicators with factor loadings less than .40 and factors with Cronbach's Alpha (α) less than .70 were eliminated from the final scale (Nunnally, 1978). Descriptive statistics summarized frequencies, means, and standard deviations for all variables and resulting factors.

RESULTS AND DISCUSSION

Phase I: Focus Groups

Districts that participated in Phase I reported that the number of high schools per district ranged

from 1 to over 30. High school enrollment varied from approximately 500 to almost 3,000 students, with the percentage of students approved for free and reduced meals ranging from less than 5% to almost 80%. Two districts reported closed campuses during lunch, and the other two were either open campuses or had open options for students.

High school focus group discussions revealed that students who eat school lunch frequently (three or more times per week) have different concerns from students who eat less frequently (2 or less times per week). Reasons for non-participation were categorized into eight themes: (1) choices/variety, (2) taste, (3) appearance, (4) customer service environment, (5) quality, (6) nutrition, (7) value, and (8) don't want to eat. In contrast, the focus group discussions with the SN staff showed that reasons for non-participation could be collapsed into five categories: (1) social influence and negative stigma, (2) time constraints (i.e., not enough time to eat after being served), (3) overcrowding in the dining area, (4) perceived poor quality and healthfulness of menu items, and (5) open-campus/open option policy. There was general consensus that addressing participation issues in the high school level is more challenging than it is for the elementary and/or middle schools. This is particularly difficult for high schools with open campuses. Several SN professionals indicated the need to address student needs from a commercial foodservice perspective because that is what the students expect. A majority of focus group participants agreed that seeking feedback from students is a critical and proactive effort towards increasing participation.

Phase II: Survey Development

In Phase II, sixteen districts (25 high schools) participated across the three stages of survey administration. The average high school enrollment was 1,345, ranging from 371 to 2,334 students. The percentage of students approved for free and reduced priced meals ranged from 21% to 78%, with a mean of 48%. A majority of schools (68%) reported having closed campuses, while eight (32%) either had open campuses or open options for students. Daily participation for closed campuses averaged 49% while open campuses averaged 41%.

In Stage 1, a total of 136 surveys were administered to students from four high schools in two school districts. All surveys were completed and retained for analysis. Results of EFA reduced Section I from 68 items to 39 statements. Due to lack of variability, scale anchors for Section II were modified from an Absolutely Yes/Absolutely No scale to a five-point Strongly Agree/Strongly Disagree scale. Section II was collapsed from 21 items to 13 items which were modified to reflect program factors extracted from Section I. Section III was eliminated due to multicollinearity issues and lack of scale reliability.

In Stage 2, a total of 325 surveys were distributed to six high schools (five districts). Of the 197 (61% return rate) completed surveys, 140 (43%) were retained for analyses. A secondary EFA and correlation diagnostics reduced Section I from 39 items to 32 items ($\alpha=.90$; $R^2=.73$). SN directors suggested that based on student feedback, the anchor statement for Section I should be revised from "My reason for not eating school meals is that..." to "My reason for not eating school lunches is that..." to specify that the survey is concerned only with the NSLP. No revisions for Section II instructions, statement verbiage, and rating scales were suggested. A demographics section (grade level and gender) was added in response to SN director feedback that this information would be helpful in analyzing data and addressing issues for the different market segments in their high schools.

In Stage 3, a total of 1,175 surveys were distributed to 15 high schools (nine districts). Of the 611 (52% return rate) completed surveys, 578 (49%) were retained for analyses. The majority of respondents were female (57%), with the sample dispersed well among 9th graders (22%), 10th graders (24%), 11th graders (27%), and 12th graders (23%). CFA was performed on Section I data resulting in a 27-item, six-factor scale ($\chi^2(320, N=578)=1223.35$, $RMSEA=.07$; $\alpha=.91$). All factor loadings, ranging from .45 to .83, were significant at .001 indicating convergent validity (Anderson & Gerbing, 1988). The extracted factors were food quality ($\alpha=.90$), dining area capacity ($\alpha=.81$), food from home ($\alpha=.80$), staff ($\alpha=.79$), schoolwork ($\alpha=.75$), and food access ($\alpha=.71$). Table 1 provides the extracted factors, reliability coefficients, and the statements for each factor arranged from highest to lowest standardized factor loading. Factor averages, statement means, and standard deviations

are also provided. Higher factor averages indicate the greater challenge or area of improvement for the SN program.

Table 1. *Factor Structure, Reliability (a), Standardized Factor Loadings, Means (M), and Standard Deviations (SD) of Reasons Why High School Students Do Not Eat School Lunch (N=578)*

Factor Structure (Cronbach's Alpha)	Standardized loading^a	M^b ± SD
Factor 1: Food quality (a=.90)		3.53 ± 0.92
The food does not appear fresh	.76	3.80 ± 1.18
The overall food quality is poor	.74	3.68 ± 1.31
The food does not look appealing	.74	3.94 ± 1.22
The food does not look healthy	.73	3.67 ± 1.26
The food is not cooked correctly	.72	3.34 ± 1.33
I do not like what is served	.63	3.93 ± 1.13
I can not recognize what the food is	.62	2.97 ± 1.43
The food does not appear nutritious	.62	3.48 ± 1.30
The food does not taste good	.62	3.79 ± 1.18
The food choices do not change	.55	3.68 ± 1.26
The choices offered are not those on the menu	.49	2.72 ± 1.32
Factor 2: Dining area capacity (a=.81)		3.10 ± 1.35
There are not enough places to sit	.83	3.07 ± 1.47
There is not enough space in the dining room	.82	3.15 ± 1.46
Factor 3: Food from home (a=.80)		2.87 ± 1.32
I bring my own food	.83	2.61 ± 1.59
My parents purchase food for me to take to school	.79	2.51 ± 1.51
I prefer to eat what I bring from home	.65	3.48 ± 1.53
Factor 4: Staff (a=.79)		2.80 ± 1.09

The staff is not always pleasant	.78	2.77 ± 1.37
The cafeteria appears unclean	.69	2.94 ± 1.42
The staff is not friendly	.68	2.56 ± 1.36
The staff does not speak to me	.65	2.96 ± 1.41
Factor 5: Schoolwork (a=.75)		2.50 ± 1.23
I'm busy with school projects	.81	2.38 ± 1.31
I need time to catch up on school work	.74	2.62 ± 1.41
Factor 6: Food access (a=.71)		3.12 ± 0.98
They run out of food	.75	3.13 ± 1.43
The food I like is gone when I get to the cafeteria	.65	2.90 ± 1.46
I do not get enough food	.60	3.16 ± 1.48
I have to go to different lines to get the food I want	.45	2.78 ± 1.48
The amount of food is inadequate	.45	3.64 ± 1.28

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

^aAll factor loadings were significant at .001

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

The foremost factor influencing participation was food quality (M=3.53, SD=0.92), which addressed the tangible characteristics of the food (e.g., appearance, taste, aroma), food choices, and overall quality. The next most important factor affecting participation was food access (M=3.12, SD=0.98), which referred to the appropriateness of serving portions and the availability of food throughout the serving period. The available dining and seating space, or dining area capacity (M=3.10, SD=1.35), also affected the students' decision to eat school lunch. The factor, food from home (M=2.87, SD=1.32), showed that some students preferred not to eat school lunches because they (or their parents) preferred that they bring their own lunch. The factor of staff (M=2.80, SD=1.09) included the interaction and behavior of the SN staff towards the students. Interestingly, students attributed the cleanliness of the dining area to staff rather than considering it a general characteristic of the dining space. Schoolwork (M=2.50, SD=1.23), although not a strong factor, indicated that academic responsibilities for some students took precedence over choosing to eat lunch in the cafeteria.

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

that food did not look healthy ($t[554]=2.70, p<.05$), nutritious ($t[554]=1.99, p<.05$), nor appealing ($t[554]=3.86, p<.001$).

Table 2 shows that students were more likely to start eating school lunches more frequently if the overall food quality was better ($M=4.29, SD=1.09$), there was more variety in the menu from day to day ($M=4.12, SD=1.20$), and if the wait in line was shorter ($M=3.96, SD=1.28$). Additional analyses showed that female and male students were very similar in their evaluations except for their responses to questions about increased variety ($t[552]=3.31, p<.001$), increased number of healthy options ($t[547]=2.87, p<.05$), shorter lines ($t[545]=2.43, p<.05$), and more menu items that they can recognize ($t[546]=3.69, p<.001$); females more frequently reported that they would be more likely to eat school lunches if these improvements were made.

Table 2. Means and standard deviations ($M \pm SD$) for attributes that influence high school students' decision to participate in the National School Lunch Program more frequently ($N=578$)

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

The staff was friendlier	3.28 ± 1.39	3.29 ± 1.42	3.24 ± 1.37
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^aScales (Max/Min): 5-strongly agree/1-strongly disagree

CONCLUSIONS AND APPLICATION

Research Study Conclusions and Applications

Declining participation in the NSLP by high school students not only negatively impacts the bottom line, it also shows that the program is not achieving its goal of providing nutritionally balanced meals for all of the nation's school-aged children. If participation is to be improved, there is a need to examine what SN directors can do to address the concerns of these non-participating students. The validity and usefulness of research findings greatly rely on the importance of identifying and sampling from students who eat school lunch infrequently. Doing so will help in developing strategies to encourage students to avail themselves of the nutritional service that is readily accessible to them.

Results of the survey and factor analyses showed that low participation can be attributed to six key issues. Operationally controllable issues include food quality, access to food, and to a lesser degree, staff. Issues external to the SN program include dining area capacity, food from home, and schoolwork. Additionally, students stated that they would be more likely to participate if they saw improvements in the following attributes: overall quality of the food, variety of menu items from day to day, and time spent waiting in line.

Valid and reliable data guides decision making and empowers the SN director and staff to address customer service issues in the effort to increase participation. The survey developed in this study is a research-based tool generalizable for use with the high school population (grades 9 through 12), regardless of district size. The validated survey is composed of three parts. Section I provides specific reasons why students do not participate in the NSLP. Students are instructed to use the phrase "My reason for not eating school lunches is that..." before each of 27 statements about SN program attributes and indicate their level of agreement with each statement by using a 5-point scale, ranging from 5 (*strongly agree*) to 1 (*strongly disagree*). In Section II, students are asked to use the phrase, "I would be more likely to eat school lunches if..." before each of 13 statements, rating their level of agreement by using the scale 5 (*strongly agree*) to 1 (*strongly disagree*). This section provides the SN director a quick snapshot of key factors that may influence the student's decision to start eating school lunches more frequently. Section III includes questions on grade level and gender to provide the SN director with demographic information to further understand trends within subgroups of students. As requested by SN directors, a question on frequency of participation per week was added to ensure that the student is appropriate for the sample. Several SN directors suggested that individual programs may choose to include a section for student comments.

Use of this survey can assist SN directors, managers, and staff to establish internal benchmarks for the SN program, particularly for programs that have very low rates of participation or have low participation among free and reduced price eligible students. It is important that strategies be developed to promote the program and benefits to these eligible students. Although planning and administering the survey may take considerable time, effort, and coordination, results provide a launching point for creating improvement plans that will focus on key factors that can influence the student's decision to start eating school meals more frequently. SN directors must prioritize which factors to address based on student feedback and the SN team's ability to change these at the local level.

Research Implications

Outcomes of the study and feedback from participating directors showed that there are more opportunities for research to support the goal of increasing participation in the high school level. The development of a survey guide to provide step-by-step instructions on planning, administering, and interpreting the results of the survey would be beneficial to SN professionals committed to increasing participation in the NSLP. In addition, SN directors and other members of the SN team may benefit from the development of a best practices checklist geared towards increasing participation at the high school level.

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The information provided in this manuscript is the result of independent research produced by NFSMI and is not necessarily in accordance with U.S. Department of Agriculture Food and Nutrition Service (FNS) policy. FNS is the federal agency responsible for all federal domestic child nutrition programs including the National School Lunch Program, the Child and Adult Care Food Program, and the Summer Food Service Program. Individuals are encouraged to contact their local child nutrition program sponsor and/or their Child Nutrition State Agency should there appear to be a conflict with the information contained herein, and any state or federal policy that governs the associated Child Nutrition Program. For more information on the federal Child Nutrition Programs please visit www.fns.usda.gov/cnd.

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BIOGRAPHY

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