School Nutrition Professionals' Involvement in the Equipment Purchasing and Facility Design Process

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National Food Service Management Institute
The University of Mississippi

Building the Future Through Child Nutrition

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PURPOSE

The purpose of NFSMI is to improve the operation of Child Nutrition Programs through research, education and training, and information dissemination. The Administrative Offices and Divisions of Technology Transfer and Education and Training are located in Oxford. The Division of Applied Research is located at The University of Southern Mississippi in Hattiesburg.

MISSION

The mission of the NFSMI is to provide information and services that promote the continuous improvement of Child Nutrition Programs.

VISION

The vision of the NFSMI is to be the leader in providing education, research, and resources to promote excellence in Child Nutrition Programs.

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EXECUTIVE SUMMARY

The process of purchasing foodservice equipment or designing school nutrition (SN) facilities can be one of the most challenging yet critical tasks SN directors undertake in their careers. Research related to foodservice equipment and facility design has primarily focused on available equipment in schools to implement *The Dietary Guidelines for Americans* (DGA) and on the decision process to select food production systems in schools. Current research is limited on the involvement of SN directors in purchasing equipment or facility design projects.

The purpose of this study was to conduct a needs assessment to determine the current state of involvement and knowledge of SN directors in the facility design and equipment purchasing process. To accomplish this goal, researchers explored the involvement and knowledge of SN professionals in the facility design and equipment purchasing process; issues and trends influencing the layout and design of facilities and purchase of equipment in SN programs; and the skills needed for SN professionals to be viewed as credible resources for the design of SN facilities. An expert panel of SN professionals previously identified as content experts was convened to ascertain their opinions regarding the research objectives. The qualitative data gleaned from the expert panel discussions were used to develop a survey that was mailed to a random sample of 1,050 SN directors stratified by United States Department of Agriculture (USDA) regions. A total of 351 surveys were returned and used in statistical analysis for a response rate of 33 percent.

The results demonstrate that almost all (95.3%) SN directors surveyed are actively involved in the purchase of equipment for their programs, and 80.6% had participated in renovations to or the new construction of SN facilities. The great majority of these directors have not received any formal training in either equipment purchasing (72.2%) or facility design (79.2%), and over half (51.2%) reported that they did not have enough resources or training programs to be effective with equipment purchasing and facility design projects. When SN directors were asked to rate the usefulness of resources for equipment purchasing and facility design decisions, the two resources which had the highest mean ratings for both equipment purchasing and facility design decisions were "Other SN directors" and "Other school districts." Issues impacting decisions on equipment purchasing and facility design projects were identified in this study. Fourteen of the 21 issues had a mean rating of 3.0 or greater on a 4-point scale, suggesting that SN directors viewed these issues as important in their decision process. Issues rated as most important for both equipment purchasing and facility design projects were "Budget", "Efficiency", and "Food safety and sanitation." When asked to rate their agreement with 21 qualities related to the SN director's role, study participants rated 20 of the 21 qualities with a mean rating of 3.0 or greater on a 4-point scale for both equipment purchasing and facility design projects, suggesting that they agreed that these qualities led to successful equipment purchasing and facility design projects. The qualities with the highest agreement ratings for both equipment purchasing and facility design projects were "Maintains integrity throughout the process"; "Conveys the needs of their SN operation"; and "Accepts responsibility." Potential challenges to the success of equipment purchasing and facility design projects were assessed in this study. All ten of the challenges had mean ratings of 3.0 or greater on a 4-point scale for both equipment purchasing and facility design projects. The challenges with the highest agreement

ratings were "Understanding local/state/federal codes"; "Lack of knowledge"; and "Planning for flexibility". Finally, SN directors were asked to rate their agreement with nine possible skills needed to execute equipment purchasing and facility design projects. All nine skills for both types of projects had a mean rating of 3.3 or greater on a 4-point scale, indicating that the study participants agreed that all skills were needed.

The findings of this research suggest that decisions related to equipment purchasing and facility design projects are more complex than simply selecting a piece of foodservice equipment. Having a clear understanding of the resources available for assistance, the issues that are important for a specific project, and the potential challenges that can be encountered are critical for the success of equipment purchasing and facility design projects. SN directors empowered with this information, as well as insight into the qualities and skills needed for success, will allow SN directors to function as *Trusted Advisors*. The active involvement of SN directors in equipment purchasing and facility design decisions is essential to ensure that SN facilities are financially and operationally effective and efficient for both today's students and future generations of students.

INTRODUCTION

The process of purchasing foodservice equipment or designing school nutrition (SN) facilities can be one of the most challenging yet critical tasks SN directors undertake in their careers. Research related to foodservice equipment and facility design has primarily focused on available equipment in schools to implement *The Dietary Guidelines for Americans* (DGAs) and on the decision process to select food production systems in schools. Current research is limited on the involvement of SN directors in purchasing equipment or facility design projects.

Early research by Richardson, Smith, and Boudreaux (1990) indicated that the majority of SN directors in Mississippi who had participated in a renovation or in the new construction of an SN facility were very involved; however, many experienced several problems after the project was completed. Their research also showed that many of those involved in renovations and construction of SN facilities were perceived by the study participants as having little knowledge regarding the layout and design of an SN facility.

Nettles (1999) explored SN directors' opinions regarding the use and appropriateness of foodservice equipment in SN programs. Study results indicated that SN directors' opinions on equipment use in kitchens reflected an increasing awareness of preparing school meals that supported the nutrition goals and objectives of the SN program. Nettles concluded that to ensure SN programs met present and future needs, SN directors must respond to the demands of their consumers and to government regulations. SN directors also can broaden their foodservice equipment knowledge by observing other segments of the foodservice industry.

Meyer, Conklin, Nettles, and Carr (1998) examined production equipment issues related to the implementation of the DGAs. SN directors were surveyed to determine the number, style, age, and condition of a variety of production and holding/service equipment used in conventional

kitchens. The results were compared to a list, recommended by a panel of experts, of production and holding equipment for kitchens preparing meals structured to meet the DGAs. Findings indicated that many schools were preparing food in kitchens that were less than ideally equipped.

Nettles and Gregoire (2000) explored issues surrounding the decision process used by SN directors to select a food production system. SN directors indicated the most frequently cited sources of information used in the food production system selection process were discussion with other users of the system(s) under consideration; visits to other facilities using the system(s) under consideration; and seminars/conferences. The researchers concluded that the decision process for the selection of a food production system for use in schools is complex, and is a process that SN directors are likely to be involved in several times throughout their careers. Directors who anticipate making a system selection decision should realize that the decision often takes months to complete and involves many individuals in the planning process. Visiting other schools to view the operation of their food production system and talking with other directors can provide valuable information for the decision process.

Gregoire and Harrison (2008) also emphasized that planning for a school food and nutrition production system involved many important decisions. They recommended that directors should be involved in the planning process from the beginning and must be assertive when working with architects. They stressed that the selection of the appropriate design consultant is critical to the success of the project. The SN director should remain an active participant in the planning process after a design consultant has been hired.

The National Food Service Management Institute, Applied Research Division (NFSMI, ARD), facilitated a meeting of SN directors, state agency representatives, and facility design industry representatives to explore the gaps in two reference manuals, *A Guide for Purchasing*

Foodservice Equipment and *The New Design Handbook for School Food Service*, which provide information, background, and processes for designing, renovating, and equipping SN facilities (Allen, Brainard, Carr, & Nettles, 2005). Results of the gap analysis process supported the need for revision, expansion, and consolidation of the two NFSMI, ARD manuals and the need to design a new Web-based resource. Participants expressed concerns that SN directors are often stereotyped by others within the school community and the facility design/equipment industry. They articulated that the responsibilities of SN directors had increased with the growing demands of newer and more student-friendly dining areas and menus. In addition to the escalating complexity of administrating an SN program, SN directors are expected to operate a successful business within the school setting. Participants came to a consensus in support of the phrase *Trusted Advisor* to capture the vision of the SN director as a professional administrator, savvy business person, and nutrition expert. Participants also determined that success would be achieved when SN directors are actively involved and when credible resources for the design and renovation of SN facilities are available to facilitate better designed and equipped facilities. In addition, these SN directors would become industry resources and *Trusted Advisors* in school districts.

Equipment Purchasing and Facility Design for School Nutrition Programs, a Web-based resource for SN professionals at the district and state levels, was developed by NFSMI, ARD to address the recommendations identified during the gap analysis process (Almanza, 2009). The intent of *Equipment Purchasing and Facility Design for School Nutrition Programs* is to serve as a useful resource that gives SN directors a competitive advantage as they approach their equipment purchases and facility design decisions as *Trusted Advisors*. SN directors are faced with unique challenges and opportunities when making equipment purchasing and facility design

decisions for their SN programs, many of which focus on the specific goals of the programs and the experiences of the directors. SN directors operating as *Trusted Advisors* face these challenges and opportunities with a commitment to excellence. By being a *Trusted Advisor*, they seek to know the needs of the facilities by understanding the customers' expectations, production needs, and overall environmental issues facing SN programs in the 21st century.

Since its inception, the NFSMI, ARD has been in the forefront in identifying the competencies, knowledge, and skills needed by professionals working in the child nutrition arena. The most recent research focused on identifying the functional areas, competencies, knowledge, and skills needed by district-level SN professionals to be successful *Trusted Advisors* in the 21st century. An expert panel consisting of SN directors and state agency staff identified ten functional areas that encompassed the job responsibilities of district-level SN professionals. The "Facilities and Equipment Management" functional area contains three competencies, 13 knowledge statements, and 17 skill statements. The competencies for the "Facilities and Equipment Management" functional area are:

- Provides leadership in designing and planning facilities that support the operational goals of the SN program;
- Develops guidelines for selecting and maintaining equipment to accomplish the operational goals of the SN program; and
- Establishes an environmentally responsible SN program (Nettles, Asperin, & Carr, 2009).

In order to achieve the purposes identified by the gap analysis and the goal of SN directors becoming *Trusted Advisors*, a needs assessment was required to determine the current

state of involvement and knowledge of SN directors in the facility design and equipment purchasing process.

Research Objectives

The objectives of this research were to:

- Identify the usefulness of available resources to the equipment purchasing and facility design decisions;
- Identify issues and trends that are influencing decisions in equipment purchasing and facility design projects;
- Identify qualities related to the SN director's role as a *Trusted Advisor* that lead to successful equipment purchasing and facility design projects;
- Describe challenges to the success of equipment purchasing and facility design projects; and
- Define skills needed to initiate the paradigm shift from foodservice provider to *Trusted Advisor* in equipment purchasing and facility design projects.

METHOD

Research Plan

The purpose of this research was to conduct a needs assessment for school nutrition (SN) professionals on issues related to facility design and equipment purchasing in SN programs. To accomplish this goal, researchers explored the involvement and knowledge of SN professionals in the facility design and equipment purchasing process; issues and trends influencing the layout and design of facilities and purchase of equipment in SN programs; and the skills needed for SN professionals to be viewed as credible resources for the design of SN facilities. An expert panel of SN professionals previously identified as content experts was convened to ascertain their opinions regarding the research objectives. The qualitative data gleaned from the expert panel discussions were used to develop a survey that was mailed to a random sample of 1,050 SN directors stratified by United States Department of Agriculture (USDA) regions.

Expert Panel

Three SN professionals previously identified as content experts in facility design and/or equipment purchasing were contacted by e-mail and invited to participate in a day and a half discussion session. After the expert panel members agreed to participate, confirmation letters were mailed.

The discussion topics were planned to address issues related to the research objectives so that the resulting discussions with the two district directors/supervisors and one state agency representative would support survey development. The topics were developed from professional literature, as well as available resources on facility design and equipment purchasing. The discussion topics were as follows:

- Sources of information on equipment and facility design;

- Issues and factors that influence layout and design decisions for SN facilities in today's environment;
- Issues and factors that influence equipment needs for SN facilities in today's environment;
- Trends that influence the layout and design of SN facilities and purchase of equipment in today's environment;
- Impact of the local wellness policy and food safety issues on SN facility design and equipment;
- Role of SN professionals in facility design;
- Role of SN professionals in equipment purchasing;
- Challenges encountered during the facility design and/or equipment purchasing process;
- Challenges encountered, such as "living with the results" of facility design and/or equipment purchasing decisions;
- Knowledge and skills needed by SN professionals to be effective in the facility design and equipment purchasing process; and
- Knowledge and skills needed by SN professionals to initiate the paradigm shift from foodservice provider to *Trusted Advisor.*

The discussion session was facilitated by a National Food Service Management Institute, Applied Research Division (NFSMI, ARD), researcher with an assistant moderator capturing the participants' comments on a flip chart. Throughout the session, the researcher used a structured approach to keep the discussion focused on the selected topics. At the end of each agenda

section, the assistant moderator summarized responses, and participants were invited to verify that the summary comments were an accurate depiction of the discussion.

Following the expert panel meeting, researchers summarized the discussion session. The summaries were reviewed and thematically coded into categories, and survey statements were developed. These themes, categories, and survey statements were used to develop the survey.

Survey Development

The survey was developed from information acquired from the qualitative data obtained during the expert panel discussion session. The survey, entitled *Involvement of School Nutrition Professionals in the Equipment Purchasing and Facility Design Process,* consisted of six sections. In the first section of the survey, participants were asked to indicate the usefulness of 20 resources to their decision process for equipment purchasing and facility design. The response scale was a 4-point scale ranging from 1 (*not useful*) to 4 (*very useful*). In section two, 21 issues were listed that might be considered to impact decisions related to equipment purchasing and facility design projects. Participants were asked to indicate how important each issue was to equipment purchasing and facility design decisions. In section three, 21 qualities were listed that related to the role of an SN director when engaging in equipment purchasing and facility design projects. Participants were asked to indicate how important each quality was to the success of the projects. In both sections two and three, importance was rated on a 4-point scale, ranging from 1 (*not important*) to 4 (*very important*). In section four, ten potential challenges to the success of equipment purchasing and facility design projects were listed. Participants were asked to rate their level of agreement with each statement indicating its impact on equipment purchasing and facility design projects. In section five, nine possible skills needed to execute purchasing and facility design projects were listed, and participants were asked to rate their level of agreement

with each skill. In both sections four and five, agreement was rated on a 4-point scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). For sections one through five, participants responded to each statement twice, once with respect to equipment purchasing, and once with respect to facility design. In section six, participants were asked to provide additional information about themselves and their SN operation.

Survey Evaluation

Expert panel members and the state agency advisory committee members were asked to review the draft survey. Each person was e-mailed the draft survey and a survey evaluation form. They were instructed to review all of the questions on the survey and to use the evaluation form to record their comments, suggestions, or revisions for the directions, survey statements, and response categories. Minor wording changes for clarity were incorporated into the final version of the survey.

Sample and Survey Distribution

The sample for the survey phase of the research project consisted of SN directors in public school districts. A listing of states within each of the seven USDA regions was provided to Market Data Retrieval, a national school marketing company. The resulting random sample of 1,050 school districts was stratified by USDA region with 150 school districts from each USDA region. The resulting list identified the mailing address for the district SN directors. The survey, a one-page cover letter, and a self-addressed, postage-paid return envelope were initially mailed to a study sample of 700 SN directors. The cover letter informed participants of the purpose of the study, asked for their participation, assured them of the confidentiality of their responses, and provided researchers' contact information for questions and concerns. No identifying codes were placed on the surveys, thus preserving the anonymity of all respondents. Approximately three

weeks later, packets containing the survey, cover letter, and self-addressed, postage paid envelope were mailed to the remaining 350 SN directors.

Informed Consent

Protocol for the study was reviewed and approved by the Institutional Review Board at The University of Southern Mississippi.

Data Analysis

Survey data were analyzed using the statistical package SPSS Version 13.0 for Windows. Descriptive statistics included means, standard deviations, and frequencies of total responses. Exploratory principal components factor analysis was performed on items in the first section of the survey to determine if each set of items could be reduced to a smaller number of factors. Cronbach's alpha reliability coefficients were calculated to determine the internal consistency of the factors that emerged. One-way ANOVA was conducted to measure the effect of school district student enrollment on the factor scores from section one of the survey. Sections of the survey in which items did not factor were analyzed using only descriptive statistics. For all statistical tests, an alpha level of 0.05 was used for significance.

RESULTS AND DISCUSSION

Researchers mailed surveys to the 1,050 school nutrition (SN) directors in public school districts selected to participate in the research study. Three hundred fifty-one (33%) directors responded to the survey.

Characteristics of School Nutrition Directors and School Nutrition Programs

Program and personal characteristics are presented in Table 1. The majority of respondents (81.6%) were from school districts with less than 10,000 student enrollment. All USDA regions were represented, with the largest percentage of participants (16.6%) from the Midwest region and the smallest percentage of participants (12.6%) from the Southwest region. The majority of respondents had worked in SN programs for greater than 11 years (71.8%) and had been in their current position for six or more years (73.3%). Sixty percent of the respondents had a baccalaureate degree or higher.

Several questions were designed to ascertain respondents' involvement in equipment purchasing and facility design projects. Almost all (95.3%) SN directors were actively involved in the purchase of equipment for their program, and 80.6% had participated in renovations to or in the new construction of SN facilities. Most directors reported that they had not received any formal training in facility design (79.2%) or equipment purchasing (72.2%). Over half (51.2%) of the SN directors indicated that they did not have enough resources or training programs to be effective in purchasing equipment and/or facility design projects. If appropriate resources or training programs were accessible, almost all (91.7%) of SN directors responded that they would utilize them.

Table 1

Program and Personal Characteristics of Respondents

Question	**Frequency**[a]	**%**
What is the total student enrollment in your school district?		
2,799 or less	148	43.3
2,800-9,999	131	38.3
10,000 to 29,999	44	12.8
30,000 or greater	19	5.6
In what USDA region do you work?		
Midwest	57	16.6
Southeast	55	16.0
Mid-Atlantic	48	14.0
Mountain Plains	47	13.7
Northeast	47	13.7
Western	46	13.4
Southwest	43	12.6
How many years have you worked in SN Programs?		
Less than 5 years	31	9.1
6 to 10 years	65	19.1
11 to 20 years	128	37.5
Greater than 20 years	117	34.3

[a] Total N varies based on responses for each question

(*Table 1 continues*)

(Table 1 continued)

Program and Personal Characteristics of Respondents

Question	**Frequency**[a]	**%**
How long have you been in your current position?		
Less than 5 years	91	26.7
6 to 10 years	94	27.6
11 to 20 years	109	31.9
Greater than 20 years	47	13.8
What is your highest level of education?		
High school diploma or GED	73	21.8
Associate degree	61	18.2
Baccalaureate degree	14	4.2
Some graduate credits	44	13.1
Master's degree	50	14.9
Graduate hours beyond Master's	74	22.1
Doctoral degree	19	5.7
Have you actively participated in renovations or new constructions of SN facilities?		
Yes	275	80.6
No	66	19.4

[a] Total N varies based on responses for each question

(*Table 1 continues*)

(Table 1 continued)

Program and Personal Characteristics of Respondents

Question	Frequency[a]	%
Have you actively participated in the purchase of equipment for your SN program?		
Yes	326	95.3
No	16	4.7
Do you have an SN staff member overseeing equipment purchases and facility/design projects?		
Yes	66	19.7
It is my responsibility	269	80.3
Have you received formal training in facility design?		
Yes	71	20.8
No	271	79.2
Have you received formal training in purchasing equipment?		
Yes	95	27.8
No	247	72.2
Do you have enough resources/training programs available to allow you to be effective in equipment purchasing and/or facility design projects?		
Yes	166	48.8
No	174	51.2

[a] Total N varies based on responses for each question

(*Table 1 continues*)

(Table 1 continued)

Program and Personal Characteristics of Respondents

Question	Frequency[a]	%
If appropriate resources/training programs are accessible to you, would you utilize these services?		
Yes	310	91.7
No	28	8.3
In seeking resources/information to assist your equipment purchasing and facility design decision, do you prefer		
Print-based resources	49	14.3
Web-based resources	34	9.9
Both	260	75.8

[a] Total N varies based on responses for each question

Resources Used in Equipment Purchasing and Facility Design Decisions

The SN directors were provided with 20 resources used in equipment purchasing and facility design and were asked to indicate the level of usefulness of each resource by using a scale of 1 (*not useful*) to 4 (*very useful*). They were asked to respond to each resource twice. First, they were asked to respond to the usefulness of each resource in the decision process for equipment purchasing. Secondly, they were asked to respond to the usefulness of each resource in the decision process for facility design projects (Table 2). The means and standard deviations are presented in descending order based on the responses for equipment purchasing.

Table 2

Mean Usefulness Ratings and Standard Deviations for Resources Impacting Decisions Related to Equipment Purchasing and Facility Design

Resources	Total n	Equipment Purchasing[ab] Mean ± SD	Total n	Facility Design[a] Mean ± SD
Other SN directors	346	3.31 ± 0.82	318	3.27 ± 0.84
Other school districts	347	3.27 ± 0.77	320	3.27 ± 0.78
Manufacturers' representatives for foodservice equipment	343	3.04 ± 0.81	313	2.72 ± 0.91
Exhibits at state conferences	344	2.96 ± 0.92	321	2.35 ± 1.04
Foodservice consultant	337	2.96 ± 0.94	311	3.01 ± 0.95
Educational sessions at state conferences	337	2.87 ± 1.01	307	2.65 ± 1.04
Exhibits at national conferences (SNA, NRA, NAFEM)	322	2.73 ± 1.03	302	2.32 ± 1.00
Equipment display at local equipment distributor/dealer	343	2.70 ± 0.98	311	2.44 ± 1.03
Full line (food and equipment) distributor	345	2.70 ± 0.90	313	2.41 ± 0.96
NFSMI resources	334	2.65 ± 0.88	305	2.61 ± 0.91
Educational sessions at national conferences	315	2.57 ± 1.07	293	2.45 ± 1.08
On-line computer searches	342	2.55 ± 0.89	315	2.33 ± 0.93
Trade/professional magazines	346	2.49 ± 0.78	319	2.41 ± 0.84
USDA resources	339	2.33 ± 0.98	314	2.24 ± 0.99
Architect	326	2.27 ± 1.04	317	2.80 ± 1.03
Local electrician/plumber	343	2.26 ± 1.04	319	2.22 ± 1.01
Energy efficiency and testing facilities	331	2.24 ± 0.98	305	2.12 ± 0.97
District-level facilities coordinator	325	2.21 ± 0.96	308	2.27 ± 0.98
State agency staff	334	2.05 ± 1.01	309	1.99 ± 0.99
Equipment manufacturing plant	332	1.92 ± 0.93	304	1.73 ± 0.87

[a] Scale = 1 (*not useful*) to 4 (*very useful*)
[b] Equipment purchasing mean scores in descending order

Three resources for equipment purchasing had mean ratings of 3.0 or greater, signifying that SN directors viewed these resources as useful. Resources with the highest mean ratings were "Other SN directors" (3.31 ± 0.82); "Other school districts" (3.27 ± 0.77); and "Manufacturers' representatives for foodservice equipment" (3.04 ± 0.81). Resources with the lowest ratings were "Equipment manufacturing plant" (1.92 ± 0.93); "State agency staff" (2.05 ± 1.01); and "District-level facilities coordinator" (2.21 ± 0.96).

Three resources for facility design also had mean ratings of 3.0 or greater, suggesting they were viewed by SN directors as useful in their decision process. Resources with the highest mean ratings were "Other school districts" (3.27 ± 0.78); "Other SN directors" (3.27 ± 0.84); and "Foodservice consultant" (3.01 ± 0.95). Resources with the lowest mean ratings were "Equipment manufacturing plant" (1.73 ± 0.87); "State agency staff" (1.99 ± 0.99); and "Energy efficiency and testing facilities" (2.12 ± 0.97).

Exploratory factor analysis was conducted on the two sets of 20 items assessing opinions related to usefulness of resources in the decision processes for equipment purchasing and facility design. A principal component factor analysis with varimax rotation generated a four factor solution for resources used in equipment purchasing decisions, explaining 54.2% of the variance. Only items loading at .40 or greater were retained, and items loading on more than one factor were retained in the factor on which they loaded the highest. Table 3 presents the factors, items loading on each factor, and the Cronbach's alpha for each factor representing resources used in equipment purchasing decisions. The four factors demonstrated adequate internal consistency, with Cronbach's alphas ranging from .70 to .88.

Table 3

Factor Structure, Reliability, and Standardized Factor Loadings of Resources Used in Equipment Purchasing Decisions

Factor Structure (Reliability)	**Standardized Loading[a]**
Factor 1: State and National Conferences (α=.87)	
Educational sessions at national conferences	.84
Exhibits at national conferences (SNA, NRA, NAFEM)	.81
Exhibits at state conferences	.78
Educational sessions at state conferences	.78
NFSMI resources	.51
Factor 2: Information Consultants (α=.70)	
USDA resources	.75
State agency staff	.71
Architect	.65
District-level facilities coordinator	.51
Foodservice consultant	.42
Factor 3: Equipment Industry (α=.73)	
Manufacturers' representatives for foodservice equipment	.68
Equipment manufacturing plant	.56
Full line (food and equipment) distributor	.54
Trade/professional magazines	.54
Equipment display at local equipment distributor/dealer	.51
Local electrician/plumber	.47
On-line computer searches	.42
Energy efficiency and testing facilities	.41
Factor 4: SN Professionals (α=.88)	
Other school districts	.89
Other SN directors	.84

[a]All factor loadings were significant at .001

Factor means and standard deviations are presented in Table 4. Mean factor scores indicate that SN professionals are rated as the most useful resource for equipment purchasing decisions, followed by state and national conferences, equipment industry, and information consultants.

Table 4

Factor Means and Standard Deviations for Usefulness of Resources in Equipment Purchasing Decisions

Factor	**N**	**Mean[a] ± SD**
SN Professionals	350	3.29 ± 0.75
State and National Conferences	348	2.78 ± 0.80
Equipment Industry	350	2.50 ± 0.55
Information Consultants	349	2.40 ± 0.68

[a]The response scale was a 4-point scale ranging from 1 (*not useful*) to 4 (*very useful*).

The principal component factor analysis with varimax rotation generated a four factor solution for usefulness of resources for facility design decisions, explaining 55.8% of the variance. Table 5 presents the factors, items loading on each factor, and the Cronbach's alpha for each factor representing resources used in facility design decisions. Three of the factors demonstrated adequate internal consistency, with Cronbach's alphas ranging from .83 to .89. One factor had a Cronbach's alpha of .55, which is below the commonly used standard of .70. The researchers recognize this as a limitation, but given that this research is exploratory, made the decision to conduct follow-up analyses using this factor as well.

Table 5

Factor Structure, Reliability, and Standardized Factor Loadings of Resources Used in Facility Design Decisions

Factor Structure (Reliability)	**Standardized Loading[a]**
Factor 1: Information Gathering (α=.83)	
Full line (food and equipment) distributor	.74
State agency staff	.74
USDA resources	.69
Energy efficiency and testing facilities	.59
On-line computer searches	.57
Local electrician/plumber	.56
Manufacturers' representatives for foodservice equipment	.55
Equipment manufacturing plant	.52
Equipment display at local equipment distributor/dealer	.43
District-level facilities coordinator	.42
Factor 2: State and National Conferences (α=.88)	
Educational sessions at national conferences	.85
Exhibits at national conferences (SNA, NRA, NAFEM)	.83
Educational sessions at state conferences	.80
Exhibits at state conferences	.79
NFSMI resources	.58
Factor 3: Facility Design Consultants (α=.55)	
Foodservice consultant	.71
Architect	.68
Factor 4: SN Professionals (α=.89)	
Other school districts	.85
Other SN directors	.80

[a]All factor loadings were significant at .001

Means and standard deviations for the facility design resource factor scores are presented in Table 6. Mean factor scores indicate that the SN professionals factor is rated as the most important resource when making facility design decisions, followed by facility design consultants, state and national conferences, and information gathering.

Table 6

Factor Means and Standard Deviations for Usefulness of Resources in Facility Design Decisions

Factor	**N**	**Mean[a] ± SD**
SN Professionals	322	3.27 ± 0.77
Facility Design Consultants	327	2.74 ± 0.66
State and National Conferences	330	2.50 ± 0.84
Information Gathering	323	2.26 ± 0.62

[a]The response scale was a 4-point scale ranging from 1 (*not useful*) to 4 (*very useful*).

When one-way ANOVA was applied to measure the effect of school district enrollment on the resource factors for equipment purchasing and facility design, two factors demonstrated significance. These factors were information consultants (equipment purchasing) (p = .006) and information gathering (facility design) (p = .008). Factor scores by school district student enrollment are presented in Table 7. SN directors from school districts with less than 2,799 students rated information consultants ($F[2, 339]=5.28$, $p<.05$) significantly more useful for equipment purchasing decisions than did SN directors in school districts with 10,000 or greater student enrollment. SN directors from school districts with less than 2,799 students also rated information gathering ($F[2, 317)=4.89$, $p<.05$) significantly more useful in facility design decisions than did SN directors from school districts with 10,000 or more students.

Table 7

Factor Means and Standard Deviations for Usefulness of Resources in Equipment Purchasing and Facility Design Decisions Factor Scores By School District Student Enrollment

Decision Type **Factor**	**N**[a]	**Mean**[b] **± SD**
Equipment Purchasing		
State and National Conferences		
2,799 or less	145	2.70 ± 0.87
2,800-9,999	131	2.88 ± 0.71
10,000 or greater	63	2.79 ± 0.78
Information Consultants*		
2,799 or less	146	2.53 ± 0.70
2,800-9,999	131	2.35 ± 0.65
10,000 or greater	63	2.22 ± 0.62
Equipment Industry		
2,799 or less	147	2.50 ± 0.58
2,800-9,999	131	2.53 ± 0.48
10,000 or greater	63	2.48 ± 0.57
SN Professionals		
2,799 or less	147	3.23 ± 0.74
2,800-9,999	131	3.39 ± 0.74
10,000 or greater	63	3.13 ± 0.73

[a]N is based on cases included for ANOVA comparing factor scores by district enrollment.
[b]The response scale was a 4-point scale ranging from 1 (*not useful*) to 4 (*very useful*).
*$p < .01$ for ANOVA comparing factor scores by district enrollment.

(Table 7 continues)

(Table 7 continued)

Factor Means and Standard Deviations for Usefulness of Resources in Equipment Purchasing and Facility Design Decisions Factor Scores By School District Student Enrollment

Decision Type **Factor**	**N**[a]	**Mean**[b] **± SD**
Facility Design		
Information Gathering*		
2,799 or less	132	2.37 ± 0.65
2,800-9,999	123	2.26 ± 0.55
10,000 or greater	60	2.08 ± 0.58
State and National Conferences		
2,799 or less	136	2.49 ± 0.88
2,800-9,999	124	2.52 ± 0.79
10,000 or greater	61	2.48 ± 0.83
Facility Design Consultants		
2,799 or less	134	2.72 ± 0.69
2,800-9,999	124	2.75 ± 0.62
10,000 or greater	61	2.78 ± 0.63
SN Professionals		
2,799 or less	131	3.26 ± 0.78
2,800-9,999	123	3.33 ± 0.76
10,000 or greater	60	3.18 ± 0.77

[a]N is based on cases included for ANOVA comparing factor scores by district enrollment.
[b]The response scale was a 4-point scale ranging from 1 (*not useful*) to 4 (*very useful*).
*$p < .01$ for ANOVA comparing factor scores by district enrollment.

Issues Impacting Decisions on Equipment Purchasing and Facility Design

Participants were provided with 21 statements regarding issues to consider as impacting the decisions related to equipment purchasing and facility design projects and were asked to rate the importance of each issue using a scale of 1 (*not important*) to 4 (*very important*). They were asked to respond to each issue twice. First, they responded to the importance of the 21 issues to equipment purchasing decisions. Secondly, they rated the importance of each issue in facility design decisions (Table 8). The means and standard deviations are presented in descending order based on the responses for equipment purchasing.

Table 8

Mean Importance Ratings and Standard Deviations for Issues Impacting Decisions Related to Equipment Purchasing and Facility Design

Issues	**Total n**	**Equipment Purchasing[ab] Mean ± SD**	**Total n**	**Facility Design[a] Mean ± SD**
Budget	339	3.79 ± 0.49	321	3.79 ± 0.54
Efficiency	338	3.78 ± 0.44	320	3.80 ± 0.43
Food safety and sanitation	335	3.75 ± 0.55	320	3.71 ± 0.55
Labor costs	337	3.65 ± 0.60	318	3.64 ± 0.63
Work simplification	338	3.62 ± 0.58	320	3.66 ± 0.59
Menu	334	3.55 ± 0.65	316	3.48 ± 0.72
Staffing	337	3.50 ± 0.69	319	3.55 ± 0.69
Construction costs	338	3.49 ± 0.73	319	3.61 ± 0.70
Meal scheduling	337	3.40 ± 0.77	320	3.49 ± 0.73
Flexibility	336	3.32 ± 0.71	318	3.39 ± 0.70

[a] Scale = 1 (*not important*) to 4 (*very important*)

[b] Equipment purchasing mean scores in descending order

(Table 8 continues)

(Table 8 continued)

Mean Importance Ratings and Standard Deviations for Issues Impacting Decisions Related to Equipment Purchasing and Facility Design

Issues	Total n	Equipment Purchasing[ab] Mean ± SD	Total n	Facility Design[a] Mean ± SD
Procurement regulations (local, state, federal)	337	3.31 ± 0.80	319	3.23 ± 0.89
Nutrition emphasis	336	3.15 ± 0.86	318	2.95 ± 0.95
Changes in food preparation techniques	334	3.15 ± 0.75	318	3.10 ± 0.80
Marketing to customers	336	3.00 ± 0.84	317	3.24 ± 0.83
Emergency preparedness	336	2.95 ± 0.92	317	3.10 ± 0.87
Wellness Policy	337	2.77 ± 0.99	317	2.68 ± 1.02
Population trends	335	2.69 ± 0.91	318	2.81 ± 0.92
Alternative production systems	329	2.63 ± 0.89	311	2.64 ± 0.89
Diversity of customers	339	2.61 ± 1.00	325	2.82 ± 0.98
Alternative service systems (vending, kiosk, meals in classroom, etc.)	327	2.57 ± 0.99	313	2.65 ± 1.01
Branding	332	2.36 ± 0.88	318	2.35 ± 0.91

[a] Scale = 1 (*not important*) to 4 (*very important*)
[b] Equipment purchasing mean scores in descending order

Fourteen of the 21 issues impacting equipment purchasing decisions had a mean rating of 3.00 or greater. Of these 14 statements, seven had a mean rating of 3.50 or greater, suggesting that SN directors viewed these issues as very important in their equipment purchasing decisions. Issues with the highest mean ratings were "Budget" (3.79 ± 0.49); "Efficiency" (3.78 ± 0.44); and "Food safety and sanitation" (3.75 ± .55). Resources with the lowest mean ratings were

"Branding" (2.36 ± 0.88); "Alternative service systems (vending, kiosk, meals in classroom, etc.)" (2.57 ± 0.99); and "Diversity of customers" (2.61 ± 1.00).

Fourteen of the 21 issues for facility design decisions had a mean rating of 3.0 or greater. Of the 14 statements, seven had a mean rating of 3.50 or greater, suggesting that the issues were very important in decisions impacting facility design projects. Issues with the highest mean ratings were "Efficiency" (3.80 ± 0.43), "Budget" (3.79 ± 0.54), and "Food safety and sanitation" (3.71 ± 0.55). Issues with the lowest mean ratings were "Branding" (2.35 ± 0.91); "Alternative production systems" (2.64 ± 0.89); and "Alternative service systems (vending, kiosk, meals in classroom, etc.)" (2.65 ± 1.01).

Qualities Needed for Success in Equipment Purchasing and Facility Design

Participants were provided with 21 characteristics or qualities related to SN directors' roles when engaging in equipment purchasing and facility design projects and were asked to rate the importance of each quality to the success of the projects using a scale of 1 (*not important*) to 4 (*very important*). They were asked to respond to each issue twice. First, they responded to the importance of the 21 qualities to the success of equipment purchasing decisions. Secondly, they rated the importance of each quality in successful facility design decisions (Table 9). The means and standard deviations are presented in descending order based on the responses for equipment purchasing.

Table 9

Mean Importance Ratings and Standard Deviations of Qualities Needed for Success in Equipment Purchasing and Facility Design Projects

Qualities/Characteristics	**Total n**	**Equipment Purchasing[ab] Mean ± SD**	**Total n**	**Facility Design[a] Mean ± SD**
Maintains integrity throughout the process	341	3.76 ± 0.46	324	3.73 ± 0.53
Conveys needs of their SN operation	336	3.74 ± 0.49	319	3.73 ± 0.53
Accepts responsibility	336	3.73 ± 0.51	317	3.68 ± 0.56
Makes decisions in a timely manner	332	3.69 ± 0.51	315	3.67 ± 0.55
Find solutions to critical issues	335	3.69 ± 0.52	322	3.66 ± 0.59
Supports open communication	338	3.68 ± 0.56	320	3.66 ± 0.57
Knows own strengths and weaknesses	337	3.61 ± 0.59	321	3.62 ± 0.59
Leads effectively	337	3.61 ± 0.58	317	3.58 ± 0.61
Seeks professional advice	344	3.61 ± 0.56	324	3.63± 0.58
Desires to gain new knowledge	346	3.60 ± 0.57	328	3.56 ± 0.63
Handles difficult situations	336	3.60 ± 0.59	323	3.58 ± 0.62
Considers potential risks before making decisions	345	3.60 ± 0.56	325	3.61 ± 0.55
Manages with confidence	344	3.54 ± 0.59	322	3.53 ± 0.59
Recognizes strengths of others	335	3.51 ± 0.65	319	3.52 ± 0.64
Strategizes solutions for potential problems	345	3.50 ± 0.59	319	3.55 ± 0.59
Thinks strategically	345	3.49 ± 0.63	320	3.50 ± 0.64
Encourages staff involvement	344	3.45 ± 0.67	322	3.46 ± 0.67
Coordinates effective teams	345	3.40 ± 0.66	322	3.41 ± 0.67
Possesses analytical skills	343	3.39 ± 0.65	319	3.35 ± 0.69
Works with school district's political dynamics	341	3.32 ± 0.74	322	3.42 ± 0.69
Encourages student involvement	343	2.71 ± 1.04	321	2.97 ± 0.88

[a] Scale = 1 (*not important*) to 4 (*very important*)
[b] Equipment purchasing mean scores in descending order

Twenty of the 21 qualities for SN directors to be successful with equipment purchasing projects had a mean rating of 3.0 or greater on a 4-point scale. Of these 20 qualities, 15 had mean ratings of 3.50 or greater, suggesting that SN directors viewed these qualities as very important to their success in equipment purchasing. Statements with the highest mean ratings were "Maintains integrity throughout the process" (3.76 ± 0.46); "Conveys needs of their SN operation" (3.74 ± 0.49); and "Accepts responsibility" (3.73 ± 0.51). The statements with the lowest mean ratings were "Encourages student involvement" (2.71 ± 1.04); "Works with school district's political dynamics" (3.32 ± 0.74); and "Possesses analytical skills" (3.39 ± 0.65).

Twenty of the 21 qualities for SN directors to be successful with facility design projects had a mean rating of 3.0. Of these 20 qualities, 16 qualities had mean ratings of 3.50 or greater, suggesting that SN directors saw these qualities as very important to their success with facility design projects. Statements with highest mean ratings were "Maintains integrity throughout the process" (3.73 ± 0.53); "Conveys needs of their SN operation" (3.73 ± 0.53); and "Accepts responsibility" (3.68 ± 0.56). Statements with the lowest mean ratings were "Encourages student involvement" (2.97 ± 0.88); "Possesses analytical skills" (3.35 ± 0.69); and "Coordinates effective teams" (3.41 ± 0.67).

Challenges Impacting Success of Equipment Purchasing and Facility Design Projects

Participants were provided with 10 potential challenges to the success of equipment purchasing and facility design projects and were asked to indicate their level of agreement with each statement using a scale of 1 (*strongly disagree*) to 4 (*strongly agree*). They were asked to respond to each issue twice. First, they responded to each challenge regarding its impact on equipment purchasing. Secondly, they responded to the challenges regarding the impact on

facility design decisions (Table 10). The means and standard deviations are presented in descending order based on the responses for equipment purchasing.

Table 10

Mean Agreement Ratings and Standard Deviations for Challenges Impacting the Success of Equipment Purchasing and Facility Design Projects

Challenges	**Total n**	**Equipment Purchasing[ab] Mean ± SD**	**Total n**	**Facility Design[a] Mean ± SD**
Understanding local/state/federal codes	338	3.43 ± 0.69	318	3.47 ± 0.66
Lack of knowledge	342	3.40 ± 0.66	319	3.44 ± 0.70
Planning for flexibility	339	3.39 ± 0.60	319	3.42 ± 0.59
Lack of communication	336	3.37 ± 0.75	311	3.41 ± 0.75
Understanding utility needs	341	3.35 ± 0.66	318	3.37 ± 0.66
Working with an ineffective team	340	3.25 ± 0.77	315	3.35 ± 0.74
Lack of experience	340	3.25 ± 0.72	316	3.30 ± 0.72
Adhering to project timelines	334	3.24 ± 0.64	315	3.31 ± 0.65
Establishing project deadlines	339	3.20 ± 0.68	317	3.26 ± 0.69
Understanding industry terminology	339	3.18 ± 0.65	317	3.20 ± 0.68

[a] Scale = 1 (*strongly disagree*) to 4 (*strongly agree*)
[b] Equipment purchasing mean scores in descending order

All ten of the potential challenges impacting the success of equipment purchasing had mean ratings of 3.0 or greater, suggesting that the SN directors agreed that these issues were indeed challenges. Items with the highest mean ratings were "Understanding local/state/federal codes" (3.43 ± 0.69); "Lack of knowledge" (3.40 ± 0.66); and "Planning for flexibility" (3.39 ± 0.60). Items with the lowest mean ratings were "Understanding industry terminology"

(3.18 ± 0.65); "Establishing project deadlines" (3.20 ± 0.68); and "Adhering to project timelines" (3.24 ± 0.64).

All ten of the potential challenges impacting the success of facility design projects also had mean ratings of 3.0 or greater, suggesting that SN directors agreed that these issues were challenges. Items with the highest mean ratings were "Understanding local/state/federal codes" (3.47 ± 0.66); "Lack of knowledge" (3.44 ± 0.70); and "Planning for flexibility" (3.42 ± 0.59). Challenges with the lowest mean ratings were "Understanding industry terminology" (3.20 ± 0.68); "Establishing project deadlines" (3.26 ± .67); and "Lack of experience" (3.30 ± 0.72).

Skills Needed to Execute Equipment Purchasing and Facility Design Projects

Participants were provided with nine possible skills needed to execute equipment purchasing and facility design projects and were asked to indicate their level of agreement with each statement using a scale of 1 (*strongly disagree*) to 4 (*strongly agree*). They were asked to respond to each skill twice. First, they responded to each skill in respect to the need for equipment purchasing. Secondly, they responded to the skill in respect to the need for facility design projects (Table 11). The means and standard deviations are presented in descending order based on the responses for equipment purchasing.

Table 11

Mean Agreement Ratings and Standard Deviations for Skills Needed to Execute Purchasing and Facility Design Projects

Skills	**Total n**	**Equipment Purchasing[ab] Mean ± SD**	**Total n**	**Facility Design[a] Mean ± SD**
Communicates effectively program needs	339	3.65 ± 0.49	320	3.69 ± 0.50
Explores available equipment to meet operational needs	334	3.56 ± 0.53	315	3.50 ± 0.54
Develops appropriate specifications	336	3.49 ± 0.57	314	3.42 ± 0.64
Translates operational needs based on menu	334	3.49 ± 0.56	315	3.47 ± 0.63
Develops a strategic plan for facility and equipment needs	334	3.43 ± 0.61	312	3.42 ± 0.60
Networks with industry to gain information	335	3.34 ± 0.65	314	3.32 ± 0.65
Encourages employee involvement with projects	336	3.32 ± 0.61	315	3.35 ± 0.60
Provides assessment of project plans	332	3.31 ± 0.63	314	3.35 ± 0.60
Contributes as an effective information resource	334	3.31 ± 0.56	313	3.31 ± 0.58

[a] Scale = 1 (*strongly disagree*) to 4 (*strongly agree*)
[b] Equipment purchasing mean scores in descending order

All nine of the possible skills needed for equipment and purchasing projects had mean ratings of 3.3 or greater, suggesting that the SN directors agreed that these skills were desirable for equipment purchasing. Items with the highest mean ratings were "Communicates effectively program needs" (3.65 ± 0.49); "Explores available equipment to meet operational needs" (3.56 ± 0.53); and "Develops appropriate specifications" (3.49 ± 0.57). Items with the lowest

mean ratings were "Contributes as an effective information resource" (3.31 ± 0.56); "Provides assessment of project plans" (3.31 ± 0.63); and "Encourages employee involvement with projects" (3.32 ± 0.61).

All nine of the possible skills for facility design projects had mean ratings of 3.3 or greater, indicating that the SN directors agreed that these skills were necessary. Items with the highest mean ratings were "Communicates effectively program needs" (3.69 ± 0.50); "Explores available equipment to meet operational needs" (3.50 ± 0.54); and "Translates operational needs based on menu" (3.47 ± 0.63). Items with the lowest mean ratings were "Contributes as an effective information resource" (3.31 ± 0.58) and "Networks with industry to gain information" (3.32 ± .65).

CONCLUSIONS AND RECOMMENDATIONS

Research Study Conclusions

The results of this study provide insight into the equipment purchasing and facility design process in school nutrition (SN) programs. The specific areas examined in this study were the usefulness of available resources; issues and trends influencing decisions in equipment purchasing and facility design projects; challenges to the success of these projects; qualities related to the SN director's role as a *Trusted Advisor* that lead to successful projects; and the skills needed to initiate the paradigm shift from foodservice provider to *Trusted Advisor*.

The results demonstrate that almost all (95.3%) SN directors surveyed are actively involved in the purchase of equipment for their programs, and 80.6% had participated in renovations to or in the new construction of SN facilities. The great majority of these directors have not received any formal training in either equipment purchasing (72.2%) or facility design (79.2%), and over half (51.2%) reported that they did not have enough resources or training programs to be effective with equipment purchasing and facility design projects. Web-based and print resources are needed to assist SN directors in the decision processes related to equipment purchasing and facility design projects. State agencies and training professionals are encouraged to seek and provide appropriate resources and training programs that could assist SN directors with these projects.

When SN directors were asked to rate the usefulness of resources for equipment purchasing and facility design decisions, the two resources which had the highest mean ratings for both equipment purchasing and facility design decisions were "Other SN directors" and "Other school districts." These are similar results to those of Nettles and Gregoire (2000) where the most frequently cited resources used in the food production system selection process were

discussions with other users of the system(s) under consideration and visits to other facilities using the system(s) under consideration. These results suggest that SN directors value the knowledge and experiences of other SN professionals and look to them for assistance when faced with equipment purchasing and facility design decisions.

Issues impacting decisions on equipment purchasing and facility design projects were identified in this study. Fourteen of the 21 issues had a mean rating of 3.0 or greater on a 4-point scale, suggesting that SN directors viewed these issues as important in their decision process. Issues rated as most important for both equipment purchasing and facility design projects were "Budget," "Efficiency," and "Food safety and sanitation." These results suggest that the SN directors are very cognizant of the critical financial accountability regarding their equipment purchasing and facility design decisions. In addition, these decisions are multi-faceted in nature, with numerous issues to consider for any one equipment purchasing or facility design project.

When asked to rate their agreement with 21 qualities related to the SN director's role, study participants rated 20 of the 21 qualities with a mean rating of 3.0 or greater on a 4-point scale for both equipment purchasing and facility design projects, suggesting that they agreed that these qualities led to successful equipment purchasing and facility design projects. The qualities with the highest agreement ratings for both equipment purchasing and facility design projects were "Maintains integrity throughout the process"; "Conveys the needs of their SN operation"; and "Accepts responsibility." These qualities support the vision of the SN director as the *Trusted Advisor* in equipment purchasing and facility design projects. Being proficient at strategic planning, critical thinking, and technical communication with architects, engineers, and contractors assists the SN director in being viewed as a *Trusted Advisor* (Allen et al., 2005).

Potential challenges to the success of equipment purchasing and facility design projects were assessed in this study. All ten of the challenges had mean ratings of 3.0 or greater on a 4-point scale for both equipment purchasing and facility design projects. The challenges with the highest agreement ratings were "Understanding local/state/federal codes"; "Lack of knowledge"; and "Planning for flexibility". These results underscore the need for resources and training programs to assist SN directors with equipment purchasing and facility design projects. SN directors recognize the challenge of staying current in the constantly evolving environment of equipment purchasing and facility design industries. There is also a critical need for state agencies and training professionals to provide assistance in interpreting state and federal regulations related to equipment purchasing and facility design projects.

Finally, SN directors were asked to rate their agreement with nine possible skills needed to execute equipment purchasing and facility design projects. All nine skills for both types of projects had a mean rating of 3.3 or greater on a 4-point scale, indicating that the study participants agreed that all skills were needed. These results support the skills needed for the paradigm shift of the SN director from a foodservice provider to a *Trusted Advisor*. SN directors who operate as *Trusted Advisors* are strategic planners, critical thinkers, collaborators, articulate presenters, macro-managers, and confident leaders (Allen et al., 2005).

The findings of this research suggest that decisions related to equipment purchasing and facility design projects are more complex than simply selecting a piece of foodservice equipment. Having a clear understanding of the resources available for assistance, the issues that are important for a specific project, and the potential challenges that can be encountered are critical for the success of equipment purchasing and facility design projects. SN directors empowered with this information, as well as with insight into the qualities and skills needed for

success, will allow SN directors to function as *Trusted Advisors*. The active involvement of SN directors in equipment purchasing and facility design decisions is essential to ensure that SN facilities are financially and operationally effective and efficient both for today's students and future generations of students.

Education and Training Implications

Findings from this research suggest the following implications for education and training:

- Web-based and print resources are needed to assist SN directors in the decision processes related to equipment purchasing and facility design projects.
- Education materials should be developed to assist SN directors in interpreting state and federal regulations related to equipment purchasing and facility design projects.
- Training programs are needed to assist SN directors in making the paradigm shift from foodservice providers to *Trusted Advisors.*
- Education materials and training programs on topics related to equipment purchasing and facility design should be archived on the NFSMI Web site. This appears to be a just-in-time issue for SN directors, and resources should be available to assist in addressing time-sensitive initiatives.

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