

NFSMI Research Summary

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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.

This research has been produced by the National Food Service Management Institute, Applied Research Division (NFSMI, ARD), located at The University of Southern Mississippi with headquarters at The University of Mississippi. Funding for the Institute has been provided with federal funds from the U.S. Department of Agriculture, Food and Nutrition Service, to The University of Mississippi in cooperation with The University of Southern Mississippi. The mission of NFSMI is to provide information and services that promote the continuous improvement of Child Nutrition Programs, such as: School Meals Programs, Summer Food Service Program, and Child and Adult Care Food Program.

The NFSMI Research Summary is a continuing series of summaries reporting recently completed research funded by the National Food Service Management Institute.

Recently Completed Research

Branding the School Nutrition Program: Building the Foodservice Personality

The objectives of this project were to: determine characteristics that students identify as components of a school nutrition (SN) program's personality; ascertain barriers to implementation of branding strategies in high school SN programs; and identify sustainable strategies, resources, and successful practices for creating an SN program brand personality. A holistic, multiple-case-study methodology with a literal replication design was used to examine brand personality across four SN sites. To establish a list of potential case study sites, child nutrition state agency directors were asked to recommend SN directors who administer exemplary programs. In an effort to select the most appropriate sites, SN directors were sent a short questionnaire that was designed to explore any branding initiatives that were in place at the SN sites. From the pool of SN directors who responded to the survey, four sites were selected and invited to participate.

Data were gathered in two modes. In the first mode, data were collected by SN managers and directors one month prior to site visits. In the second mode, data were collected by researchers during site visits. Prior to each the site visit, participating SN directors received a packet containing a disposable digital camera, instructions for SN managers regarding photo-voice protocol, program and management personnel profile questionnaires, a postage-paid return envelope, and instructions for returning the packet upon completion. All site visits were conducted by two NFSMI, ARD staff members.

Each site visit included four distinct activities: (1) a structured interview with the SN director, (2) a structured interview with the site manager, (3) a focus group with high school students, and (4) a

field observation. Information gathered from each case study site was analyzed individually for pertinent data and themes. Cross-case tabulations were performed to search for distinct patterns, similarities, or important differences in branding approaches and strategies across the sites.

Comparison of the transcripts from the SN director structured interviews revealed similarities in brand personality perception, a lack of written plans for the branding initiatives, a lack of formal evaluation indicators for the branding initiative, and the existence of barriers for implementing the branding initiatives. When the transcripts for the SN managers were analyzed, trends were observed between school sites and between the responses given by SN managers and SN directors. These trends suggest that the implementation of an SN branding initiative at each site was fairly successful.

Analysis of the student focus group transcripts revealed further trends. As with the SN directors and managers interviews, the most commonly perceived brand personality traits were friendly and hard working. A common recommendation from each of the student focus groups was to make the cafeterias more contemporary and appealing. The field observations yielded multiple trends. In all of the schools, the cafeteria was given a distinct name, and in three of the four schools, the cafeteria was assigned a distinct logo.

In conclusion, results of this study showed that in creating a brand personality, SN programs focused on one of four areas: aesthetics and decor; employees and how they interact with students; nutrition and health; and school spirit. Based on these findings, it is recommended that resources be developed to help SN professionals better understand the concept of brand personality and how brand personality can be successfully implemented at an SN program.

Exploring the Uniqueness of School Nutrition Programs in Small School Districts

The purpose of this study was to explore the uniqueness of SN programs in small school districts. For this study, a small school district was defined as a school district with student enrollment of 2,800 or less. School nutrition professionals participated in an expert panel discussion to identify issues, characteristics of SN programs, and the directors who operate SN programs in small school districts. Qualitative data gathered from the expert panel session were summarized and used to create a quantitative survey instrument. The quantitative survey was evaluated by a review panel, and the final survey was mailed to a random sample of 700 SN directors in small school districts stratified by the seven USDA regions.

The survey response rate was 56% with 388 SN directors returning survey. Respondents were provided with 69 statements regarding operational issues related to SN operations in small school districts and were asked to indicate their agreement with each statement using a scale ranging from 4 (strongly agree) to 1 (strongly disagree). Respondent mean agreement ratings for the operational issues and practices statements provide some insight into the operation of small district SN programs. The statement, "I have multiple responsibilities as a SN director," had the highest mean rating, confirming the multifaceted role of SN directors regardless of district size. It seems most SN directors in small school districts perceive they have a positive and communicative relationship with school administration and staff, as shown by the following statements receiving mean ratings greater than 3.0: "I have a positive working relationship with school administrators in my district," "I have a positive working relationship with other departments [i.e. maintenance, transportation] in my school district," "I am confident communicating with district administrators," and "I have a positive working relationship with teachers in my school district." Yet, many of these SN directors sense that school administration in small school districts do not fully understand, appreciate, and/or support the roles and responsibilities associated with the position of SN director as demonstrated by the following statements receiving mean agreement ratings below 3.0: "The school district recognizes the importance of the SN program in the education setting," "I am considered a member of the school district's administrative team," "School district officials understand SN program regulations," and "My salary is comparable with other district administrators." As school district size increased, SN directors were more likely to report the following: they are responsible for financial management and budget planning for the SN program; their SN program operates like a business within the school setting; their SN program provides catering; and their SN program is self-supporting. All of

these suggest that as school district size increases SN directors are more likely to run their operation like a commercial business.

Findings from this research suggest education and training programs are needed to assist in the preparation of SN professionals to operate SN programs. These programs should be made available to SN professionals who work on the management team in all school districts and state agency child nutrition staff that provide training and support to SN directors.

Identifying Emergency Preparedness and Readiness to Respond to Issues Faced by School Nutrition Professionals

The purpose of this study was to identify SN directors' perceptions of the effectiveness of their emergency preparedness (EP) plan and the directors' role in evaluating and implementing procedures to assure safe and nutritious food for students during emergency situations. An expert panel was conducted with SN directors and state agency personnel who had assisted in the development of EP policies/procedures and/or had experienced an emergency in their SN program. The qualitative information from the expert panel was used to draft a quantitative survey and a review panel evaluated the survey to assess the content, scales, readability, clarity, and flow. Surveys were mailed to a random sample of 700 SN directors representing the seven USDA geographic regions.

A total of 182 surveys were returned for a response rate of 26%. A majority (56.1%) of SN directors indicated that they had more than five years tenure in their current positions and were experienced in managing emergency situations. All respondents reported having an EP plan of which two-thirds (66.5%) of them were using their district's plan and one-third (33.5%) reported maintaining a separate SN EP plan. Additionally, respondents reported that EP plans had been implemented in a variety of emergency situations with lockdowns (51.4%) and power failures (41.3%) as the most commonly reported emergency events. The majority of the respondents (52.8%) indicated that they were unaware of major barriers to successfully implement their most recent EP plan. However, the challenges cited most frequently were lack of staff to implement the plan (16%) and missing elements of the plan to guide in recovery efforts (29.7%). SN directors indicated that security provisions for deliveries (28%), and information about funding and other resources for emergencies (19.8%), were also necessary elements missing from EP plans. After experiencing a crisis, respondents indicated that they had provided advice and suggestions (54.5%) that contributed to the development, implementation, and revision of EP plans and served on committees to address EP issues (40.4%). Most respondents (63.9%) perceived that their current EP plan is effective for all types of emergencies but more training is needed in food safety/sanitation (83.1%), maintaining foodservice operations during emergencies (76.2%), EP drills (72.1%), and Hazard Analysis Critical Control Point management system (70.9%).

Results of this study will provide baseline information for assessments of SN EP plans as well as develop resources and training materials to enhance SN professionals' ability to respond and recover from a variety of emergency situations.

Development of Middle/Junior High School Student Surveys to Measure Factors that Impact Participation In and Satisfaction With The National School Lunch Program

The purpose of this study was to develop and validate two customer service surveys for middle/junior high school students to measure factors that impact their participation in and satisfaction with the National School Lunch Program. The qualitative data from a previous NFSMI, ARD focus group study and the validated NFSMI, ARD participation and non-participation surveys for high school students were used as the foundation for drafting two middle/junior high school student surveys. A two-stage pilot test was conducted to refine and validate the survey instruments prior to making it available for use by SN directors nationwide. The participation and non-participation surveys were administered to a total of 1,401 middle/junior high school students from 22 middle/junior high schools within 12 school districts across five USDA regions. Statistical analyses included descriptive statistics, exploratory factor analysis, Cronbach's alpha, independent sample t-tests, and one-way ANOVA with Tukey's post hoc test.

Results from the participation survey and factor analyses showed that middle/junior high school student satisfaction with their school lunch experience can be attributed to two main factors, food preference and staff attentiveness. Food preference indicates the aspects of the food served during school lunch that appeal to middle/junior high school students, such as aroma, appearance, quality, variety, and freshness. Staff attentiveness indicates the responsiveness of SN staff and their interaction with students, including listening to students, friendliness, and attitude towards work. The top five reasons for eating school lunch among participating middle/junior high school students were "I am hungry," "I get to sit with my friends," "I didn't bring anything to eat," "It gives me energy for the rest of the day," and "I have no choice."

Results from the non-participation survey and factor analyses showed that low participation among middle/junior high school students can be attributed to two main factors, food quality and customer service. Food quality indicates the quality of the food served during school lunch, such as taste, likeability, food recognition, properly cooked food, and healthfulness. Customer service indicates the approachability of SN staff and services provided for students, including cleanliness of cafeteria, communication with students, and accuracy of menu. The top five reasons that would encourage students to eat school lunch more often were "Better tasting food," "Shorter wait in line," "Better quality food," "More food choices I like," and "Fresher looking food."

The participation survey developed in this study is a research-based tool generalizable for use by the middle/junior high school student population (grades 6 through 8), regardless of school district size. This survey is appropriate for SN programs that have a relatively high rate of participation at the middle/junior high school level and would like to retain students by increasing customer satisfaction. The non-participation survey developed in this study is a research-based tool generalizable for use by the middle/junior high school student population (grades 6 through 8), regardless of school district size. This survey is appropriate for SN programs that have a lower rate of participation at the middle/junior high school level and would like to focus on customer service issues in an effort to increase participation.

Evaluating the NFSMI, ARD Competencies: Perceptions of District Administrators and School Nutrition Directors

Since its inception, the NFSMI, ARD has been in the forefront in identifying the competencies, knowledge, and skills (CKS) needed by professionals working in the child nutrition arena. As the environment in which SN programs operate is more complex and is changing at a faster pace than ever before, NFSMI, ARD initiated a research project to identify the functional areas, competencies, knowledge, and skills needed by district-level SN professionals to be successful in the 21st century. The functional areas that encompass the job responsibilities of district-level SN professional staff include: facility and equipment management; financial management; food production and operation management; food security, sanitation, and safety; human resource management; marketing and communications; menu and nutrition management; procurement and inventory management; program management and accountability; and technology and information systems.

The purpose of this research was to determine the importance of the competencies developed by NFSMI, ARD to the role of school nutrition directors as perceived by current school nutrition directors and school district administrators. The survey was developed using the previous NFSMI, ARD research that identified ten functional areas and 23 competencies that SN directors need to effectively lead their programs in the current environment. Surveys were mailed to a random sample of 700 SN directors and a random sample of 700 school district superintendents stratified by the seven USDA regions. Descriptive statistics included means, standard deviations, and frequencies of total responses. Sub-scores were computed for each of the ten functional areas using the supporting competency statements. T-tests were used to assess differences in functional area sub-scores based on participants' job title (SN director and district superintendent). Bonferroni Corrections were used to reduce the possibility of a Type-One error.

The SN directors and district administrators were provided the 23 competencies identified in the previous research. They were asked to rate the importance of the 23 competencies to being a successful SN director by using a 4-point scale, ranging from 1 (not important) to 4 (extremely

important). SN directors rated all of the competencies 3.0 or greater and district administrators rated 20 of the 23 competencies 3.0 or greater indicating that both groups viewed the competencies as important to the success of SN directors. The functional areas with highest mean ratings from both groups were food production and operation management and financial management. When t-tests with Bonferroni correction was applied to assess differences in functional area sub-scores based on participants' job title, three functional areas demonstrated significance ($P < .005$). The three functional areas were program management and accountability, technology and information systems, and marketing and communication. In all cases, the means of the SN directors were significantly higher than those of district administrators.

The SN directors and district administrators were provided the question: "Based on my professional experience, district administrators perceive that SN directors are competent in ____." The respondents used a 4-point scale, ranging from 1 (strongly disagree) to 4 (strongly agree) to indicate their agreement with the 23 competencies. School nutrition directors' and district administrators' mean ratings for the competency statements were greater than 2.0 suggesting that school nutrition directors are perceived as having at least some competence in all areas. Competencies with the lowest mean ratings by directors and administrators were similar and included "developing a systematic approach for marketing the school nutrition program," "establishing a communication infrastructure with stakeholders to promote the school nutrition program," and "establishing a comprehensive technology infrastructure to achieve the operational goals of the school nutrition program."

Study results suggest that research-based competencies are important to the foundational success of SN directors and district administrators perceive SN directors are capable in the most of the competency areas. Resources and training programs are needed to assist SN directors address those functional areas and competencies that received the lowest agreement ratings for competence.

Development of a Web-Based Resource for Dietetic Educators and School Nutrition Professionals to Guide Them in the Establishment of Supervised Practice Experiences in Local School Districts Registered Dietitians (RD) can bring a unique skill set to the school nutrition arena and can be a source of new directors in the coming decades. Introducing dietetics students/interns during their training to school nutrition as an employment opportunity may bring more RDs into school nutrition programs, alleviating an impending shortage of qualified directors and enhancing the delivery of food and nutrition services to America's children.

The purpose of this project was to develop a web-based resource for dietetic educators and SN professionals to guide them in the establishment of supervised practice experiences in local school districts. Dietetics students from both coordinated programs and dietetic internships who were currently involved in their supervised practice experiences participated in focus groups to ascertain their knowledge of career opportunities in school nutrition and to gauge their level of interest in these opportunities. Feedback from these focus groups was utilized by an expert panel of dietetic educators and school nutrition program directors as they identified key learning experiences and objectives for dietetic students which could be achieved in the school nutrition setting; outlined information that would be needed by school nutrition program directors, dietetic educators and students; discussed the proper sequencing of learning activities; suggested evaluation procedures for learning activities; and discussed barriers to success and ways to overcome the barriers in establishing the learning experiences for students.

Existing materials from the NFSMI and the School Nutrition Association were reviewed to determine which would be appropriate for use by students in completing projects or assignments. Draft assignments were sent for review to the expert panel and to an additional dietetic education program director. Recipients were asked to comment on the appropriateness of the assignment for completion in a school nutrition setting by a dietetics student and clarity of the assignment wording and directions. Minor modifications were made subsequent to the review.

The final resource included 38 student learning activities categorized into the following six groups: Introduction to School Nutrition, Celebrating School Nutrition, Foodservice Management,

Management, Nutrition Education, and Nutrition and Wellness. For each assignment, the following information was provided for use by both dietetic educators and school nutrition directors as they planned student activities: the ACEND and NFSMI competencies related to each activity, prerequisite knowledge needed, student learning outcomes, student assignments and specific activities, evaluation criteria, competency assessment strategies, suggested references or resources, and length of time anticipated to complete the assignment.

This Web-based resource entitled, *School Nutrition Experiences for Dietetics Students*, can be used to provide guidance to dietetics educators and school nutrition professionals in bringing dietetic students and interns into the school nutrition program setting to gain critical hands-on skills while also helping them capture the vision of school nutrition as a career option.

Effectiveness of In-Classroom Breakfast Programs

Benefits of the School Breakfast Program (SBP) have been documented, however many of America's neediest children are not participating. A national trend to improve school breakfast participation is the integration of breakfast within the school day and in-classroom breakfast. Service models include "grab and go", distribution of breakfasts to each classroom, and mobile breakfast carts in hallways. These in-classroom breakfast programs dramatically increase student access to school breakfast, while positively influencing the nutrition status of school-age children.

In spite of the positive results of in-classroom breakfast programs and SBP studies, there are some who question the feasibility of in-classroom breakfast. Therefore, the purposes of this study were to:

- define and identify successful in-classroom-breakfast programs;
- interview SN directors, SN managers, school administrators, teachers, custodians, and school health personnel to identify student outcomes such as attentiveness, tardiness, attendance, visits to school nurses, and student behavior;
- quantify student outcomes; district-level financial analyses of in-classroom breakfast; and teacher and custodial time requirements for in-classroom breakfast; and
- review menus, food costs, and compliance with Dietary Guidelines for Americans, 2010.

This study used a case study method to explore best practices of in-classroom breakfast. The study utilized multiple-case designs that followed a replication format in which the conclusions from each study site contributed to the "whole" study. In this research project, structured and informal interviews, examination of documents, and direct observations were used to collect and analyze data.

State agency directors and Food and Nutrition Service regional directors were asked to identify SN directors with exemplary in-classroom breakfast programs. SN directors were contacted to explain the study and request their participation. SN directors who agreed to participate were asked to choose a school within the district for the study.

Part I of the data collection instrument was designed to collect demographics and general information about the district's school breakfast program. Part II of the data collection instrument included a structured interview guide with predetermined questions designed to collect in-classroom data while visiting the district. The interview guide included questions for SN directors, SN managers, principals, teachers, custodians, and school health personnel. The researchers field tested the data collection instrument and procedures for direct observation during a one-day visit to the pilot district in the Midwest region.

Four districts of varying sizes in the Mid-Atlantic, West, Mountain Plains, and Northeast USDA regions were visited. Preparation, distribution, and service of breakfast were observed in elementary, middle, and high schools. School nutrition directors, principals, teachers, and other school personnel were interviewed.

Data analysis revealed that in-classroom breakfast improves school culture and has a positive effect on student behavior. Schools that offer in-classroom breakfast have experienced dramatic increases in participation which leads to increased revenue. SN directors, SN managers, principals, teachers,

custodians, and school health staff were supportive of in-classroom breakfast programs and their effect on nutrition intake and readiness to learn. Some of the most impressive results in districts were as follows:

- A high school that served 50 breakfasts per day increased participation to 950 breakfasts per day using mobile carts near classroom doors at the start of second period.
- A K-8 elementary school with in-classroom breakfast earned \$70,412 yearly in additional revenue compared to a similar school that did not offer it (\$29,813).
- A middle school that began in-classroom breakfast in 2011 experienced a drop in disciplinary referrals from 377 to 171 from 2010 to 2011.
- All breakfast menus were aligned with the 2010 Dietary Guidelines for Americans.

In conclusion, increased breakfast participation through in-classroom breakfast leads to improved nutrition for children and can be financially rewarding for districts. In-classroom breakfast improves school culture and has a positive effect on student behavior. The districts provided effectiveness statistics but there were limited statistics on food waste, nurse and health center visits, disciplinary referrals, attendance and tardies, and custodial and teacher time requirements. School nutrition directors can collect quantitative and qualitative data on effectiveness of in-classroom breakfast for marketing and program expansion.

A Guide for Administering School Lunch Satisfaction and Participation Surveys to Middle/Junior High School Students

In a previous research study, NFSMI, ARD developed and validated two surveys to assess middle/junior high school students' participation and non-participation with the National School Lunch Program. The objectives of this project were to develop a step-by-step guide for administering the middle/junior high school student participation and non-participation surveys, interpreting the results, and creating continuous quality improvement action plans to address student concerns; and provide the surveys and guide to SN directors and other SN professionals in an accessible, downloadable format on the NFSMI Web site.

The methodology for this project consisted of three steps, developing a draft survey guide, conducting a review panel of SN professionals to review the survey guide, and adjusting the survey guide based on review panel suggestions. A draft of the middle/junior high school survey guide was created using the NFSMI, ARD high school survey guide as a template and the two student surveys.

A pool of 12 potential review panel members was established from the list of SN professionals who previously participated in the development of the middle/junior high school surveys. Individuals who agreed to participate in the review panel were asked to evaluate the middle/junior high school survey guide for ease of use, appropriateness for specified users, and inclusion of necessary content using a survey guide evaluation form they were provided. Of the 12 SN professionals invited to participate, seven agreed. Data collected from the review panel were utilized to revise the survey guide prior to Web release.

The completed 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 guidance for choosing members of the survey team, timing of surveys, and frequency of survey administration. The section "Survey Options" describes both surveys and provides guidance for deciding which survey to utilize and how to select participants. Contained in the section "Administering the Survey" are checklists to guide SN directors and/or managers 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.

Resource to Sustain and Strengthen Local Wellness Initiatives

The purpose of this project was to develop a web-based resource for SN professionals that would focus on communication, leadership and monitoring/evaluation activities that lead to successful sustainability and strengthening of wellness initiatives. The data collection for the project included two phases: 1) convening an expert panel to establish consensus for a set of questions related to sustainability of local wellness policies (LWP) followed by 2) surveying a national review panel to confirm the findings of the expert panel. The confirmed statements were used to develop content and format of the resource to assist school districts and school sites to evaluate objectives and activities in their LWP.

The resource was developed as a workbook to engage the district- and school-level monitors/evaluators in the development of an effective evaluation program. The content of the resource describes the evaluation process as a series of action steps. Each step includes background information, tips, and additional information to help the monitor/evaluator conduct an evaluation that will be worth the effort. Within each step is an example evaluation of an objective carried through from selection (Step 1) to communication of findings and recommendations (Step 8). The example is designed to help the monitor/evaluator apply the background information to the evaluation. The steps are 1) select the objective or activity that you want to evaluate, 2) select your measurement type, 3) determine what you will measure, 4) select the tool that you will use to collect your data, 5) collect your data, 6) analyze the data that you have collected, 7) determine what your results mean, and 8) communicate your results. The resource also includes a glossary and a section on Evaluation Aids and Examples that includes a list of potential factors to measure; examples of a checklist, observation form, survey, and participation log; evaluation math, and sample presentation slides.

The components of the workbook were designed to lead up to the action plan, which describes what the monitors/evaluators are prepared to do. The workbook learning environment supports each learning stage, and the progress toward developing an evaluation plan is documented in the workbook.

State Agency Funded Research, 2009-2010: Annotated Bibliography

The NFSMI, ARD routinely collects information on state agency-funded research related to Child Nutrition Programs (CNP). State agency representatives responsible for overseeing CNPs were contacted to provide ARD researchers information regarding state-funded research utilizing an electronic survey. The electronic survey was developed by ARD researchers in order to collect information regarding any finished, unpublished research funded by the state agency since 2009. Sixty state agencies, representing the National School Lunch Program (NSLP), Summer Food Service Program (SFSP), and Child and Adult Care Program (CACFP), were sent e-mails. Of the 60 state agencies, 58 e-mails were delivered, and two e-mails were undeliverable. Seven state agencies indicated that they were funding research, five provided the requested information for a total of 5 research projects, four reported yes but in development, 16 replied that their state had no current research, and 31 did not respond. This report contains summaries of state agency-funded research during 2009-2010.