

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.

NFSMI Research Summary is a continuing series of summaries reporting recently completed research funded by the National Food Service Management Institute. This research has been produced by the National Food Service Management Institute, Applied Research Division, 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. 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.

Recently Completed Research

Competencies, Knowledge, and Skills for District-Level School Nutrition Professionals in the 21ST Century

The purpose of this study was to identify current competencies, knowledge, and skill statements needed by district-level school nutrition (SN) professionals to effectively lead a nutrition-centered business in the school setting. This research project was conducted in two phases, and SN professionals participated in both phases of the project. Phase I utilized an expert panel consisting of SN directors and state agency staff to bring about agreement on functional areas encompassing the job responsibilities of district-level SN professionals. Expert panel members also identified the knowledge and skill statements needed in each functional area and sorted the statements into competency categories. The findings from Phase I were used to develop a survey on the knowledge and skill statements. The Phase II review panel consisting of SN directors, district-level SN professional staff, state agency staff, and NFSMI staff, were mailed a survey to verify whether the knowledge and skill statements were important to the job responsibilities of an SN director/supervisor; to categorize the knowledge and skill statements into three distinct groups (essential, advanced, and just-in-time); and to confirm whether the competency statements are consistent with the supporting knowledge and skill statements.

Ten functional areas were identified that encompass the job responsibilities of district-level SN professionals: Facilities and Equipment Management; Financial Management; Food Production and Operation Management; Food Security, Sanitation and Safety; Human Resource Management; Marketing and Communication; Menu and Nutrition Management; Procurement and Inventory Management; Program Management and Accountability; and Technology and Information Systems. In addition to these functional areas, 23 competencies, 128 knowledge statements, and 187 skill statements were confirmed by the Phase II review panel. From these statements, the review panel identified only 23 statements as being advanced beyond what is essential to administer the SN program and one statement as just-in-time knowledge/skill to address a time-sensitive

issue/initiative. The remaining 291 statements were identified as being essential knowledge or skills needed to administer the SN program.

Investigation of the Job Functions and Training Needs of State Agency Child Nutrition Professionals

The objectives of this project were to investigate the job functions of child nutrition (CN) professionals working in state agencies, to describe the educational level and employment backgrounds of these CN professionals, and to identify current training provided to state agency staff. An online survey addressing the research objectives was sent via e-mail to state agency directors. A response rate of 65% was achieved.

Results indicated that CN professionals in state agencies perform a wide variety of tasks. A majority of CN professionals have completed graduate level coursework. During their first year of employment, most CN professionals received training from individuals within their own state agency unit. Most initial training was on-the-job with mentoring enhancing the process. The majority of training methods utilized by the state agency were individual learning techniques.

The major sources of professional development opportunities for CN professionals in their first year of employment are the School Nutrition Association, professional association conferences/workshops, the USDA, and the American Dietetic Association. Later opportunities are provided by USDA, state agency staff, and professional organizations. Webinars and Web-based modules also were cited as sources of professional development opportunities for CN professionals.

The second phase of the project was a review of job descriptions and organizational charts submitted by state agency directors. A response rate of 38% was achieved. A review and contextual analysis of the job descriptions indicated a preliminary identification of 12 major themes within the job descriptions. The preliminary themes served as identified words/phrases for electronic searches of each job description. Thirty significant themes were identified from the job descriptions. The results of this study can be used to identify job functions and training methods, needs, and skills required for CN professionals to conduct reviews and provide technical assistance. The themes can aid in determining the functions, competencies, and skills needed to perform as an effective CN professional working in a state agency.

School Nutrition Program Utilization of the NFSMI FUNDamentals Financial Management Software

The purpose of this study was to evaluate both the use of NFSMI FUNDamentals and user perception of its effectiveness in improving operations. An electronic survey was developed and transmitted to 190 individuals who had contacted NFSMI and Visual Solutions during 2007 and 2008 to register to allow installation of the NFSMI FUNDamentals financial management software. An actual response rate of 20.8% was achieved. Results indicated that a majority of respondents were satisfied with the support received from the software vendor. The three most common uses of the software were profit/loss statement, cost of food used, and meals per labor hour. A majority of participants agreed that FUNDamentals was useful in selecting the most cost effective goods and services and providing information needed to operate a cost effective school nutrition program. The analyses most frequently utilized were individual school operations, sharing financial information with managers, sharing selected information with school staff, and reporting to school officials and school board. Respondents stated that FUNDamentals improved management of school nutrition through decreased time gathering and analyzing financial data, improved staffing, and increased productivity.

School Nutrition Dietary Assessment Study III – Summary of Findings Final Report

The Food and Nutrition Service (FNS) of the USDA sponsored the third School Nutrition Dietary Assessment (SNDA) study to provide up-to-date information on the school meal programs, the school environment that affects the programs, the nutrient content of school meals, and the contributions of school meals to students' diets. Data were collected from a nationally representative sample of 129 School Food Authorities (SFA), 398 schools in those SFAs, and 2,314 children attending those schools (and their parents) in school year (SY) 2004-2005. The purpose of this project was to conduct a secondary analysis of the SNDA-III data using characteristics of the representative 398 schools. Characteristics that were analyzed include: USDA region in which the

school is located, percentage of students in the schools that qualify for free and reduced meals, poverty level in the community where the school resides, and size of schools. The following are key findings from the secondary analysis.

- Students in the Mountain Plains region selected breakfast and lunch meals containing a greater quantity of calories than most other regions in the country. This occurred even though the students were offered a similar number of calories related to the other regions in the country.
- The students in the schools with the highest rates of students qualifying for free and reduced breakfasts were generally presented with and took foods that met the School Meals Initiative (SMI) standard for energy less often than students in the more affluent schools.
- Community poverty level does not affect the school's rate of meeting the SMI standards. Regardless of the poverty level in the community in which the school exists, schools have an equal likelihood of meeting the SMI standards.
- Students from largest schools (greater than 1,000 students) have a greater chance of being presented with adequate breakfast calories than smaller schools based on the SMI standards. This also results in the students from the largest schools selecting foods with more calories than students in all other sized schools except schools with less than 400 students.
- Only 9.2% of elementary schools met the SMI standard for breakfast calories while 57.5% met the 1989 Recommended Energy Allowance (REA). Only one calorie level is designated by the SMI standards for all levels of schools. The calorie level to be served to a 1st grader is the same as the calorie level to be served to a 12th grader. The age-adjusted 1989 REA standards for breakfast and lunch calories resulted in more schools (57.5%) meeting the standard for 1st graders and fewer schools (5.8%) meeting the standard for 6th graders.
- The Body Mass Index (BMI)-for-age results show that children, as of the 2004-2005 school years, have a higher mean BMI than the children used to develop the 2000 Center for Disease Control (CDC) growth charts. This indicates that the students used to gather the SNDA III data are larger than the students used to create CDC growth charts which used NHANES III data gathered in 1988-1994.

Implementation of Food Safety Programs Based on HACCP Principles in School Nutrition Programs

The purpose of this study was to assess the extent to which school nutrition (SN) programs have implemented food safety programs based on Hazard Analysis and Critical Control Point (HACCP) principles, as required by Section 111 of the Child Nutrition and WIC Reauthorization Act of 2004. In order to investigate this issue, an online survey was developed by researchers based on the content of the USDA guidance document, *Guidance for School Food Authorities: Developing a School Food Safety Program Based on the Process Approach to HACCP Principles*, and professional literature. The sample consisted of SN directors and managers participating in SN programs. Survey invitation letters were mailed to a total of 14,682 SN directors, after accounting for letters returned as undeliverable. Each SN director was asked to distribute an additional survey invitation letter to an SN manager in his or her district, resulting in a potential sample size of 29,364. A total of 2,716 participants responded to the online survey, for a response rate of 9.2%. Of the 2,716 respondents, 1,610 (59.3%) were SN directors and 1,106 (40.7%) were SN managers.

Results indicated that although the vast majority of SN directors and managers surveyed reported that their districts and schools, respectively, had implemented food safety programs based on HACCP principles, a more detailed status assessment revealed that the implementation process was often not complete. Results also indicated that school food safety programs did not include all components required for a program consistent with HACCP principles, as outlined in the USDA guidance document.

Barriers and practices related to the implementation of school food safety programs based on HACCP principles were investigated. For both SN directors and managers, the top barriers to the implementation were related to time, costs, and negative perceptions of food safety programs based on HACCP principles. The top factors important in implementing food safety programs based on HACCP principles were related to restricting ill employees from work with food, positive role modeling regarding food safety, ensuring that role expectations are understood, providing necessary

training and materials, ensuring that programs are practical to apply, and gaining employee “buy-in” to programs.

Perceived knowledge and skills related to food safety were evaluated. In general, SN directors perceived their food safety-related knowledge and skill as “good,” while SN managers perceived their food safety-related knowledge and skill as “good” to “excellent.” Thus, SN managers perceived themselves as having slightly greater knowledge and skill levels than did SN directors. It is important to emphasize, however, that perceived, rather than actual, knowledge and skill level were assessed in this study.

Sources of food safety information and preferred format for food safety information and training were examined. Sources of food safety information used by a majority of both SN directors and managers included the USDA, state or local health departments, the School Nutrition Association, the National Food Service Management Institute, and ServSafe®. Both SN directors and managers indicated a preference for printed information/materials, followed by in-person training, for receiving personal information or training as well as for providing information or training to employees.

Nutrition Information at Point of Selection in High Schools: Does it Affect Entrée Choices?

The purpose of this study was to investigate the effects of posting entrée nutrition information at the point of selection (POS) in high schools nationwide and to conduct telephone interviews with school nutrition (SN) personnel from intervention schools after the intervention to determine satisfaction with and barriers to having nutrition information posted at the POS. This research study was conducted in three phases. In Phase I, focus groups were conducted with high school students from three high schools in the Midwest, Southeast, and Southwest USDA regions. In Phase II, the intervention school directors posted nutrition labels for entrées in the high school. In Phase III, the intervention school directors were interviewed via telephone to determine satisfaction with and barriers to posting nutrition information at the POS.

Four focus group sessions (9th and 10th grade females, 9th and 10th grade males, 11th and 12th grade females, and 11th and 12th grade males) were conducted in three high schools, for a total of 38 female and 35 male student participants. Male and female students thought nutrition information might affect their food choices. Twenty high schools in six USDA regions (nine intervention schools and eleven control schools) participated in the study. The SN directors supplied entrée sales data and nutrition information for September, October, January, and February. The nine intervention schools posted nutrition labels for entrées at lunch in January and February, 2009. In total, there were 1,508 menu days assessed across the 20 schools.

The two groups were significantly different at pre-test, with the control group schools offering entrées with fewer calories and less fat but more choices. The control group schools also had a higher level of influence because more students participated in the lunch program. These schools then decreased the amount of calories and fat in their menu during the post-test period. Concurrently, the intervention schools increased the level of calories and fat in their menu.

All SN directors from intervention schools (n=9) were interviewed by telephone after the two months of intervention. All were able to post the nutrition labels, and none reported concurrent nutrition education activities. Eight of nine directors reported that students noticed the labels, and one of the directors reported a student who stated that they didn't want to know the nutrition information. One director reported that the school had quite a few vegan students interested in nutrition. Another director reported that female students were more interested in the nutrition information than male students. Seven directors reported their greatest success was student awareness of the labels.

The lack of impact of entrée nutrition labels in the intervention schools suggests that simply providing passive nutrition information is insufficient for changing lunch purchases in high schools. SN directors are continuously changing menus to accommodate new foods, new preparation methods, and student preferences. The sampling effects, notwithstanding the findings, clearly indicate that attention to the levels of calories and fat in the menu influences student POS purchases. If schools provide healthy options, students will eat better. While this conclusion appears simple, it is consistent with the principle of having professionally trained SN directors and registered

dietitians associated with SN programs. Menus must be planned and implemented appropriately to ensure that students have healthy options.

Determining Factors Impacting the Decision of Middle/Junior High School Students to Participate in the National School Lunch Program

The purpose of this research was to identify issues associated with the participation and satisfaction of middle/junior high school students in the National School Lunch Program (NSLP). Focus group discussions were conducted in four school districts with two groups of participants. The first group was middle/junior high school students and the second group was school nutrition (SN) professionals, which included SN directors and middle/junior high school SN managers. Focus group discussions with middle/junior high school students investigated their perceptions regarding service and satisfaction with the SN program and barriers with participating in the NSLP. The focus group discussions with SN professionals explored these same issues from their perspective. Responses from both focus group discussions were transcribed, summarized, and grouped into emerging themes.

The focus group discussions with middle/junior high school students indicated that there are two distinct groups of middle/junior high school customers: students who participate daily in the NSLP and students who participate occasionally or not at all in the NSLP. Results from the middle/junior high school focus groups identified five primary reasons middle/junior high school students eat school lunch: food preference, hungry, no choice, convenience, and socialize. Findings from the focus group also identified four primary reasons middle/junior high school students do not eat school lunch: food quality, customer service, sanitation, and long lines. SN professionals suggested that the primary reasons students do not choose to eat school lunch were students want to socialize, peer pressure/cool factor, and long lines. In addition, SN professionals identified some challenges with middle/junior high school student participation: school administrators/principals having restrictions regarding socializing during lunch, perception of school lunch, and menu fatigue.

Responses from both focus group discussions revealed that there is a disconnect between the perceptions of middle/junior high school students and SN professionals regarding students' school lunch experiences. Middle/junior high school students have grown up frequenting restaurants with their parents and expecting good customer service. This new generation of customers has learned to recognize brands and make decisions on the foods they will or will not eat. Communication between SN professionals and students is a key factor for improving SN programs. To improve participation, SN professionals need to communicate with students to identify reasons they do not eat school lunch and explore the best course of action to address their customers' wants and needs. Focusing on a customer service oriented approach by involving students can assist SN professionals in developing strategies to increase customer satisfaction and retain these customers once they enter high school. Obtaining a deeper understanding of middle/junior high school students' perceptions will support the efforts of SN professionals in providing products and services to satisfy these customers.

Perceived Usefulness of Team Nutrition Resources as Identified by Team Nutrition Leaders

The purpose of this project was to assess the usefulness of Team Nutrition (TN) resources (My Pyramid for Kids, Nutrition Essentials, Empowering Youth with Nutrition and Physical Activity, and Team Up At Home) by TN school leaders. To accomplish this goal, an online survey was developed to collect information on the distribution and frequency of use of TN resources; the perceived usefulness of the resources; the perceptions of the TN school leaders regarding issues that influenced the curriculum specifics of the TN resources; and the demographics of the TN school leaders and schools. The survey was sent to a national sample of 6,638 TN school leaders. A total of 545 surveys were returned and used in statistical analysis, for a response rate of 8.2%.

Results indicated that approximately 60% of TN school leaders were cafeteria managers, and approximately 58% received a high school education or associate's degree. Of 545 TN school leaders, 54.9% received MyPyramid for Kids, 22.2% Nutrition Essentials, 14.6% Empowering Youth with Nutrition and Physical Activity, and 19.7% Team Up at Home. Only 10.6% to 17.2% reported frequent use of TN resources in their school. Approximately two-thirds of the schools used TN

resources in health classes and half used them in physical education classes. Two-thirds or more perceived that the lessons were well organized; that instructional design allowed teachers to customize the lesson to the specific needs of students; that graphics appealed to students; and that information and activities were appropriate for different grade levels and helped engage students in learning. About two-thirds reported they distributed TN resources to teachers, while nearly 10% did not. TN school leaders suggested that more visual, hands-on, and poster materials are needed. Major barriers for using resources included “having no time” and “lack of interest or cooperation.”

In conclusion, a large proportion of TN school leaders did not receive TN resources, and one quarter of those who received the TN resources never or rarely used them. However, a large majority (about two-thirds) of users perceived that the four TN resources were useful. Findings of this study have important implications for future nutrition education and training. The USDA, Team Nutrition needs to investigate opportunities to work more closely with state agencies to ensure school districts and TN schools distribute and use the TN resources they received or ordered, and the USDA Team Nutrition needs to routinely assess the usefulness of these resources to TN school leaders/schools. More visual, hands-on, and poster materials should be included in the future TN resources. Finally, as users highly evaluated the four TN resources, TN schools may consider using some components of TN resources in a nutrition or health class.

Team Nutrition Local Wellness Demonstration Project

The purpose of the Team Nutrition Local Wellness Demonstration Project (TNDP) was to document the development and implementation of Local Wellness Policies (LWP) by school districts and schools within those districts and describe the processes used to develop the LWP, implementation successes and barriers, needs for technical assistance, and outcomes of LWP implementation. A total of 31 districts and 84 schools from California (8 districts, 24 schools), Iowa (16 districts, 32 schools) and Pennsylvania (7 districts, 28 schools) participated in the project. Data for the project were collected by data extraction from public documents completed in Fall 2007. In Fall 2007 and again in Spring 2009 online surveys were completed at district and school levels, onsite interviews were conducted at district and school levels, and observations were conducted at the school level. The following are key findings from the TNDP:

- Stakeholder involvement was strong and diverse during the development stage for LWP.
- Many districts’ wellness policies were derived from templates or model policies developed and disseminated by government agencies or professional organizations. The most controversial policy components were setting nutrition guidelines for foods sold or offered outside of meal programs and physical activity/physical education.
- Districts and schools reported a culture change from implementation of the LWP. Although no single district or school reported all of these changes, many districts and schools reported seeing one or more changes in areas of improved school nutrition environments and eating behaviors, implementation of nutrition education in classes and outside of classes, improvements in physical activity environments, implementation of physical education programs that meet State standards, and increased opportunities and participation by students and staff in physical activity. Stakeholder attitudes toward implementing the LWP were positive overall.
- School administrators and staff and their attributes, such as their leadership, personal commitment, and personal perspective, were the most critical assets in developing, implementing and sustaining LWP.
- The most commonly reported barriers to implementation of LWP were time and financial resources.
- Communication is vital to successful implementation and sustainability of LWP. This project showed that districts and schools communicated using a variety of delivery systems, including face-to-face meetings, newsletters, websites, and E-mail.
- Technical assistance is essential to help districts and schools monitor progress and report change. Overall, district and school level monitoring of LWP implementation was weak. Few districts had complete plans for measuring implementation. Districts did not communicate plans for monitoring well to schools.

- Sustainability requires both stability and planned revision to maintain relevance and provide continuous improvement. Districts and schools have reported efforts to ensure sustainability, including ongoing communication, maintaining active wellness committees, and having processes for policy revision. Frequently cited impediments to sustainability included changes in leadership and lack of funding.
- As implementation continues, districts and schools will need additional resources to advance their LWP.
- Although regulations and incentives may be important in establishing competitive foods guidelines, this project cannot associate regulations and incentives with sustainability. The limited data collected in this early demonstration project of implementation are not sufficient to answer questions related to these programs.

The TNDP was a project on LWP development and early implementation. All school districts in the TNDP highlighted successes that occurred during implementation of their LWP. School administrators, wellness champions that included food service directors, school nurses, and physical education teachers, and wellness committees provided essential leadership. Schools implemented new and enhanced programs that focused on nutrition education and physical activity/physical education. While time, financial resources, availability of products to meet nutrition guidelines for foods served outside of the reimbursable meal, equipment, and community advocacy were perceived as barriers, fewer schools reported these as barriers by Spring 2009 compared to Fall 2007. Feedback from students, teachers, and parents was positive about wellness policy activities overall, including healthy changes in school meals and school-based physical activity. Also, over two-thirds of schools reported improvements in students' health behaviors associated with implementation of LWP. Continued leadership, communication with stakeholders, and technical assistance are critical to LWP sustainability and progress and to maintain the new wellness culture reported by school districts.