The Journal of Child Nutrition & Management
Volume 30, Issue 2, Fall 2006
Published by School Nutrition Association

Perceptions, Practices, and Perceived Barriers Associated with School Professionals Serving the Nutritional Needs of Pre-Kindergarten Children in the Public School Setting

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ABSTRACT

Objectives
The purpose of this research is to assess the perceptions, practices, and perceived barriers that school nutrition directors, school nutrition managers, and other school professionals (principals, classroom teachers, and early education directors) face when serving the nutritional needs of pre-kindergarten (Pre-K) children in the public school setting.

Methods
A random proportional sample, stratified by U.S. Department of Agriculture (USDA) region and representing 700 public school districts with Pre-K programs, was selected. Questionnaires were mailed to school nutrition directors, who subsequently distributed survey packets to school professionals in their district, resulting in a total of 3,500 surveys. The questionnaire, which was based on focus group qualitative data, included questions concerning the practices, perceptions, and barriers related to serving the nutritional needs of Pre-K school children and requested information about the survey participants and their school districts. Descriptive statistics – including means, standard deviations, and frequencies – were calculated for all statements. Factor analysis was conducted using practice statements. One-way ANOVA was conducted to see if differences existed in practice factors among the five professional groups.

Results
A total of 685 (21%) school professionals responded to the questionnaire, with all five school professional groups represented. Respondents were from school districts with 10,000 or fewer students (74.8%), had one or two schools offering Pre-K programs (55.3%), had Pre-K programs with fewer than 200 students (71.4%), and served children ages three and four (65.3%). Factor analysis generated seven practice factors, and significant differences were found for four of these: encouragement, administrative support, nutritious meals and meal experiences, and communication and training.

Application to Child Nutrition Professionals
The study results provide information for school nutrition directors as increasing numbers of school districts prepare to add Pre-K programs and school professionals need to be prepared to serve the unique needs of this new customer. School districts should embrace a team approach and recognize that each member has an important contribution to make toward enhancing the provision of nutritional services to Pre-K children.

INTRODUCTION

Preschool education provides services to young children in various settings, such as private programs, Head Start, and public schools. Participation in preschool programs in the United States has been increasing steadily since the 1960s. Much of this growth, however, has occurred in settings outside public education (Barnett et al., 2004). Initially, most states that considered incorporating preschool programs in public schools targeted children with the greatest socio-economic and developmental needs. Two types of preschool programs in public school settings were established, one providing preschool special education for children with disabilities and the second providing preschool education either to children from low-income families or to children otherwise identified as being at high risk for school failure (Barnett et al., 2004). More recently, several state programs have recognized that all young children will benefit from positive early educational experiences and have begun to move toward universal pre-kindergarten (Pre-K) programs (FPG Child Development Institute, 2005). At present, 40 states have at least one state-funded preschool program in public schools, and other states have programs forthcoming (Gilliam & Marchesseault, 2005).

Smith et al. (2003) reported that during the 2000-01 school year, there were about 19,000 public elementary schools with Pre-K classes, representing approximately 35% of all regular and special education elementary schools in the country. Almost half (46%) of elementary schools in the Southeast, 30% of schools in the Northeast, 32% of schools in the Central region, and 35% of schools in the West offered Pre-K programs. According to a survey of state Pre-K program administrators, all states that have Pre-K programs in public schools reported serving four-year-olds, but almost half also included three-year-olds and some included even younger children (FPG Child Development Institute, 2005). Program directors also reported that all states focus on including children who are at risk of later school failure, and three states have implemented universal programs in which they are attempting to serve all four-year-olds, recognizing that all children can gain from positive early educational encounters. Researchers also found that the majority of state-funded Pre-K programs (59%) required services to be offered for two-and-a-half to four hours per day. Half of the states required that classes be held five days a week for nine to ten months a year. Only seven states offered six-hour school-like days (FPG Child Development Institute, 2005).

Barnett et al. (2004) indicated in their report, *The State of Preschool, 2004 State Preschool Yearbook*, that in 24 of the 44 state preschool initiatives, all children were offered at least one meal per day. While not requiring meals for all student participants, an additional 13 programs offered meals under certain circumstances, particularly when children attended programs that offered longer class days or were operating during mealtimes. In the remaining state preschool programs, either no meals were served or only snacks were offered.

To date, there has been no research identifying issues associated with serving the nutritional needs of this new customer, the Pre-K child, in the public school setting. Previous studies have focused on effective nutrition programs in childcare centers and family daycare homes, many of which serve children the same ages as those in public school Pre-K programs. Oakley and Carr (2003) developed self-assessment tools and best practices for childcare center directors and family daycare home providers, while Briley and Roberts-Gray (2005) identified benchmarks for effective nutrition programs in childcare settings, many of which are also applicable to Pre-K programs in the public school setting. Their recommendations include the following: 1) parents

should be involved in the nutrition component of the childcare facility; 2) furniture and eating utensils should be age-appropriate and developmentally suitable to encourage children to accept and enjoy mealtime; 3) personnel should encourage positive experiences with food and eating; 4) personnel should receive appropriate training in nutrition and foodservice; and 5) nutrition education for children and parents should be a component of the program. The purpose of this research is to address this void in the literature by assessing the perceptions, practices, and perceived barriers that school nutrition directors, school nutrition managers, and other school professionals (principals, classroom teachers, and early education directors) face when serving the nutritional needs of Pre-K children in the public school setting.

METHODOLOGY

Sample

The sample consisted of school nutrition directors, school nutrition managers, elementary school principals, Pre-K teachers, and early education directors in public school districts with Pre-K programs. A listing of states with identified Pre-K programs was provided to Market Data Retrieval, a national school marketing company. The sample was stratified by U.S. Department of Agriculture (USDA) region with sample proportionality based on the percentage of school districts reported as having Pre-K programs. In other words, if X% of Pre-K programs were represented in Region Y, then X% of school districts were proportionally sampled from Region Y. The resulting random sample of 700 school districts maintained this proportional distribution.

Research Design

Focus group sessions were conducted in four states to ascertain school professionals' opinions about serving Pre-K children in the school setting. Four school districts were selected based on their varied level of experience in offering Pre-K programs, diverse student population, and a geographic location that allowed researchers to drive to the site. School nutrition directors from the selected school districts were contacted to request their participation in the study and determine their willingness to contact a school nutrition manager, principal, Pre-K teacher, and early education director and/or federal program director responsible for special education in the school district to participate in a discussion. Participants in the four focus groups ranged from five to seven professionals in each district. Krueger and Casey's (2000) guidelines were used to plan the methodology for conducting the focus groups.

In the focus groups, school professionals were asked semi-structured, open-ended questions designed to explore issues associated with serving the nutrition needs of Pre-K children in a public school setting. The questions focused on the roles of school professionals, successes achieved, components of a quality Pre-K program, and factors needed to assure a quality environment for Pre-K children. An additional question asked focus group participants to describe challenges encountered in serving the nutritional needs of the Pre-K child in the public school setting. Researchers then thematically coded responses for each question from the focus group discussions into meaningful categories. Researchers categorized responses to the question on challenges encountered into: 1) child-friendly menus; 2) developmental issues; 3) special nutrition needs; 4) administrative details; 5) parent issues; and 6) teacher issues.

A questionnaire was developed from the qualitative data acquired from the focus groups. Participants were asked to indicate their agreement with 42 practices, 24 perceptions, and 18 barriers related to serving the nutritional needs of the Pre-K child at their school. Each item was rated on a four-point scale (1=strongly disagree to 4=strongly agree; with 5="not applicable"). Study participants also were asked questions about themselves and their school districts.

Focus group participants (N=20) pilot tested the questionnaire. These pilot study participants were instructed to complete the questionnaire and to assess the cover letters for clarity and the questionnaire clarity and completeness of directions, statements, and response categories. The length of time required to complete the questionnaire also was solicited. Fourteen (70%) of the pilot study participants returned the pilot study questionnaires. Minor wording changes were incorporated into final version of the cover letters and the questionnaire. The University of Southern Mississippi Human Subjects Protection Review Committee approved the study protocol and questionnaire prior to use.

Data Collection

The 700 school nutrition directors in the sample each were mailed a packet containing a school nutrition director cover letter and one envelope each for the school nutrition director, school nutrition manager, principal, Pre-K teacher, and early education director, resulting in a total of 3,500 mailed surveys. The school nutrition director cover letter provided instructions on how to distribute survey packets to the five school professionals in his/her district. Included in each envelope were the questionnaire, the school professional cover letter, a pencil, and a postage-paid return envelope. Approximately three weeks later, a follow-up letter was mailed to all school nutrition directors asking them to complete and return their individual surveys and requesting they remind the school professionals in their districts to complete their surveys.

Data Analysis

Descriptive statistics (means, standard deviations, and frequencies) were calculated for all survey items. The researchers performed principal components factor analysis using the practice statements. Factors were considered salient if the eigenvalue was 1.0 or higher. The resulting matrix was then rotated using the Varimax procedure. Items loading at 0.40 or greater were retained. Cronbach's alpha reliability coefficients were calculated to determine the reliability of each factor. Researchers conducted one-way ANOVA to see if differences existed in the practice factors among the five school professional groups. For all statistical tests, an alpha level of 0.05 was used for significance. Factor analysis was planned for the perception and barrier statements, but no cognitive factors were derived, therefore, factor analysis is not reported.

RESULTS AND DISCUSSION

Sample Characteristics

A total of 685 (21%) school professionals responded to the questionnaire. Survey packets were returned from 36 districts with notations indicating that there was no Pre-K program in the district; another 44 responses reported one-half day programs with no meals; and four responses indicated vacancies in the requested school professional positions. These responses decreased the

potential study sample to 3,272. Twelve surveys were not used in data analysis as they arrived too late.

Program and personal characteristics of respondents are listed in Table 1. All requested categories of school professionals were represented, with 25.9% being school nutrition directors and 22.9% being Pre-K teachers. Over half of the respondents (55.4%) had been in their current position from one to ten years, while another 36.7% had more than 11 years of experience. The majority were from school districts with 10,000 or fewer students (74.8%), had one or two schools offering Pre-K programs (55.3%), had Pre-K programs with fewer than 200 students (71.4%), and served children ages three and four (65.3%).

Table 1. Program and Personal Characteristics of Respondents

Questions	Frequency[a]	%
Job title		
School Nutrition Director	173	25.9
Pre-kindergarten Teacher	153	22.9
School Nutrition Manager	133	19.8
Elementary Principal	94	14.1
Early Education Director	64	9.5
Other	52	7.8
Years in current position		
1 to 5 years	233	34.7
6 to 10 years	139	20.7
11 to 15 years	120	17.9
Greater than 20 years	65	9.7
16 to 20 years	61	9.1
Less than one year	53	7.9
Student enrollment in school		
201 – 400	181	27.8
401 – 600	152	23.4
Greater than 1000	110	16.9
Less than 200	105	16.1
601 – 800	71	10.9
801 – 1000	32	4.9
Grade level of school		
Pre-kindergarten – Upper elementary	253	38.3
Pre-kindergarten – Lower elementary	184	27.8
Other	142	21.5
Pre-kindergarten only	82	12.4
Ages of pre-kindergarten children at school		
Ages 3 and 4	425	65.3
Age 4 only	224	34.4
Age 3 only	2	0.3
Number of elementary schools in district offering pre-kindergarten programs		
One	276	44.6
Two	66	10.7
Five or more	172	27.8
Four	56	9
Three	49	7.9
Number of pre-kindergarten student in school district		
26 – 100	228	37
101 – 200	143	23.2
Greater than 400	82	13.3
Less than 25	69	11.2
201 – 300	60	9.8
301 – 400	34	5.5
Student enrollment in school district		
2,799 or less enrollment	270	43.9
2,800 – 9,999	190	30.9
20,000 – 44,999	66	10.7
10,000 – 19,999	52	8.5
45,000 or greater enrollment	37	6
USDA region		
Southeast	182	28.7
Southwest	168	26.5
Midwest	106	16.7

Perceptions in Serving the Nutritional Needs of the Pre-K Child

Respondents were provided with 24 statements about perceptions related to serving the nutritional needs of the Pre-K child and were asked to indicate their agreement with each statement. Table 2 presents the means and standard deviations for the statements in descending order of agreement. Eighteen statements had mean ratings greater than three, signifying that school professionals agreed or strongly agreed with these statements. Perception statements with the highest agreement mean ratings were: "children feel safe in the cafeteria" (3.4 + 0.6), "school professionals can influence Pre-K children to make healthy food choices" (3.4 + 0.6), and "children view the cafeteria as a friendly place" (3.4 + 0.6). Statements with the lowest mean ratings were: "children enjoy eating cooked vegetables" (2.4 + 0.7), "parents have input into school nutrition services" (2.5 + 0.8), and "children enjoy eating raw vegetables" (2.9 + 0.6). Factor analysis of the perception statements did not yield factors that held together cognitively with adequate internal consistency.

Table 2. School Professionals' Perceptions on Serving the Nutritional Needs of the Pre-Kindergarten Child			
Statement	**N**	**Mean[a]**	**SD**
Children feel safe in the cafeteria.	588	3.4	0.6
School professionals can influence pre-kindergarten children to make healthy food choices.	654	3.4	0.6
Children view the cafeteria as a friendly place.	588	3.4	0.6
Teaching the child to make good food choices is challenging.	632	3.3	0.6
The style of service in the cafeteria is child friendly.	614	3.3	0.7
It is important that the children eat in the cafeteria.	597	3.3	0.8
School staff model appropriate mealtime behavior.	628	3.3	0.7
School professionals are child centered when addressing the pre-kindergarten child.	612	3.3	0.7
Nutrition services is an integral component to educating the pre-kindergarten child.	629	3.3	0.7
Parents want their child to eat in the cafeteria.	526	3.2	0.7
School professionals understand pre-kindergarten developmental issues.	613	3.2	0.7
Children who have playtime prior to lunch eat more of their meal.	465	3.2	0.7
Resources are needed to promote school partnerships with parents.	603	3.2	0.6
The school nutrition staff is willing to modify the menu to improve food acceptability.	628	3.2	0.7
Menus in our school are appropriate for pre-kindergarten children.	651	3.2	0.7
The dining furniture is child friendly.	625	3.2	0.8
Classes are scheduled for mealtime based on available space in the dining room.	546	3.1	0.8
Children who have playtime prior to lunch focus more on eating than talking.	471	3	0.8
Creative ways are needed to distribute meal components to provide a PM snack.	497	3	0.8
Serving line equipment is appropriate for children.	570	3	0.8
Family style meals are appropriate for the pre-kindergarten child.	595	2.9	0.8
Children enjoy eating raw vegetables.	635	2.9	0.6
Parents have input to school nutrition services.	583	2.5	0.8
Children enjoy eating cooked vegetables.	634	2.4	0.7
[a]Scale = 1, strongly disagree to 4, strongly agree			

Practices in Serving the Nutritional Needs of the Pre-K Child

Respondents were provided with 42 statements regarding practices in serving the nutritional needs of the Pre-K child and were asked to indicate their agreement with each statement. Thirty-three statements had mean ratings greater than three, suggesting that school professionals agreed with these practices. Practices with the highest agreement mean ratings were: "I encourage children to try new foods" (3.6 + 0.5), "the school nutrition staff follows the USDA meal pattern" (3.6 + 0.6), and "I encourage children to try the foods offered" (3.6 + 0.6). Practices with the

lowest mean ratings were: "the teachers partner with the school nutrition staff to use the cafeteria as a learning lab" (2.4 + 0.8), "teachers and school nutrition staff communicate on menu issues" (2.7 + 0.9), and "recess/play time is scheduled prior to lunch time" (2.8 + 0.9).

Researchers conducted factor analysis to determine if the practice statements could be grouped into a smaller number of categories. This analysis generated seven practice factors explaining 63.7% variance. One item did not load and thus was eliminated; four items double loaded, and in three cases the higher loading was retained. The fourth was retained with the lower-loading factor because of cognitive association with other items in the factor. There was adequate internal consistency for six factors; the seventh reported an alpha level of 0.61, which researchers recognize as a limitation. The alpha levels of the remaining six factors were from 0.83 to 0.89. Table 3 presents means and standard deviations of practice items by factor category and alpha levels for each factor. Researchers conducted analysis of variance to determine whether ratings of practice factors differed based on job titles of the school professionals. Differences were found for four factors: encouragement ($F [4, 544] = 8.2$, $p < .001$), administrative support ($F [4, 562] = 11.0$, $p < .001$), nutritious meals and meal experiences ($F [4, 611] = 19.3$, $p < .001$), and communication and training ($F [4, 612] = 4.0$, $p = .003$). Tukey HSD post hoc test was used to determine specific comparisons.

Table 4. School Professionals' Views on Barriers to Serving the Nutritional Needs of the Pre-Kindergarten Child			
Statement	**N**	**Mean[a]**	**SD**
Pre-kindergarten children require additional time to eat.	652	3.1	0.7
School staff needs continuous training on nutrition education.	645	3.1	0.7
Meals brought from home consist of unhealthy snack items.	544	3	0.7
Handling trays and opening items present challenges for the pre-kindergarten child.	612	3	0.7
Parent's knowledge of quality nutrition for the pre-kindergarten child is limited.	608	2.9	0.7
Parents are unclear about their role in promoting physical activity for the pre-kindergarten child.	586	2.9	0.7
Problems arise when adults impose their food preferences during mealtime.	584	2.8	0.7
Parents are forgetful about communicating their child's special nutrition needs.	614	2.5	0.8
It is difficult to get children to eat the foods offered.	629	2.5	0.7
The dining room is often chaotic during mealtime.	590	2.4	0.8
Food choices are planned to meet the preferences of older children.	622	2.4	0.8
Scheduling adequate time for pre-kindergarten children to eat is a challenge.	580	2.3	0.8
Servicing the nutritional needs of the pre-kindergarten child is labor intensive.	625	2.3	0.7
Pre-kindergarten children lose their lunch money.	456	2.3	0.8
The dining room furniture prevents an effective mealtime experience.	609	2.3	0.9
Mealtime scheduling is problematic for pre-kindergarten children.	569	2.3	0.8
The school community is reluctant to change to meet the needs of the pre-kindergarten child.	585	2.2	0.8
Adequate space is unavailable for dining.	610	2.2	0.8
[a]Scale = 1, strongly disagree to 4, strongly agree			

The encouragement factor encompasses statements related to this supportive role. Means ranged from 3.4 for principals to 3.7 for Pre-K teachers. The means of Pre-K teachers (3.7 + 0.4) were significantly higher than school nutrition directors (3.4 + 0.5, $p < .001$) and school nutrition managers (3.5 + 0.5, $p = .02$). The responses of elementary principals (3.4 + 0.5) were significantly lower from those of Pre-K teachers (3.7 + 0.4, $p < .001$) and early education directors (3.6 + 0.4, $p = .04$). Upon examination of factor statements, these differences reflect the roles of those early education professionals and their daily commitment to the encouragement of Pre-K children at mealtime.

The administrative support factor relates to roles of the supervisor and required documentation. Means for this factor ranged from 3.3 for school nutrition directors to 3.6 for Pre-K teachers. The means of Pre-K teachers (3.6 + 0.5) were significantly higher than means of school nutrition

directors (3.3 + 0.6, $p < .001$) and school nutrition managers (3.4 + 0.5, $p = .001$). Elementary principals' responses (3.6 + 0.6) were significantly higher than school nutrition directors (3.3 + 0.6, $p = .001$), while early education directors' (3.6 + 0.5) responses were significantly higher than school nutrition directors (3.3 + 0.6, $p = .001$) and school nutrition managers (3.4 + 0.5, $p = .05$). Statements in this factor revolve around support from immediate supervisors and validate the higher means of Pre-K teachers, principals, and early education directors.

The factor, nutritious meals and meal experiences, contains statements related to mealtime and menu issues. Means ranged from 3.2 for Pre-K teachers to 3.5 for school nutrition directors. Means for school nutrition directors (3.5 + 0.4) and school nutrition managers (3.5 + 0.4) were significantly higher than Pre-K teachers (3.2 + 0.5, $p < .001$), elementary principals (3.2 + 0.5, $p < .001$), and early education directors (3.2 + 0.5, $p < .001$). Items in this factor centered on the provision of nutritious meals for the Pre-K child; the different responses can be attributed to the fact that school nutrition directors and managers have greater knowledge of and responsibility for this area than do other school professionals.

The communication and training factor includes communication and training issues related to child development, nutrition education, and menus. Means ranged from 2.8 for Pre-K teachers to 3.0 for school nutrition directors. Means for school nutrition directors (3.0 + 0.5, $p = .01$) and school nutrition managers (3.0 + 0.6, $p = .04$) were significantly higher than means of Pre-K teachers (2.8 + 0.7). Based on the statements in this factor, school nutrition professionals are communicating with diverse audiences within the school community and recognize that effective communication techniques are essential.

Perceived Barriers in Serving the Nutritional Needs of the Pre-K Child

Respondents were presented with 18 statements regarding barriers that could inhibit school professionals from serving the nutritional needs of the Pre-K child at their school and were asked to indicate their agreement with each statement. Table 4 gives the means and standard deviations for the barrier statements in descending order of agreement. Only four statements had mean ratings greater than three, indicating that school professionals either agreed or strongly agreed that these statements were barriers to serving the nutritional needs of the Pre-K child. Barriers with the highest agreement mean ratings were: "Pre-K children require additional time to eat" (3.1 + 0.7), "school staff needs continuous training on nutrition education" (3.1 + 0.7), "meals brought from home consist of unhealthy snack items" (3.0 + 0.7), and "handling trays and opening items present challenges for the Pre-K child" (3.0 + 0.7). Statements with the lowest mean ratings were: "adequate space is unavailable for dining" (2.2 + 0.8), "the school community is reluctant to change to meet the needs of the Pre-K child" (2.2 + 0.8), and "mealtime scheduling is problematic for Pre-K children" (2.3 + 0.8). As with the perception statements, factor analysis did not yield factors that held together cognitively with adequate internal consistency.

Table 4. School Professionals' Views on Barriers to Serving the Nutritional Needs of the Pre-Kindergarten Child			
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Parent's knowledge of quality nutrition for the pre-kindergarten child is limited.	608	2.9	0.7
Parents are unclear about their role in promoting physical activity for the pre-kindergarten child.	586	2.9	0.7
Problems arise when adults impose their food preferences during mealtime.	584	2.8	0.7
Parents are forgetful about communicating their child's special nutrition needs.	614	2.5	0.8
It is difficult to get children to eat the foods offered.	629	2.5	0.7
The dining room is often chaotic during mealtime.	590	2.4	0.8
Food choices are planned to meet the preferences of older children.	622	2.4	0.8
Scheduling adequate time for pre-kindergarten children to eat is a challenge.	580	2.3	0.8
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[a]Scale = 1, strongly disagree to 4, strongly agree			

CONCLUSIONS AND APPLICATIONS

Decision-makers in public education are increasingly recognizing the benefit of positive early educational experiences for young children and are moving toward providing education programs for the Pre-K child in public school settings. The number of school districts offering Pre-K programs is increasing nationwide, although the programs being offered vary in the ages of children that are served, the length of the school day, and whether meal service is provided. Previous research findings have identified benchmarks for effective nutrition programs in childcare settings, many of which are applicable for Pre-K programs in public schools. The current study is important because it focuses on issues related to serving the nutritional needs of

this new customer, the Pre-K child, in the public school setting, which initiates a new thread of research in school nutrition programs.

School district personnel, including school nutrition professionals, should be prepared to serve the unique needs of this new customer in the public school setting. Findings of this research suggest that serving the nutritional and developmental needs of Pre-K children is a more wide-ranging and complex undertaking than just serving meals. School districts should utilize a team of school professionals to fully meet the needs of the Pre-K child. Team members should include, but not be limited to, the school nutrition director, school nutrition manager, Pre-K teachers, principals, and early education director.

Upon examination of the perception ratings by school professionals, the majority of items rated 3.2 or higher appears to fall into two categories: dining issues and adult influences. Statements such as "children feel safe in the cafeteria," "children view the cafeteria as a friendly place," and "the style of service is child-friendly" demonstrate the importance of understanding school professionals' perceptions related to the cafeteria and the dining experience for the Pre-K child. Statements such as "school professionals can influence Pre-K children to make healthy food choices," "teaching the child to make good food choices is challenging," and "school staff model appropriate mealtime behavior" suggest that positive adult influence on Pre-K children is recommended and cannot be underestimated.

School professionals agreed or strongly agreed with 33 of the 42 statements regarding practices in serving the nutritional needs of the Pre-K child. School nutrition professionals whose districts are adding Pre-K programs should examine these practice statements to seek opportunities to enhance their existing programs. Findings from this research indicate that practices in serving the nutritional needs of Pre-K children factor into seven areas: communication and training, nutritious meals and meal experiences, administrative support, encouragement, mealtime opportunities, dining environment, and healthy wellness practices. Results also suggest that each group of school professionals has its own unique role in serving the nutritional needs of Pre-K children. Understanding how each team member can and does contribute in each practice area will enhance the provision of nutritional services for the Pre-K child. Effective communication among team members is essential. If the professionals do not communicate regularly to share with one another each member's unique contribution, the team cannot recognize its collective potential for benefiting Pre-K children.

All school professionals either agreed or strongly agreed that four of the 18 barrier statements were indeed hurdles to serving the nutritional needs of the Pre-K child. These statements ("Pre-K children require additional time to eat," "school staff needs continuous training on nutrition education," "meals brought from home consist of unhealthy snack items," and "handling trays and opening items present challenges for the Pre-K child") should be the launching point for discussion among school team members. As communication and understanding of individual team members' roles increase, school teams can work together to develop recommendations to overcome the barriers in their Pre-K programs. For example, if opening food items presents challenges for Pre-K children, a recommendation might be to purchase food items that eliminate this problem or to provide closer adult interaction to assist the children.

School nutrition professionals should take a proactive role when Pre-K programs are being added in their school districts. As indicated in this research, respondents believe that school professionals can influence Pre-K children to make healthy food choices and that children view the cafeteria as a friendly and safe place. School professionals also indicated that school meals play an important role in the overall nutritional intake of Pre-K children and that mealtime provides opportunities to link good nutrition, learning, and socialization together. School nutrition directors should view the addition of Pre-K programs as an opportunity to partner with other district professionals, encourage the use of the cafeteria as a learning lab, and serve as a nutrition education resource for teachers and parents.

Briley and Roberts-Gray (2005) stressed that professionals working with preschool-aged children play vital roles in shaping the current and future health of the nation's children. School nutrition professionals at all levels must recognize that they play roles in forming the life-long nutritional habits of Pre-K children, and must position themselves as integral parts in the education of Pre-K students. School nutrition directors and managers should explore establishing partnerships with other school professionals to ensure that meals consumed in schools meet the nutritional needs of these young children and provide opportunities for these students to learn healthful eating behaviors in a supportive pleasant environment. School nutrition professionals can focus on positioning the cafeteria as a nutrition-centered learning lab to apply nutrition education activities taught in the classroom, such as promoting healthy food choices for both the Pre-K child and the adult. As the findings of this research suggest, each school professional has a distinctive role and each must equally participate to fully address the broad issues associated with serving the nutritional needs of the Pre-K child.

There were several limitations to this research study. The response rate for this research is lower than desired, which may cause concern for generalizability of the results. Several causes for this return rate can be theorized. Surveys were returned indicating that the district either did not have a Pre-K program or only offered a half-day program with no meals served. Additional school professionals, knowing that their districts either did not offer a Pre-K program or did not serve meals in their program, may have discarded their surveys upon receipt. Another cause may be that the school nutrition director, to whom the packet of surveys was mailed, failed to distribute the packets to identified school professionals, or that school professionals did not complete or return the surveys. This, however, may not be a severe limitation in light of the fact that responses were received from all seven USDA regions and that all school professional categories were represented. As mentioned previously, some respondents returned their surveys unanswered, indicating that their district had a half-day program and did not serve meals; another limitation could be that other school professionals may have completed and returned surveys when it was inappropriate to do so since they did not have a Pre-K program in their schools.

As states increasingly move toward providing education programs for Pre-K children in public school settings, additional research is needed. There has been limited research on meeting the nutrition related needs of pre-school-aged children in public school settings; most research has been conducted in childcare or HeadStart settings. Additional research is needed to build on this project by identifying exemplary Pre-K programs in public schools. This research would ascertain the quality indicators or best practices that programs implement when serving the

nutritional needs of the Pre-K child by focusing on the seven practice factors identified in this research project.

ACKNOWLEDGEMENTS

This publication has been produced by the National Food Service Management Institute, Applied Research Division, located at the University of Southern Mississippi, with headquarters at The University of Mississippi. Funding for the Institute has been provided with federal funds from the USDA Food and Nutrition Service to The University of Mississippi. The contents of this publication do not necessarily reflect the views or policies of The University of Mississippi or USDA, nor does mention of trade names, commercial products, or organizations imply endorsement by the U. S. government.

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