Exploring How Production and Equipment Decisions Impact the Operation of School Nutrition Programs

National Food Service Management Institute
The University of Mississippi
1-800-321-3054

2014

This project has been funded at least in part with federal funds from the U.S. Department of Agriculture, Food and Nutrition Service through an agreement with the National Food Service Management Institute (NFSMI) at The University of Mississippi. The contents of this publication do not necessarily reflect the views or policies of the U.S. Department of Agriculture, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. government.

The information provided in this publication 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*.

Suggested Reference Citation:
Rushing, K. (2014). *Exploring How Production and Equipment Decisions Impact the Operation of School Nutrition Programs.* University, MS: National Food Service Management Institute.

National Food Service Management Institute
The University of Mississippi

Building the Future Through Child Nutrition

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

PURPOSE

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

MISSION

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

VISION

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

CONTACT INFORMATION

Headquarters
Administrative Division
The University of Mississippi
Phone: 800-321-3054
Fax: 800-321-3061
www.nfsmi.org

Education and Training Division
Information Services Division
The University of Mississippi
6 Jeanette Phillips Drive
P.O. Drawer 188
University, MS 38677-0188

Applied Research Division
The University of Southern Mississippi
118 College Drive #5060
Hattiesburg, MS 39406-0001
Phone: 601-261-2480
Fax: 888-262-9631

Acknowledgments

WRITTEN AND DEVELOPED BY

Keith Rushing, PhD, RD
Research Scientist

Applied Research Division
The University of Southern Mississippi

NFSMI EXECUTIVE DIRECTOR
Katie Wilson, PhD, SNS

TABLE OF CONTENTS

EXECUTIVE SUMMARY 9

INTRODUCTION 13

Research Objectives

METHODOLOGY 16

Informed Consent
Data Analysis

RESULTS 20

Site Visits
Demographics
Field Observation
Structured Interview
Expert Panel Discussions
Major Operational Decisions Facing School Nutrition Directors
Making and Implementing Major Operational Decisions
The Planning Process
Information Sources
Information Needed
Marketing/Communication
Major Innovation Project Decisions
Getting Approval
Project Logistics
Staffing
Food and Labor Cost
Equipment
Storage/Inventory Control/Purchasing
Menus/Recipes
Promotion/Communication
Sanitation
Training
Food Safety
Capital Equipment, Renovation, and Building Decisions
People to Involve
Time Needed
Cost/Specifications
Funding Approval
Financial Management Decisions

Measuring the Success of Major Operational Decisions
Customer Satisfaction – Formal Measures
Customer Satisfaction – Informal Measures
Food Quality – Formal Measures
Food Quality – Informal Measures
Financial Measures
Training and Resources Needed to Support Major Operational Decisions

CONCLUSIONS AND APPLICATIONS 41

REFERENCES 46

LIST OF TABLES

Table 1: Demographic Characteristics of Site Visit School Districts 20
Table 2: Field Observation Visitation Sites 21
Table 3: Structured Interviews with School Nutrition Directors During Site Visits 22

LIST OF FIGURES

Figure 1: Structured Interview Questions.....16
Figure 2: Expert Panel Planned Discussion Outline.....17

EXPLORING HOW PRODUCTION AND EQUIPMENT DECISIONS IMPACT THE OPERATION OF SCHOOL NUTRITION PROGRAMS

EXECUTIVE SUMMARY

The Foodservice Systems Model (FSM) (Gregoire, 2012) provides a framework for explaining the relationship between each component of a foodservice operation, as well as how internal and external variables might affect the operation. When applied to school nutrition (SN) programs, the FSM can help identify the impact of operational decisions on organizational effectiveness.

Some of the issues facing SN directors today that require major operational decisions include the United States Department of Agriculture (USDA) meal planning standards, rising food costs, increasing student enrollment, and participating in operational and educational initiatives designed to promote healthy eating and increase participation in child nutrition programs. According to the School Nutrition Association (2011), the most pressing issue facing SN directors is implementation of the USDA nutrition standards/meal patterns, which will require SN programs to offer more fruit, colored vegetables, and whole grains at lunch; a weekly meat alternative at lunch; and provide meals with lower sodium content. (School Nutrition Association, 2011).

The purpose of this study was to explore the impact of food production and equipment decisions on the operation of SN programs. The specific objectives were to:

- Identify the issues and the potential impact that decisions related to food production and equipment will have on the operational effectiveness of SN programs, and
- Explore what processes should be undertaken to evaluate these issues, and make the best decision based on a specific SN program's operational needs and budget constraints.

This project consisted of a literature review, three site visits to SN programs, and two expert panels. Each site visit included a structured interview with the SN director and a field observation. Each expert panel was comprised of eight SN directors, one state agency representative, and one SN representative from commercial food and equipment industries.

Based on a structured questioning process, the expert panel addressed four major topics:

- What are the major operational decisions facing SN directors?
- How do SN directors make and implement major operational decisions?
- How do SN directors measure the impact/success of major operational decisions?
- What training and resources are needed to support major operational decisions?

When the transcripts from the two expert panels were analyzed, a broad list of major operational decisions facing SN directors emerged. Examples of those decisions included serving more raw and local produce and implementing chef-to-school programs.

When the discussion shifted to implementation of major operational decisions, the categories that emerged were the planning process, information sources, and information needed to make or implement decisions; marketing and communication to promote the success of decisions; and three types of major projects requiring decisions, including innovation projects,

capital expenditure projects, and financial management projects. Panelists indicated that the planning process should include forming a project planning team, conducting background research about the project topic, and developing an implementation schedule. The information sources that were identified for making and implementing decisions included government agencies, Web sites, publications, trade shows, conferences, and other SN directors, while the information needed for making and implementing decisions included data from calculations and reports available to most SN directors, such as labor cost percent, average daily participation, and projected food cost. Marketing and communication issues addressed included avenues for delivering promotional messages, such as social media, branding campaigns, and informal communication between nutrition staff and other SN stakeholders. Two examples of innovation projects offered by panelists were switching from heat and serve to scratch cooking and offering breakfast in the classroom. Topics of discussion related to innovation projects included securing approval from school administration, and all the major aspects of a SN program management including menu planning, procurement, production, inventory control, customer service, food safety, staff training, communication, marketing, and program accountability. The topics that were mentioned when panelists discussed capital expenditure project decisions included people to involve when making/implementing decisions, timing of purchases, cost/specifications, and funding approval. Examples of financial management projects discussed by panelists included reduction of waste and improving food specifications.

When asked how they measure the success of major operational decisions, the general response areas were customer satisfaction, food quality, and financial controls. Customer satisfaction measures included surveys, plate waste, focus groups, and talking with students and staff, while food quality measures included tray evaluations, food temperature, student

participation, and SN management observation of the production and serving areas during meals. The financial measures of success that were offered included meals per labor hour, recipe cost, meal cost, food cost, supply cost, labor cost, production sheets, and profit and loss statements. Panelist suggested several areas for the development of training and resources to help SN directors make major operational decisions. Those areas included financial management, time management, strategic planning, and interviewing and coaching employees. Additionally, based on the findings of this study, it is recommended that future research pertaining to SN production and equipment decision making be narrowed to investigate the usage of standard productivity measures, such as meals per labor hour, for SN program decision making.

INTRODUCTION

The Foodservice Systems Model (FSM) (Gregoire, 2012) provides a framework for explaining the relationship between each component of a foodservice operation, as well as how internal and external variables might affect the operation. When applied to school nutrition (SN) programs, the FSM can help identify the impact of operational decisions on organizational effectiveness. The foundation of the FSM is the transformation of various inputs (i.e., labor, food, supplies, facilities, equipment, money, time, utilities, and information) into desired outputs (i.e., quality meals, customer satisfaction, employee satisfaction, financial accountability, and regulatory compliance). The transformation process involves managing the four core subsystems of the FSM model (procurement, production, sanitation/maintenance and distribution/service), which is facilitated by an SN director's ability to make decisions, support communications, and maintain organizational stability in a constantly changing environment. Internal and external controls in the form of plans, goals, objectives, policies/procedures, laws, regulations and contracts, provide a roadmap to support the transformation process. Memory, feedback, and environmental factors (such as data from production and sales records, formal and informal comments from staff and customers, and the economic forecasts, respectively), provide invaluable information to support decisions. According to Gregoire (2012), each component of a foodservice system is interdependent; so, a decision made regarding one component of the foodservice system will have a reciprocal effect on other components of the system.

Some of the issues facing SN directors today that require major operational decisions include the United States Department of Agriculture (USDA) meal planning standards, rising food costs, increasing student enrollment, and participating in operational and educational initiatives designed to promote healthy eating and increase participation in child nutrition

programs. According to the School Nutrition Association (2011), the most pressing issue facing SN directors is implementation of the USDA nutrition standards/meal patterns, which will require SN programs to offer more fruit, colored vegetables, and whole grains at lunch; a weekly meat alternative at lunch; and meals with lower sodium content. Industry experts predict that food costs will remain high during the next fiscal year, with inflation of wholesale food costs running at 8% (School Nutrition Association, 2011), a situation that may force some SN directors to find new ways to cut costs to meet budget constraints. In 2011, the National Center for Educational Statistics predicted a six percent increase in total public and private elementary and secondary school enrollment by 2019, a predicament which will likely require many school districts to make decisions regarding the construction or remodeling of foodservice operations to meet larger production demands. Over the past several years, multiple initiatives have been on the rise in SN programs in the United States school districts, including innovative ways to offer breakfast to students ("grab and go," "hallway kiosks," and "breakfast in the classroom"), catering within schools, offering the summer foodservice program, and participating in nutrition education and outreach programs, such as the HealthierUS School Challenge, chefs in schools, farm-to-school initiatives, school gardens, and nutrition education in the classroom (School Nutrition Association, 2011).

Research Objectives

The purpose of this study is to explore the impact of food production and equipment decisions on the operation of SN programs.

The specific objectives included the following:

- Identify the issues and the potential impact that decisions related to food production and equipment will have on the operational effectiveness of SN programs.
- Explore what processes should be undertaken to evaluate these issues, and to then make the best decision based on a specific SN program's operational needs and budget constraints.

METHODOLOGY

This project consisted of a literature review, three site visits to school nutrition (SN) programs, and two expert panels. The three SN programs selected for site visits were picked because SN directors at those programs had implemented a major operational change (or changes) to their programs within the previous five-year period. Each site visit included a structured interview with the SN director (Figure 1) and a field observation that entailed a tour of the SN program district office and, when applicable, the following facilities: a central warehouse, a central kitchen, a finishing kitchen, and an onsite production kitchen.

Figure 1

Structured Interview Questions

1. What issues have you faced as an SN director that required a major decision regarding how your operation produces food or what equipment is needed?
2. What process did you use to make the decisions? Who did you involve? What resources did you use? How much time did you take?
3. How did you implement your decisions? Who did you involve? What resources did you use? How much time did you allocate?
4. Did you measure the success of the decisions/implemented changes? What was the overall outcome? How did the decisions impact the effectiveness of your operation?
5. What obstacles did you encounter during implementation? How did you overcome the obstacles? How would you do things differently, if you could start over?
6. What successes did you encounter?
7. What surprises did you encounter?
8. What advice would you give to an SN director in a program facing the same issues?

The structured interviews were recorded manually, and with an audio recorder. During the field observation, pictures were taken of equipment and facilities, but not of students or

school staff. After the completion of the three onsite visits, information gained from the literature review and onsite visits were used to create planned discussion topics for the expert panels (Figure 2).

Figure 2

Expert Panel Planned Discussion Outline

1. What major operational decisions need to be made? Why?
    a. Centralization or decentralization of operations
    b. Using more fresh produce
    c. Add or change meal services offered
    d. Begin a catering program
    e. Implement a facility building or remodeling project
    f. Redesign the menus
    g. Utilize new recipes
    h. Change in production method
    i. Change in food distribution method
    j. Implementation of a new marketing/branding scheme
    k. Use more local vendors
    l. Other
2. How should the decision be made?
    a. Should a formal decision making process occur? Why? What should that entail?
    b. Who should be involved? Why?
    c. How should each group be involved in the decision process? Why?
    d. How long should the decision process take?
    e. What information needs to be gathered to make the decision?
3. How will this decision impact the effectiveness of the operation?
    a. Management staff
    b. Food production
    c. Purchasing
    d. Receiving/storage
    e. Service/distribution
    f. Sanitation
    g. How will satisfaction be impacted? (What do you do to measure each? Do you use taste testing for customers? What should you do?)
    h. How will quality be affected? (How do you measure each? How should you measure each?)
    i. How will productivity be affected? Do you use any of these measures to make decisions? Should you use any of these measures to make your decision? Why? Are there any other productivity measures you use?

(Figure 2 continues)

(Figure 2 continued)

Expert Panel Planned Discussion Outline

4. How should the decision be implemented?
    a. Over what time period?
    b. What are the financing sources?
    c. Vendor/receiving changes
    d. Recipe changes (taste testing, recipe standardization)
    e. Menu changes
    f. Distribution/serving changes
    g. Equipment purchases and installation
    h. Building/renovation
    i. Staffing changes
    j. Staff training
    k. Policy and procedure changes
5. How will the impact of the decision be measured?
    a. Comparison to other, similar operations that have made similar decisions?
    b. A comparison of actual cost versus projected cost?
    c. Effectiveness: changes in?
6. Where do we go from here?
    a. What resources are needed to help SN directors make better operational decisions?
7. What type of training is needed to help SN directors make better operational issues? What is the best venue to receiving this type of training? (Online, workshops, other?)

Each expert panel was comprised of eight individuals, including six SN directors, one state agency representative, and one SN sales representative from the commercial food and equipment industries. The SN directors were invited based on recommendations from state agency child nutrition directors; the criterion for the recommendations was successful management of change in an SN program. Throughout each expert panel session, participants were asked semi-structured, open-ended questions related to the research objectives. A structured approach was employed to keep the discussions focused on the selected topics. The expert panels were moderated by one researcher, while an additional researcher captured participant comments on a computer. Toward the end of each session, after all questions were discussed, the moderator

summarized responses, and participants were asked to verify the accuracy of the depiction of the discussion summation.

Informed Consent

The Institutional Review Board at The University of Southern Mississippi reviewed and approved the protocol for this study.

Data Analysis

Data analysis consisted of a thorough review of the transcripts of each expert panel and the identification of themes and important points within each discussion.

RESULTS

Site Visits

The site visits consisted of two components: a structured interview with the school nutrition (SN) director, and a field observation.

Demographics

The SN programs visited as part of this study varied largely in size and, to a lesser degree, in percentage of students approved for free and reduced-priced meals and ethnic distribution. See Table 1 for the demographic characteristics of the school district sites.

Table 1

Demographic Characteristics of Site Visit School Districts

	Site 1	**Site 2**	**Site 3**
USDA Region	Northeast	Southeast	Mountain Plains
Student Enrollment	20,759	158,716	77,867
Number of Schools	45	190	151
Percentage of Students Approved for Free Meals	65%	34%	53%
Percentage of Students Approved for Reduced-Price Meals	10%	9%	10%
Ethic Distribution of Students			
African American	54%	29%	19%
Hispanic	31%	41%	57%
Caucasian	11%	26%	20%
Pacific Islander	1%	4%	3%
Native American	1%	0%	1%
Other	2%	0%	0%

Note: Information from this table was gathered at the National Center for Educational Statistics (2013).

Field Observation

Each site visit included a tour of the following facilities (as available): the SN program district office(s), central warehouse, central kitchen, finishing kitchen, and onsite production kitchen. Table 2 provides a brief description of the facilities at each site.

Table 2

Field Observation Visitation Sites

	Site 1	Site 2	Site 3
District Office	• Administrative offices • Central kitchen • Warehouse	• Administrative offices and warehouse	• Administrative offices and warehouse
Central Warehouse	• Dry/refrigerated/frozen food storage	• Dry/refrigerated/ frozen food storage • Equipment storage/repair	• Dry/refrigerated/frozen food storage • Equipment storage/repair
Central Kitchen	• There were multiple central kitchens in the district. • Hot and cold food production and distribution	• There were multiple central kitchens in the district. • Cold food production and distribution	• No central kitchens
Finishing Kitchens	• Multiple finishing kitchens • Re-thermalization • Boiling rice and pasta • Cold food assembly	• Multiple finishing kitchens • Heat-and-serve, pre-made, processed foods • Cold food assembly	• No finishing kitchens
On-site Production Kitchens	• Multiple on-site production kitchens • Some scratch cooking • Some pre-made items	• Multiple on-site production kitchens • Heat-and-serve, pre-made, processed foods • Boiling rice and pasta • Cold food assembly	• Only on-site production kitchens • Mostly scratch cooking, including baking sliced bread and rolls bread

Structured Interview

The structured interview consisted of eight primary questions posed to SN directors at each site (Figure 1). Table 3 provides a brief synopsis of the SN directors' responses.

Table 3

Structured Interviews with School Nutrition Directors During Site Visits

Interview Topics	**Responses**		
Issue	**Site 1**	**Site 2**	**Site 3**
Issues requiring a major production/ equipment decision	Need to improve perceived quality/taste of food in the district	Lack of control over food quality and costs at individual school kitchens	Desire to see students in the district served fresh produce grown locally and healthy nutritious scratch foods prepared in the school kitchens
The major decisions	Identifying/ implementing scratch recipes to replace lower quality heat and serve menu choices	Determining how to switch kitchens from decentralized menus and purchasing to centralized menus and purchasing	Determining how to shift from a heat and serve system to serving fresh produce grown locally and healthy nutritious scratch foods
How was the decision made	No formal process	A formal process was used; the SN management team met to study the options; buy-in from primary stakeholders was sought; research literature was reviewed; prior to implementation, a pilot was conducted to work out unforeseen issues	A formal process was used; SN managers were divided into project teams to explore the issues, such as defining scratch, identifying recipe sources, and determining how this decision would affect staffing, equipment, training, procurement, receiving, storage, sanitation, safety, satisfaction, participation, and the budget

(Table 3 continues)

(Table 3 continued)

Structured Interviews with School Nutrition Directors During Site Visits

Interview Topics	**Responses**		
Issue	**Site 1**	**Site 2**	**Site 3**
Implementation	New recipes were implemented one at a time	A multi-phased process was implemented	The SN program contracted with area chefs to help adapt the current menus using scratch recipes that students would like; a boot camp was developed to train staff how to cook from scratch and a scratch initiative was piloted at one school; once the kinks were worked out, the initiative was implemented gradually throughout the school district
How is success measured	Success was measured informally	Success was measured using key performance indicators such as labor and food cost, meals per labor hour, and percent participation	Success was measured informally by observing employee morale, and formally by monitoring participation, and food and labor costs
Obstacles	Employee unions made it difficult to get new job duties approved	Culture of SN employees that wanted to resist this change	Staff training needs increased with no real increase in staffing budget
Successes	Comments received from students, teachers, and other school staff were positive	Food and labor cost decreased, food quality and consistency improved, and participation and revenue increased	Food cost decreased, food quality improved, and participation and revenue increased
Advice for others	Use an organized and systematic approach	Engage in constant communication throughout the change process	Involve SN staff in the process, listen to their concerns, and provide adequate training

Expert Panel Discussions

When the transcripts from the two expert panels were compared to the six main discussion questions, the researcher observed that responses to two sets of the expert panel questions were very similar. The first set of questions with comparable responses were, “How should the decision made?” and, “How should the decision be implemented?” The second set of questions with similar responses were, “How will this decision impact the effectiveness of the operation?” and, “How will the impact of the decision be measured?” Therefore, these questions were combined to present the results. The combined questions were as follows:

- What are the major operational decisions facing SN directors?
- How do SN directors make and implement major operational decisions?
- How do SN directors measure the impact/success of major operational decisions?
- What training and resources are needed to support major operational decisions?

Major Operational Decisions Facing School Nutrition Directors

Expert panel members identified a broad list of potential projects facing SN directors that require major operational decisions. That list is summarized below:

- Implementing the impending USDA guidelines,
- Switching to scratch or conventional cooking,
- Improving student participation,
- Increasing revenues,
- Improving food quality,
- Reducing customer wait times,
- Purchasing capital equipment,
- Renovating/building facilities,

- Serving more local produce,
- Implementing chef-to-schools programs,
- Implementing salad bars,
- Switching from decentralized to centralized production,
- Developing and implementing a marketing plan,
- Initiating a School Breakfast Program, a school snack program, or a summer feeding program,
- Offering breakfast-in-classroom, grab-n-go breakfast, or grab-n-go lunch, and
- Implementing plans to improve SN program financial management.

Making and Implementing Major Operational Decisions

Results of the panel discussions pertaining to how SN directors make and implement major operational decisions were divided into seven categories. Those categories are:

- The planning process utilized for making/implementing these decisions,
- Information sources used to make/implement these decisions,
- Information needed to make/implement these decisions,
- Marketing/communication for promoting the success of these decisions,
- Major innovation project decisions,
- Capital equipment, renovation, and building decisions, and
- Financial management decisions.

The Planning Process

Eight comments pertaining to "the planning process utilized by SN directors for making and implementing major operational decisions" were offered. Those comments are as follows:

- All major decisions must involve thorough planning and research.

- Development of major operational plans should involve a team approach.
- Planning teams should include managers, staff, students, school administration, teachers, and parents.
- The best time to begin planning for a major project is in the summer.
- The planning and implementation of a major project will take anywhere from six months to two years, depending on the size and scope of the project.
- Major projects cannot always be completed in the summer.
- An SN director must be fully involved in the planning and implementation of major decisions.
- Prior to implementing major operational decisions, the planning team should create an implementation schedule for an entire school district.

Information Sources

Expert panel members identified several information sources used by SN directors to make and implement major operational decisions. Those sources included:

- State agencies,
- Other SN directors,
- National and state School Nutrition Association (SNA) conferences,
- Industry shows,
- School nutrition related Web sites, like the SNA and the National Food Service Management Institute (NFSMI),
- The United States Department of Agriculture (USDA),

- Journals and trade publications, such as: *The Journal of Child Nutrition Management, Food Management, Foodservice Director, The Journal of the Academy of Nutrition and Dietetics,* and *Nation's Restaurant News.*

Information Needed

The specific type of information needed by SN directors to make and implement major operational decisions included data from calculations and reports available to most SN directors. That data included:

- Labor cost percent,
- Food cost percent,
- Total cost per meal,
- Inventory turnover,
- Meals per labor hour,
- Meal cost per student,
- Average daily cost per student,
- Average daily participation rate,
- Participation trends,
- Current and projected student enrollment,
- Current and projected special needs of students,
- Profit/loss statement,
- Specialized reports generated from point of sale data,
- Current and projected food, labor, and supply cost, and
- Current and projected indirect costs.

Marketing/Communication

Participants provided six examples of marketing/communication advice for promoting the success of major operational decisions. That advice is summarized below:

- Employ newsletters, social media, and school Web sites.
- Select descriptive terms to describe menu items.
- Apply creative names to menu items.
- Create theme menus for each month.
- Develop attractive poster-sized menus for school hallways and cafeterias.
- Promote good working relationships between school foodservice staff, students and other school employees.

Major Innovation Project Decisions

Expert panel members provided many comments on "major innovation project decisions." Examples of innovation projects included: making program adjustments to meet the impending USDA regulations, switching to scratch cooking, or starting a breakfast program. Within the category "major innovation projects," several subtopics emerged. Those subtopics were: getting approval, project logistics, staffing, food and labor cost, equipment, storage/inventory control/purchasing, menus/recipes, promotion/communication, sanitation, training, and food safety. The comments falling under these subtopics are summarized below.

Getting Approval

The comments offered related to "getting approval for major innovations projects" included:

- To get approval from principals, demonstrate how a decision will improve academics or education programs.
- Superintendent support is important for convincing principals.
- Explain that breakfast in the classroom provides more time for in-class instruction, and it helps kids to be more attentive.
- Meet with principals, get them on board, let them delegate to their staff, and give them a timeline of what will happen.
- Some states require school board approval before a new breakfast program can begin.

Project Logistics

The comments provided about "project logistics for major innovations projects" were:

- Consider the capabilities of schools and local communities to support new programs.
- Examine the layout of school campuses and bus schedules.
- Start in one school so you can be there to answer questions and react to issues as they come up.
- Send letters to parents and post in newsletters one month in advance.
- Three weeks out, order food and supplies for the new menu.
- Make sure you have enough help for those initial days.
- Remember that production of breakfast must not hinder the quality or service of the lunch meal.
- Changes in breakfast item packaging will affect the need for paper, plastic, and labels.

Staffing

The comments related to “staffing for major innovations projects” included:

- Determine the capabilities of the staff.
- Change how SN staff and management are utilized.
- Increase employee productivity.
- Determine program-specific issues at each kitchen that affect labor hours.
- Identify the number of full-time equivalents planned for each kitchen.
- Plan for an increased number of manager/supervisors.
- Implementation should drive how much labor is needed.
- Staffing levels will likely rise, and then gradually decrease to normal, once implementation is complete.

Food and Labor Cost

“Food and labor cost for major innovations projects” comments included the following:

- Balance scratch and pre-made items on the menu.
- Balance labor and food costs.
- Determine the current distribution of scratch and pre-made items on the menu.
- Evaluate the labor intensity of current menu items.

Equipment

The comments given by panel members pertaining to “major innovation equipment projects” were:

- There will be a need for more serving equipment and a remote point-of-sale system.
- Identify specific equipment needs.
- Find resources to purchase equipment.

- You may need a larger quantity of pots and pans.

Storage/Inventory Control/Purchasing

The comments offered regarding "storage, inventory control, and purchasing for major innovations projects" included:

- Purchasing will take more time, because the number of menu items will increase.
- Food and supplies may exceed cold and dry storage capacity.
- More production and refrigerated storage space will likely be needed, especially for produce.
- Some SN directors will want blast chillers to facilitate centralized production and to maintain quality control.
- As inventory space decreases, keep fewer days of inventory on hand, and share commodity warehouse space with other schools.
- The need for stricter inventory controls will rise as the number of inventory items increase.

Menus/Recipes

The comments given related to "menus and recipes for major innovations projects" were as follows:

- Find items that can be produced from scratch or semi-scratch that students will like and appreciate.
- Adjust menus, recipes, and food specifications to meet the new standards.
- Identify and prioritize menu items that have potential.
- Standardize all recipes.
- Take a picture of food items for recipes.

- Nutrikids was updated to add pictures to recipe.
- Standardized recipes need pictures.
- Establish a rule that a new menu item must be offered three times before calling it a failure.

Promotion/Communication

Panel members' comments offered regarding "promotion and communication for major innovations projects" included:

- Assign a liaison to work with the principals and teachers.
- Managers should attend teachers' meetings and discuss what will be happening.
- Overcome SN staff resistance.
- Market items to students and other stakeholders.
- Market the aromas that come from the kitchen.
- Use marketing to promote the changes.
- Do recipe taste testing with students, make sure to prepare enough, and give samples to students and ask what they think.
- Maintain student participation.
- Get parent support through the parent teacher organization.
- Determine student's opinions informally and through surveys.
- Involve SN employees in decision making and implementation.
- If staff does not like a product, it will not sell.
- Allow students to have samples.
- Do test tasting at high schools.

Sanitation

The comments related to “sanitation and major innovations projects” included:

- Conventional cooking requires more washing of pots and pans.
- More garbage cans or dumpsters will be needed for paper and plastic waste associated with to-go items.

Training

The comments provided by expert panel members related to “training and major innovations projects” included:

- When implementing something new, work with staff one-on-one; keep repeating the training until it is done correctly.
- Ask managers to take 10 minutes and go over issues that need to be reinforced.
- School nutrition directors and managers should train employees on implementation, so both management and hourly staff experience the process.
- Teaching cooks how to cook is a process that will not occur overnight.
- Managers will need training on how to develop standardized recipes and production planning.
- School nutrition employees will need training on topics such as knife skills and handling raw meat and produce.
- School nutrition management should cook with the cooks the first day.

Food Safety

Expert panel members' comments regarding "food safety and major innovations projects" were as follows:

- There will be an increased need to monitor hot and cold temperatures to ensure foods served at remote areas are safe.
- There will be an increased need for more hazard analysis and critical control point monitors to reduce the risk of food borne illness.
- Train staff on food safety.

Capital Equipment, Renovation, and Building Decisions

The following subtopics arose during discussions pertaining to "capital equipment, renovations, and building decisions": people to involve, time needed, cost/specifications, and funding approval. The comments related to each subtopic are listed below.

People to Involve

Panel members' comments regarding "people to involve in capital equipment, renovation, and building decisions" included:

- Directors may need assistance from equipment consultants or manufacturer's representatives.
- People working every day should give input on renovations.
- Designers do not think about the flow; they complete their design and move to the job.
- Consultants do not realize what works in one kitchen does not necessarily work in another.

- A consultant is generally hired by the architect; a savvy SN director can pull that out of the architect's contract, do it themselves and be more successful.
- Use other SN directors for information on layout and replacement of equipment.

Time Needed

Expert panel members offered the following comments about "time needed and capital equipment, renovation, and building decisions:"

- A five-year strategic plan is best for capital projects.
- For major purchases, such as equipment, begin looking in January through February to purchase and receive the equipment before the start of the school year in August.
- School nutrition directors need to know how to develop equipment replacement schedules.
- Start bidding on equipment as soon as possible to get in place for summer.

Cost/Specifications

Comments related to "cost/specifications and capital equipment, renovation, and building decisions" included:

- Determine total cost of ownership of small/large equipment, including utility cost, extended warranty cost, maintenance cost, and cost of repair.
- Gather information about the equipment, including warranty, reputation of manufacturer/dealer, expected lifetime, and flexibility.
- Evaluate your equipment for making scratch foods.
- Evaluate if there is enough space under the hood.
- Look at versatile equipment, like convection ovens.

- Look for versatile pieces of equipment, such as steamers, braising pans, and combi ovens.
- The menu drives equipment selection.

Funding Approval

Panel members' comments related to "funding and approval for capital equipment, renovation, and building decisions" were as follows:

- School board approval is necessary for capital equipment purchases.
- In some school districts, if requesting a capital expenditure for equipment from a school board, it comes from a town's general fund, and has to be on the budget.

Financial Management Decisions

Discussions on the topic "financial management decisions" did not lead to any subtopics, but many comments were offered. Those comments included:

- Increase participation through quality improvement.
- Increase participation through marketing.
- Collect unpaid meal payments.
- Improve accuracy of reporting, such as production records and inventories.
- Improve portion control and food quality.
- Reduce food, chemical, and paper waste.
- Improve food specifications, especially produce.
- Improve the receiving process: check invoices, match invoices with what is delivered, check the quality of food products, weigh when appropriate, and check labels.
- Improve service procedures: make sure meals served are reimbursable, charge for all extra items, reduce theft, improve cash handling and charging procedures.

- Put a camera in service areas.
- Train staff on checking chemicals, temperatures, and using the correct amount of product.

Measuring the Success of Major Operational Decisions

The next topic of discussion for the expert panels was measuring the success of major operational decisions. This discussion was divided into three subtopics: "customer satisfaction," "food quality," and "financial measures." The subtopics satisfaction and food quality were further broken down to "formal" and "informal" measures. The comments related to these subtopics are summarized below.

Customer Satisfaction - Formal Measures

Expert panel members' comments related to "formal customer satisfaction measures for evaluating the impact or success of major operational decisions" included:

- Surveys do not always work well.
- Surveys with parents have a three percent return rate.
- Surveys can provide good information; they give a sense of what kids are looking for.
- Surveys give students the impression that you care about what they think.
- Use a formalized process for measuring satisfaction when starting something new.
- Measure plate waste.
- Use student focus groups.

Customer Satisfaction - Informal Measures

Seven comments related to "informal measures of customer satisfaction" were provided:

- Watch what goes in the trash.
- Identify issues, such as resistance from staff and custodians.

- Be visible; it is important to see what is going on.
- Talk with students and hear about the problems.
- Talk with staff about production issues.
- Managers are there every day. Get their feedback to see what is working and what is not working.
- Sometimes, a manager's opinions do not match with students' opinions; it is necessary to filter and determine what is actually happening.

Food Quality - Formal Measures

Expert panel members offered the following comments regarding "formal food quality measures for evaluating the impact or success of major operational decisions:"

- A great product that is not at the appropriate temperature is not acceptable.
- Look at participation.
- A standardized form is needed for testing temperatures and tasting food.
- Ensure quality is maintained at the schools through constant monitoring.
- Conduct tray evaluations.

Food Quality - Informal Measures

Panel members gave the following comments related to "informal food quality measures for evaluating the impact or success of major operational decisions:"

- School nutrition directors should visit every cafeteria in their district during serving time on a routine basis.
- If there is more than one ingredient, two people have to taste it.
- How does the food look when it is ready to be served?
- Is the menu being served the same as planned?

- The SN director needs to manage by walking around.

Financial Measures

Expert panel members' comments related to "financial measures for evaluating the impact or success of major operational decisions" included:

- Using meals per labor hour forces a director to look at every school and see how each is doing regarding student participation.
- Meals per labor hour is a tool for working with managers to set goals.
- Meals per labor hour gives data needed to make changes.
- Using meals per labor hour as a justification gives a director real authority in what they are saying.
- Cost all recipes before they go out to individual schools.
- Create a spreadsheet for production sheets and include amounts to serve, what was produced, what was wasted, and customer counts.
- An SN director should be able to evaluate and set benchmarks based on a profit and loss statement.
- Utilize profit/loss statements and look at costs, revenues, percentages of total expenses, and determine where there are fluctuations.
- Calculate meal cost per student.
- Look at the budget and year-to-date expenditures.
- Managers need to control paper, chemical, and food costs.
- The director controls labor cost.

Training and Resources Needed to Support Major Operational Decisions

Due to the small number of comments related to training and resources needed, no subtopics were created. The comments were summarized:

- School nutrition directors need training on financial management, such as developing and analyzing profit and loss statements.
- Provide quarterly seminars for directors.
- Training is needed on time management, strategic planning, techniques for interviewing, and coaching employees.
- Develop training on what the SN director should concentrate on most, the meat and potatoes things that apply to everyday.
- Software for doing financials and production records is needed.
- School nutrition directors need standard percentages for items on the profit and loss statement, such as percentage of labor cost for each region of country.
- The NFSMI needs a user-friendly Web site.
- School nutrition directors need to know how to determine total cost of ownership.

CONCLUSIONS AND APPLICATIONS

Expert panel members displayed extensive experience in making a broad range of operational decisions, many of which corresponded to what was found in the review of literature. Further, as explained by Foodservice Systems Model (FSM), each of these major operational decisions had an impact on all aspects of school nutrition (SN) foodservice system (Gregoire, 2012).

When the comments on making and implementing major operational decisions were categorized by decision topic, the categories that emerged were global (planning, information sources, information needed and marketing/communication) and more specific (innovation projects, purchasing capital equipment/renovation/building projects, and financial management improvement projects). Within the comments that fell under these categories, several themes arose. The themes related to global decision topics were as follows:

- Allocate adequate time for planning and implementation of the project.
- School nutrition directors in districts that have completed similar projects are excellent resources.
- Meals per labor hour is a versatile and valuable productivity measure.
- The menu is an important marketing tool.

With regard to factors to consider when making or implementing innovation project decisions, the following themes emerged:

- To get school administration approval for a project, demonstrate how the project will advance or support academics and student education.
- Establish high, but realistic, productivity expectations of SN workers and managers.
- Balance food and labor costs.

- Expect storage needs to change.
- Include a picture of the ideal finished product when developing standardized recipes.
- Market the project to key stakeholders, students, teachers, the principal, parents, and SN staff.
- Training should be a continuous process involving both SN managers and workers.
- Food safety must be maintained.

Within the category "capital equipment purchases/renovations/building projects" the following themes surfaced:

- Be actively involved in all aspects of planning that pertain to the SN program. Participate in strategic planning.
- Allow adequate time to make and implement the decision.
- Determine the total cost of ownership of equipment purchases.
- Purchase equipment that is versatile enough to meet current and future needs.

The themes falling within the category "financial management improvement projects" were as follows:

- Increase participation through marketing and quality improvement.
- Reduce waste and shrinkage through adequate training and monitoring.

When discussing ways to measure the success or effectiveness of major operational decisions, panel members provided comments that fell into the themes "customer satisfaction," "food quality," and "financial." Comments falling within the themes "customer satisfaction" and "food quality" were further classified as "formal measures" and "informal measures." The formal measures of food satisfaction included surveys with parents, plate waste studies, and student focus groups. It was the opinion of some panel members that the survey return rate with

parents would be too low to be of any value. Informal measures of food satisfaction included monitoring the trash and communication with students and staff, especially during meal service. The formal measures of food quality included conducting tray evaluations, monitoring individual food temperatures, and tasting food, while informal measures included and routinely visiting each school in a district at lunch.

Expert panel members offered multiple financial measures for evaluating the impact/success of major operational decisions. The list included specific calculations, such as recipe cost, meal cost per student, and meals per labor hour, as well as the development and analysis of reports, such as spreadsheets, to track production record data, profit and loss statements, and budget expenditure reports. Several comments emphasized the value and importance of meals per labor hour as a productivity and cost measure.

The comments that arose when panel members were asked to suggest the training and resources needed to support SN directors in making, implementing, and evaluating major operational decisions, provided several themes. First, training on financial management is very important, especially teaching SN directors how to develop, analyze, and utilize a profit and loss statement. Second, it was the opinion of panel members that SN directors need routine training opportunities on topics such as time management, strategic planning, and personnel management. Third, with regard to resources, the expert panel indicated that more financial management software is needed that includes reports indicating standard percentages (such as meal cost, food cost, and labor cost) for SN operations in each region of the country.

The study results suggest six areas for additional research or resources and training to support making, implementing, and evaluating major operational decisions. Those six areas are

financial management, strategic planning, marketing, information resources, equipment, and Continuous Quality Improvement (CQI).

With regard to financial management, the message was clear; School nutrition directors want and need more training on this topic. The expert panel suggested that this training should occur routinely. The training topics that were emphasized during panel discussions included development, analysis, and utilization of a profit and loss statement; utilizing a budget expenditure report, and calculation and utilization of financial indexes, such as meals per labor hour. Panel members also expressed an interest in software programs to support financial management in SN programs. Further research may help determine the depth and breadth of SN directors' needs with regard to financial management training.

Strategic and managerial planning was mentioned several times throughout the panel discussions. Therefore, SN directors may benefit from instruction on the following topics: strategic planning, capital equipment/expenditure planning, equipment replacement planning, and time management. School nutrition directors may also benefit from the development of a foodservice systems model tailored specifically to SN programs to support planning. School nutrition directors could refer to this when making and implementing major operation decisions. It would assist in the identification of potential consequences of the decision and issues to consider when implementing and evaluating the success of a major a decision.

As for marketing, SN directors want to know how to develop a marketing plan and need recommendations for how to promote their innovation plans to school administration. Resources that would likely be of benefit to SN directors include a variety of marketing templates that SN directors could use to create menus, newsletters, media releases, and letters to school administrators.

Expert panel members were very clear that the best resources for making and implementing major operational decisions were other SN directors who had experience making similar decisions. State agencies are in the best position to identify SN directors who have implemented special projects. Therefore, if state agencies could track this type of information, it would be invaluable to the SN directors in their states.

Panel members identified CQI as the optimal process to increase participation (through increased quality of food and service), reduce waste, and monitor the success of major operational decisions. Additional training and resources related to CQI may be of benefit to SN directors.

REFERENCES

Gregoire, M. B., (2012). *Foodservice organizations: A managerial and systems approach*. Upper Saddle River, NJ: Prentice Hall Publishing.

National Center for Educational Statistics. (2013). *Elementary/Secondary Information System.* Retrieved from http://nces.ed.gov/ccd/elsi/

School Nutrition Association. (2011). *School nutrition operations report: the state of school nutrition 2011*. National Harbor, MD: School Nutrition Association.

Vaden A. G. (1980) *A model for evaluating the foodservice system*. Manhattan, KS: Kansas State University.

National Food Service Management Institute
The University of Mississippi
P. O. Drawer 188
University, MS 38677-0188
www.nfsmi.org

GY 2011 Project 6