Investigation of School Professionals' Perceptions and Practices Regarding Issues Influencing Recess Placement in Elementary Schools

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National Food Service Management Institute
The University of Mississippi

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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.

CONTACT INFORMATION

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

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

Applied Research Division
The University of Southern Mississippi
118 College Drive #10077
Hattiesburg, MS 39406-0001
Phone: 601-266-5773
Fax: 888-262-9631

Acknowledgments

WRITTEN AND DEVELOPED BY

Wendy Bounds, PhD, RD
Researcher

Mary Frances Nettles, PhD, RD
Research Scientist
Applied Research Division

EXECUTIVE DIRECTOR
Charlotte B. Oakley, PhD, RD, FADA

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EXECUTIVE SUMMARY

Several studies have suggested that scheduling recess before lunch is one way to increase children's food and nutrient consumption at lunch and reduce plate waste. In addition, limited pilot reports have indicated that scheduling recess before lunch may positively impact children's behavior in both the cafeteria and the classroom. However, although previous research has documented several benefits associated with scheduling recess before lunch, many schools have not adopted this recess schedule, indicating that barriers to implementing recess before lunch programs exist.

This study examined the perceptions of school professionals (school nutrition directors, school administrators, and teachers) regarding the nutritional, behavioral, and academic impact of recess placement, the barriers to initiating a recess before lunch program, and practices and policies related to successfully implementing a recess before lunch program. In order to investigate the perceptions and practices of school professionals related to recess placement, a two phase research design was employed. In the first phase of the study, eight nationwide focus group discussions were conducted, transcribed, and analyzed for themes. The qualitative data gained from the focus group discussions were then used to develop a quantitative survey instrument related to recess placement in the second phase of the study. The survey was pilot tested and revised, and the final survey was mailed to a national sample of 2,100 school nutrition

directors, principals/assistant principals, and teachers. A total of 332 surveys were returned and used in statistical analysis, for a response rate of 15.8%.

The survey instrument used in the second phase of the research project, titled *Issues Related to Recess Placement in Elementary Schools*, consisted of four sections. In the first section of the survey, participants were asked to indicate their level of agreement with a set of 51 statements about the effects of recess schedules in relation to lunch. In the second section of the survey, participants were asked to rate the level of importance of a set of 27 issues when determining how recess should be scheduled in relation to lunch. In the third section of the survey, participants were asked to rate the level of importance of a set of 33 issues in successfully implementing a recess before lunch program. In the fourth section of the survey, participants were asked to provide information about themselves or their schools or school districts.

This study identified six categories of potential effects of recess schedule in relation to lunch in elementary schools: food consumption, cafeteria behavior, classroom/recess behavior, additional needs, support, and scheduling. School nutrition professionals believed that recess before lunch programs, compared with recess after lunch programs, had more positive impacts on children's food consumption, cafeteria behavior, and recess/classroom behavior. However, participants also identified several potential barriers associated with recess before lunch programs. They believed that recess before lunch programs created additional needs, required more support from all involved parties, and created more scheduling difficulties compared with recess after lunch programs. Thus, the general opinion of participants was that recess before lunch programs were associated with nutritional, behavioral, and academic benefits for children, but that there were some additional challenges associated with these programs.

This study also identified five categories of issues to consider when determining how recess should be scheduled in relation to lunch in elementary schools: personnel support/workload, child feeding implications, logistics, scheduling, and behavior. Participants indicated that child feeding implications was the most important factor to consider when scheduling recess, followed by behavior, scheduling, personnel support/workload, and logistics. The individual items rated as most important to consider when scheduling recess in relation to lunch were maintaining instructional time, children's academic performance, and children's health and well-being. Thus, issues related to what is best for children emerged as most important.

Issues important for successfully implementing a recess before lunch program were also identified in this study. Issues rated as most important by participants included having strong leadership for the program, all involved parties working together to establish policy, and maintaining a positive attitude about the program. Additional issues related to scheduling emerged as important, including advance consideration of scheduling issues and being flexible with respect to scheduling. Thus, strong program leadership, inclusive policy making, and scheduling were all considered key factors in successful implementation of recess before lunch programs.

Finally, school professionals' knowledge and attitudes about recess before lunch programs were also assessed in this study. The majority of participants reported being professionally aware of discussions or information about recess placement issues in elementary schools. However, a third of the participants reported that they were not aware of any research supporting or refuting the benefits of scheduling recess before lunch. Overall, the majority of participants supported scheduling recess before lunch in elementary schools.

Recommendations for education and training based on study results include the development of education materials designed to increase the awareness of the potential effects of recess placement in relation to lunch in elementary schools. Modules could be developed around the six categories of potential effects of recess scheduling identified in this study, including food consumption, cafeteria behavior, classroom/recess behavior, additional needs, support, and scheduling. The materials should provide strategies for overcoming possible barriers, such as handling of logistical issues. In addition, the education materials should target the entire school community, including administrators, teachers, school nutrition staff, and parents. Additional resources are needed to assist schools in implementing recess before lunch programs, such as samples of recess and lunch schedules, and draft policies that can be used as templates.

Findings from this study suggest the need for additional research in several areas. Research is needed to build on this project by identifying best practices or quality indicators for implementing a recess before lunch program in elementary schools. This best practices resource could be used as a guide or assessment tool for school districts implementing or considering implementing a recess before lunch program. Research is needed that examines whether students' behavior, readiness to learn, and academic performance in afternoon classes are improved when recess is scheduled prior to lunch. Case studies of successful programs should be conducted to identify the effects of recess schedule in relation to lunch in elementary schools, using the six categories of effects identified in this project. Those categories included food consumption, cafeteria behavior, classroom/recess behavior, additional needs, support, and scheduling. Pre- and post-studies of schools that change from a recess after lunch to a recess before lunch schedule should be conducted to assess the effects of this change, as well as to identify practices that were important during the implementation of the schedule change.

INTRODUCTION

The National School Lunch Program (NSLP) is a federally assisted meal program that provides nutritionally balanced lunches to more than 30 million children each day (United States Department of Agriculture [USDA], 2007). However, serving children school lunches is only the first step. If children are to realize the full benefits of the NSLP meals, they must choose to eat the food served. Studies have shown that students often do not finish their school lunches. The School Nutrition Dietary Assessment Study-I, a nationwide study, found that students participating in the NSLP wasted roughly 12% of the calories from food served in the program (Burghardt & Devaney, 1993; Devaney, Gordon, & Burghardt, 1995). Other smaller studies that focused on a few schools within a region found that plate waste estimates were from 10% to 37% (Buzby & Guthrie, 2002).

The plate waste issue is an important one. In addition to the direct loss of food, plate waste may reduce the nutritional benefits children receive from the NSLP. Research has demonstrated a clear relationship between nutrition and a child's cognitive development and ability to learn (Alaimo, Olson, & Frongillo, 2001; Bryan et al., 2004.; Johnson & Nicklas, 1999; Kramer, Allen, & Gergen, 1995; Meyers, Sampson, & Weitzman, 1991; Murphy et al., 1998; Troccoli, 1993). Healthy eating patterns in childhood are important to promote optimal intellectual development and to prevent health problems (United States General Accounting Office, May 2003). Because of the NSLP's role in providing children with at least one-third of the daily nutrient requirements, it is important to promote healthful eating habits associated with the school meals program available to children and youths in the school setting.

Several studies suggest one way to increase food consumption and reduce plate waste is rescheduling lunch so that it follows recess. Getlinger and colleagues (1996) found that plate

waste decreased from 34.9% to 24.3% when recess was scheduled before lunch rather than after lunch in elementary school grades 1-3. Other studies have shown similar results. Bergman, Buergel, Femrite, and Englund (2004) found that students with recess scheduled before lunch consumed significantly more food and nutrients than those with recess after lunch. In addition, food waste decreased from 40.1% to 27.2% when recess was scheduled before lunch. In 2002-2003, the Montana School Nutrition Program developed a pilot project to evaluate recess before lunch programs in four Montana schools (The Montana Office of Public Instruction, 2003). Results showed that the average amount of food and beverage waste per student decreased after recess before lunch program implementation.

In addition to the effects that recess scheduling may have on children's food and nutrient consumption and plate waste, it is also important to consider the potential behavioral effects of scheduling recess before lunch. A pilot study in one Hawaii elementary school found that changing to a recess before lunch schedule resulted in significant decreases in lunch line wait and discipline referrals (Tanaka, Richards, Takeuchi, Otani, & Maddock, 2005). The Montana School Nutrition Program pilot project described above also surveyed administrators, teachers, and school nutrition personnel in the schools with recess before lunch programs (The Montana Office of Public Instruction, 2003). These school professionals reported that recess before lunch was associated with a calm and quiet cafeteria environment that was conducive to eating, a decrease in disciplinary problems at recess, in the cafeteria, and in the classroom, and children who were calmer and ready to learn in the classroom.

Although previous research has documented several benefits associated with scheduling recess before lunch, many schools have not adopted this recess schedule. According to the School Health Policies and Programs Study, only 4.6% of elementary schools schedule recess

prior to lunch (Wechsler, Brenuer, Kuester & Miller, 2001). Thus, it is important to examine potential barriers that may prevent the implementation of recess before lunch programs. Rainville, Wolf, and Carr (2006) investigated the perceived barriers to scheduling recess before lunch. Barriers commonly identified by school professionals included preservation of instructional time, logistical issues such as addressing hand washing and winter clothing, and scheduling concerns.

Thus, the scheduling of recess placement is important to the elementary school students for several reasons. Previous National Food Service Management Institute (NFSMI) recess placement studies focused on food and nutrient consumption and plate waste in relation to recess placement (Bergman, Buergel, Femrite, & Englund, 2003) and barriers to scheduling recess before lunch (Rainville, Wolf, & Carr, 2005). This study will build on the previous research by examining school professionals' perceptions regarding the nutritional, behavioral, and academic impact of recess placement, the barriers to initiating a recess before lunch program, and practices and policies related to successfully implementing a recess before lunch program.

Research Objectives

- To explore the perceived impact of recess placement on student dietary intake and behavior in the cafeteria setting
- To investigate the perceived impact of recess placement on student behavior and academic performance in the classroom setting
- To identify perceived barriers of school professionals associated with initiating a recess before lunch program
- To identify practices and policies important to the successful implementation of recess before lunch programs

METHOD

Research Plan

The purpose of this research was to assess the perceptions and practices of school professionals (school nutrition directors, school administrators, and teachers) related to recess placement issues in the elementary school setting. In order to assess perceptions and practices of school professionals related to recess placement, a two phase research design was employed. In the first phase of the study, eight nationwide focus group discussions were conducted, transcribed, and analyzed for themes. The qualitative data gained from the focus group discussions were then used to develop a quantitative survey instrument related to recess placement in the second phase of the study. The survey was pilot tested and revised, and the final survey was mailed to a national sample of 2,100 school nutrition directors, principals/assistant principals, and teachers.

Phase I

Focus Group Discussions

In Phase I of the research study, eight focus group discussions were conducted. The initial two focus groups were pilot sessions designed to evaluate focus group protocol and questions. The two pilot focus groups were conducted in Mississippi. Six additional focus groups were conducted, two in each of three geographic regions as defined by the United States Department of Agriculture (USDA). These paired focus groups were conducted in Missouri, Maine, and Oregon. Two of the three pairs of focus groups included one group of school professionals from a school district or elementary school that had implemented a recess before lunch program and one group of school professionals from a school district or elementary school

that scheduled recess after lunch. The remaining pair of focus groups consisted of individuals representing school districts or elementary schools with both types of recess schedules.

Selected school nutrition directors from school districts with recess before lunch programs were contacted to request their participation in the study (Appendix A). Those directors who agreed to participate were then asked to identify an adjacent school district or elementary school with a recess after lunch program (Appendix B). If applicable, a representative from the district or school with recess after lunch was also contacted to request participation in the study (Appendix C). In total, six school nutrition directors served as liaisons for scheduling the eight focus groups and identifying potential participants for each group. A letter confirming focus group arrangements was mailed to each school nutrition director who agreed to participate (Appendix D). Each director was asked to select eight to ten additional school professionals, including school nutrition managers, school administrators, and teachers, to participate in the focus groups.

Focus group discussions were held in either local school district offices or elementary schools. The number of participants in the focus groups ranged from three to nine, and there were 47 total participants for all focus groups. Participants included school nutrition directors, school nutrition managers, principals and assistant principals, teachers, and other school nutrition and teaching staff. Each focus group lasted approximately 90 minutes.

Focus Groups: a Practical Guide for Applied Research by Krueger and Casey (2000) was used to plan the methodology for conducting the focus groups. Participants were asked semi-structured, open-ended questions designed to explore issues related to recess placement in elementary schools. Each question had a distinctive function in the focus group research process. Questions developed for the focus groups were based on the professional literature, as well as

available reports from school districts implementing recess before lunch programs. The focus group questions are provided in Table 1.

Table 1

Focus Group Questions

Questions for Recess Before Lunch (RBL) Focus Groups
1. What factors led to your district's or school's decision to implement a RBL program?
2. What impact has the RBL program had on children's food consumption at lunch?
3. What impact has the RBL program had on children's behavior or conduct in the cafeteria?
4. What impact has the RBL program had on children's behavior and academic performance in the classroom?
5. What were the major challenges your district or school faced when implementing a RBL program?
6. How have you personally (in your professional role) been affected by the change to a RBL program?
7. What steps were important during your district's or school's implementation of a RBL program? What does it take to ensure a successful transition to a RBL program?
8. What information and/or advice would you give to other school districts considering the implementation of a RBL program?
9. Of all the topics that we've talked about today, what to you is the most important?
10. Is there anything else that was not addressed that you think is important regarding the issue of recess placement?

(table continues)

Table 1 *(continued)*

Focus Group Questions

Questions for Recess After Lunch (RAL) Focus Groups

1. In your professional role, are you aware of discussions or information (from professional magazines, state associations, professional meetings, etc.) regarding scheduling of recess placement issues in elementary schools? Please share what you have heard about this issue.

2. In your professional opinion, what should be the primary concern when determining how recess should be scheduled in relation to lunch?

3. How might recess placement affect children's food consumption at lunch?

4. How might recess placement affect children's behavior or conduct in the cafeteria?

5. How might recess placement affect children's behavior and academic performance in the classroom?

6. If your district or school decided to make the change to RBL, what are the important issues or concerns to consider regarding this decision?

7. How do you think you personally (in your professional role) would be affected by changing to a RBL program?

8. What do you see as the major challenges to implementing a RBL program?

9. If your district or school decided to implement a RBL program, what steps would be important to you in your professional role during the implementation of the program? What would it take to ensure a successful transition to a RBL program?

10. Would you support a change to a RBL program? Why or why not?

11. Of all the topics that we've talked about today, what to you is the most important?

12. Is there anything else that was not addressed that you think is important regarding the issue of recess placement?

(table continues)

Table 1 *(continued)*

Focus Group Questions

Questions for Combined Recess Before Lunch and Recess After Lunch Focus Groups

1. In your professional role, are you aware of discussions or information (from professional magazines, state associations, professional meetings, etc.) regarding scheduling of recess placement issues in elementary schools? Please share what you have heard about this issue.

2. In your professional opinion, what should be the primary concern when determining how recess should be scheduled in relation to lunch?

3. How might/does recess placement affect children's food consumption at lunch?

4. How might/does recess placement affect children's behavior or conduct in the cafeteria?

5. How might/does recess placement affect children's behavior and academic performance in the classroom?

6. If a district or school decided to make the change to RBL, what would be/are the important issues or concerns to consider regarding this decision?

7. What do you see as the major challenges a district or school would face when implementing a RBL program?

8. What steps would be/are important during a district's or school's implementation of a RBL program? What would/does it take to ensure a successful transition to a RBL program?

9. Do you support the scheduling of recess before lunch? Why or why not?

10. Of all the topics that we've talked about today, what to you is the most important?

11. Is there anything else that was not addressed that you think is important regarding the issue of recess placement?

The focus groups were facilitated by an NFSMI researcher with an assistant moderator/recorder capturing the participants' comments on a flip chart. Sessions were also audio taped to create a permanent complete record of the discussions. Throughout the session, the researcher used a structured approach to keep the discussion focused on the selected topics. After all questions were discussed, the assistant moderator summarized responses, and participants were invited to verify that the summary comments were an accurate depiction of the discussion. Following transcription of the audio tapes from the focus group sessions, researchers thematically coded the responses into meaningful categories. Transcripts and themes were reviewed by two independent researchers. These themes were used to develop statements that were incorporated into the quantitative survey instrument.

Phase II

Survey Development

The survey instrument for Phase II of the research project was developed from qualitative data obtained from the focus group sessions. The survey, titled *Issues Related to Recess Placement in Elementary Schools*, consisted of four sections (Appendix E). In the first section of the survey, participants were asked to indicate their level of agreement with a set of 51 statements about the effects of recess schedules in relation to lunch. Participants responded to each statement twice, once with respect to when recess is scheduled before lunch, and once with respect to when recess is scheduled after lunch. The response scale was a 5-point Likert-type scale ranging from 5 *(strongly agree)* to 1 *(strongly disagree).* A response of 3 was neutral. In the second section of the survey, participants were asked to rate the level of importance of a set of 27 issues when determining how recess should be scheduled in relation to lunch. The response scale was a 4-point Likert-type scale ranging from 4 *(very important)* to 1 *(not important).* In the

third section of the survey, participants were asked to rate the level of importance of a set of 33 issues in successfully implementing a recess before lunch program. Again, the response scale was a 4-point Likert-type scale ranging from 4 *(very important)* to 1 *(not important).* In the fourth section of the survey, participants were asked to provide information about themselves or their schools or school districts. Questions included items concerning job title, USDA region, professional knowledge of information regarding recess placement issues, opinions about scheduling recess before lunch, and information regarding recess schedules in participants' elementary schools or school districts.

The survey instrument was produced on a scannable form, using Optiscan. This program allows participants to record their responses using a number two pencil on the survey form. Surveys may then be scanned and directly transferred to a statistical program for analysis.

Pilot Study

School nutrition directors who had participated in the focus groups were asked to pilot test the survey instrument. Five of the six school nutrition directors agreed to participate in the pilot phase of the survey. Each school nutrition director who agreed to participate in the pilot study was mailed a package containing a cover letter and three survey packets. Each school nutrition director was asked to complete the pilot survey, as well as distribute a pilot survey to one principal/assistant principal and one teacher. Thus, 15 pilot surveys were distributed to five school nutrition directors, five principals/assistant principals, and five teachers.

Pilot study participants were provided with a cover letter that instructed them to complete the survey as though they were participating in the study. In addition to completing the survey instrument, participants were asked to complete an evaluation form to assess the cover letters and the survey instrument (Appendix F). The evaluation form asked participants to assess the clarity

of the letters, survey instructions, and survey content, as well as provided space to offer recommended revisions to the survey statements, response categories, and cover letters. Length of time spent completing the scannable survey was also assessed. A self-addressed, postage-paid envelope was provided for returning the completed survey and evaluation form.

Eleven of 15 (73.3%) pilot study participants returned the pilot surveys and evaluation forms. Only minor wording changes were made to the survey instrument, based on the recommendations provided by pilot study participants.

Sample and Survey Distribution

The sample for the survey phase of the research project consisted of school nutrition directors, elementary school principals/assistant principals, and elementary teachers 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 700 school districts was stratified by USDA region with 100 school districts from each USDA region. The resulting list identified the mailing address for the district school nutrition directors. Survey packets were mailed to this national random sample of 700 school nutrition directors who were asked to complete a survey, as well as distribute a survey to an elementary principal/assistant principal and a teacher. Thus, including the sample of 700 school nutrition directors, 700 elementary school principals/assistant principals, and 700 elementary teachers, a total of 2,100 surveys were distributed.

Each school nutrition director was mailed a package containing a cover letter and an envelope each for the school nutrition director, an elementary school principal or assistant principal, and an elementary teacher. The school nutrition director cover letter provided instructions on how to distribute the survey packets to the other school professionals in his/her

district (Appendix G). Included in the survey packets for all school professionals were an instructional cover letter, the survey instrument, and a self-addressed, postage-paid envelope for returning the completed survey. The cover letter informed participants of the purpose of the study, asked for their participation, assured them of confidentiality of their responses, and provided researchers' contact information for questions or concerns (Appendix H). No identifying codes were placed on the survey instruments, thus preserving the anonymity of all respondents. Participants were asked to return the completed surveys within a three week time period.

Informed Consent

Protocol for Phase I and Phase II of 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, second, and third sections of the survey instrument, 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. T-tests and multivariate analysis of variance, as appropriate, were used to assess differences in factor scores based on recess placement and/or participants' job title. 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

Phase I: Focus Groups

Focus group data were collected in a systematic approach by asking semi-structured, open-ended questions, each having a distinctive function in the research process. Following transcription of the audio tapes from the focus group sessions, researchers collapsed the responses to the questions into meaningful categories. The categories that emerged from analysis of focus group transcripts, along with sample responses for each category, are presented in Table 2.

Table 2

Focus Group Themes and Sample Responses for Each Theme

Theme 1: Professional knowledge/awareness of recess placement issues in elementary schools
• A district wellness and nutrition committee discussed the issue of recess before lunch and recess after lunch programs in relation to possible reductions in the number of children becoming sick, possible increases in food consumption, and the possible scheduling issues related to each plan.
• Research on the subject was presented at the School Nutrition Association's annual national conference. Findings showed that in a statewide recess before lunch implementation program in Montana, children ate more and behaved better. Hand washing was a major issue.
• The Responsive Classroom quarterly elementary education newsletter published a number of articles on recess placement in years past.
Theme 2: Support for recess before lunch programs
• I would support a recess before lunch program as long as recess time was not decreased and the program accommodated the needs of each age group.
• I think a recess before lunch program is worth a try to see if there are any benefits.
• I think recess before lunch is a good idea, but our cafeteria would have to be restructured.

(table continues)

Table 2 *(continued)*

Focus Group Themes and Sample Responses for Each Theme

Theme 3: Support for recess after lunch programs/lack of support for recess before lunch programs
• I would not change unless many more schools did pilot programs to act as "guinea pigs" for us.
• If research supported recess before lunch and showed the benefits of the change, I would support the recess before lunch program, but there are little data currently.
• There is a resistance to change due to the current recess after lunch program running so well.
Theme 4: Factors leading to implementation of recess before lunch programs
• Information from the sample wellness plan from the Centers for Disease Control and Prevention and material from the Department of Education supported making this change.
• Some students were not eating all of their food and were dumping their trays early to get to recess, and others were eating slowly to avoid going to recess.
• Research supported the change to recess before lunch.
Theme 5: Food consumption in relation to recess placement
• A child will eat everything he or she wants at lunch with a recess before lunch program, because there is no incentive to discard food and get out of the cafeteria early.
• Children may consume more at lunch using a recess before lunch program, because they have worked up an appetite at recess.
• Children are more likely to try new foods with recess before lunch. Before, they would just throw them out before even tasting them.

(table continues)

Table 2 *(continued)*

Focus Group Themes and Sample Responses for Each Theme

Theme 6: Cafeteria behavior in relation to recess placement
• With recess before lunch, there have been fewer conflicts in the cafeteria and less children sent to the office during lunch. • Children are calmer and more focused on eating when recess is before lunch. • Children in recess before lunch programs may be less focused on eating and louder during lunch, because they are wound up from recess.
Theme 7: Classroom behavior and academic performance in relation to recess placement
• There has been increased instructional time during afternoon classes after the change to the recess before lunch program, because there were fewer conflicts and children were more calm and ready to learn. • Recess after lunch programs may affect classroom learning, because children will come back to the classrooms wound up and focused on events which took place during recess. • With a recess before lunch program, children may be more lethargic in class or may be more alert right after lunch. Studies would have to be done to determine if children were more alert after lunch or recess.
Theme 8: Challenges associated with recess before lunch program implementation
• Hand washing would be a major concern. • There is concern about time issues concerning the amount of instruction that could be allotted during the morning hours with breakfast, recess, and lunch scheduled so closely. • Scheduling is a major undertaking when changing to a recess before lunch program.

(table continues)

Table 2 *(continued)*

Focus Group Themes and Sample Responses for Each Theme

Theme 9: Personal changes in professional role associated with recess before lunch program implementation
• In the beginning, I had to spend a lot more time working with teachers and staff problem solving. I also had to address issues brought up by some that the change was not working by researching and developing a survey to assess the effectiveness of the change.
• I had to spend a lot of time in pre-planning how to change and then actually implementing the change.
• Staff hours for food service employees would be extended.
Theme 10: Important factors to ensure a successful transition to a recess before lunch program
• Everyone involved, all staff, teachers, parents, and students must be able to voice concerns, give input, and overall have a say in the implementation and must be involved from the very beginning.
• A lot of pre-planning is necessary.
• I would recommend that they visit other schools that have already implemented the program and talk with anyone they can about how the change affected them and what problems they had.
Theme 11: Most important factor when determining recess placement
• What is best for the children nutritionally and academically.
• Balancing curriculum, nutritional, and scheduling demands to form a successful program.
• Above all, any change must make sure children have enough time to eat and to play.

(table continues)

Table 2 *(continued)*

Focus Group Themes and Sample Responses for Each Theme

Theme 12: Other important topics related to recess placement
• Consideration of the recess schedule in relation to childhood overweight. • Consideration of the recess schedule in relation to food digestion/metabolism. • Effects of recess placement on nursing/sick visits.

Some of the key issues that emerged from the focus group data involved the behavioral and academic impacts of recess placement and barriers to implementing recess before lunch programs. Perceptions regarding the behavioral impact of recess placement included responses about children's behavior in the cafeteria and the classroom. Perceptions regarding the academic impact of recess placement included responses about children's readiness to learn and effects on instructional time. Potential barriers to implementing recess before lunch programs were identified, including scheduling demands, logistics (such as managing hand washing and children's belongings), gaining support for the program from all involved parties, and facility constraints. These factors must be addressed for a successful transition to recess before lunch programs. In general, school professionals agreed that "what is best for children" should be the primary factor when determining how recess is scheduled in relation to lunch.

Phase II: Survey

A total of 2,100 surveys were distributed to 700 school nutrition directors, 700 elementary school principals/assistant principals, and 700 elementary teachers. Each potential participant received an instructional cover letter, survey, and a postage-paid envelope for

returning the completed survey. A total of 332 surveys were returned and used in statistical analysis, for a response rate of 15.8%.

Program and personal characteristics of respondents are provided in Table 3. All school professionals were represented, with the largest percentage of participants (38.7%) being school nutrition directors. All USDA regions were also represented, with the largest percentage of participants (17.6%) from the Midwest region and the smallest percentage of participants (9.3%) from the Northeast region. The largest percentage of principals/assistant principals and teachers (48.3%) reported working in elementary schools with recess scheduled after lunch for all students. The most commonly reported grades with recess before lunch were Grade 1 (37.9%), Grade 2 (36.9%), and Grade 3 (37.4%). The largest percentage of school nutrition directors (47.9%) reported working in school districts in which some of the elementary schools have a recess before lunch schedule.

Table 3

Program and Personal Characteristics of Respondents

Item	Frequency	%
Job Title (n = 318)		
School Nutrition Director	123	38.7
Principal/Assistant Principal	98	30.8
Teacher	97	30.5
USDA Region (n = 323)		
Midwest	57	17.6
Mountain Plains	56	17.3
Southwest	53	16.4
Southeast	52	16.1
Mid-Atlantic	42	13.0
Western	33	10.2
Northeast	30	9.3
Elementary School Description (n = 178)[a]		
Recess is scheduled after lunch for all students.	86	48.3
Some students have recess after lunch, and some have recess before lunch.	61	34.3
Recess is scheduled before lunch for all students.	29	16.3
There is no recess at my school.	2	1.1

[a] This item was only answered by principals/assistant principals and teachers.
[b] This item was only answered by school nutrition directors.

(table continues)

Table 3 *(continued)*

Program and Personal Characteristics of Respondents

Item	Frequency	%
Grades With Recess Before Lunch (n = 195)[a]		
Grade 1	74	37.9
Grade 3	73	37.4
None	73	37.4
Grade 2	72	36.9
Grade 4	64	32.8
Kindergarten	53	27.2
Grade 5	47	24.1
Pre-Kindergarten	24	12.3
Grade 6	11	5.6
School District Description (n = 117)[b]		
Some of the elementary schools in my district have a recess before lunch schedule.	56	47.9
None of the elementary schools in my district have a recess before lunch schedule.	52	44.4
All of the elementary schools in my district have a recess before lunch schedule.	9	7.7

[a] This item was only answered by principals/assistant principals and teachers.
[b] This item was only answered by school nutrition directors.

(table continues)

Table 3 *(continued)*

Program and Personal Characteristics of Respondents

Item	Frequency	%
School Nutrition Director Certification Status (n = 123)[b]		
SNA certified	45	36.6
Not certified	42	34.1
State Department of Education certified	21	17.1
SNS (formerly SFNS) credentialed	21	17.1
Registered Dietitian	15	12.2
Licensed Dietitian/Nutritionist	8	6.5

[a] This item was only answered by principals/assistant principals and teachers.
[b] This item was only answered by school nutrition directors.

Opinions on Recess Placement Issues

Participants were provided with 51 statements regarding recess placement issues and were asked to indicate their level agreement with each statement using a scale of 5 *(strongly agree)* to 1 *(strongly disagree)* with a rating of 3 considered neutral. Participants were asked to respond to each statement twice. They first were asked to respond to each statement regarding when recess is scheduled before lunch, and then asked to respond to each statement again regarding when recess is scheduled after lunch. Table 4 presents the means and standard deviations for each of the 51 statements with respect to recess before lunch in descending order of agreement, and Table 5 presents the same information with respect to recess after lunch.

Table 4

School Professionals' Opinions on Recess Placement Issues When Recess is Before Lunch

Statement	N	Mean[a]	SD
Children are hungrier.	316	3.84	0.96
Children have better appetites.	315	3.79	0.87
Children spend more time eating.	318	3.77	1.01
Support for the program is needed from school administrators.	312	3.69	1.08
Children consume more food.	314	3.66	0.93
Support for the program is needed from teachers.	309	3.62	1.01
Children consume more water.	309	3.60	0.86
Children discard/throw away less food.	315	3.59	0.96
Children consume more of the entrée.	313	3.58	0.84
Children are more active at recess.	316	3.56	0.98
Children are more focused on eating during mealtime.	315	3.52	0.93
Children consume more milk.	313	3.48	0.81
Children return to the classroom more ready to learn.	306	3.45	0.86
Children experience fewer stomach aches and less nausea.	313	3.41	0.83
Children consume a greater variety of foods.	317	3.39	0.77
Support for the program is needed from school nutrition staff.	310	3.34	1.05
Hand washing logistics are a concern.	311	3.32	1.21
Children have fewer conflicts/disputes in the classroom.	307	3.29	0.83

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

(table continues)

Table 4 *(continued)*

School Professionals' Opinions on Recess Placement Issues When Recess is Before Lunch

Statement	N	Mean[a]	SD
Children perform better academically.	304	3.29	0.75
Children consume more breads/whole grain items.	317	3.28	0.72
Children consume more fruits.	318	3.27	0.71
Children are more alert in class.	311	3.27	0.87
Children have fewer conflicts/disputes in the cafeteria.	317	3.26	0.93
Children are better behaved/less rowdy at mealtime.	316	3.26	0.98
Children are less hungry in the afternoon.	307	3.26	0.92
Children are more likely to try new foods.	309	3.25	0.75
Children are more orderly in the serving line.	317	3.20	0.97
Difficulties in scheduling lunch periods occur.	309	3.20	0.97
Children consume more vegetables.	314	3.17	0.68
Children return their trays in a more orderly fashion.	307	3.16	0.73
Support for the program is needed from parents.	309	3.16	1.03
Children socialize more during mealtime.	311	3.14	0.82
Children make less noise during mealtime.	316	3.09	0.95
Children have fewer conflicts/disputes during recess.	305	3.08	0.74
Support for the program is needed from children.	307	3.05	0.97

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

(table continues)

Table 4 *(continued)*

School Professionals' Opinions on Recess Placement Issues When Recess is Before Lunch

Statement	N	Mean[a]	SD
Difficulties in scheduling classes occur.	309	3.01	1.01
Difficulties in scheduling recess periods occur.	311	3.01	1.03
Children have more instructional time.	311	2.94	0.85
The ability to use recess as an incentive for good behavior is lost.	306	2.75	1.09
Storing children's winter/rain clothing is a concern.	310	2.72	1.08
Snack needs are a concern.	312	2.70	0.94
Teachers have additional work.	309	2.59	0.80
School administrators have additional work.	307	2.53	0.92
Storing/transporting sack/cold lunches is a concern.	310	2.53	0.94
Additional recess and/or eating areas are needed.	309	2.50	0.97
Storing children's backpacks/book sacks is a concern.	310	2.48	0.95
Difficulties in scheduling school nutrition staff occur.	312	2.41	0.88
Children play with toys from recess during mealtime.	317	2.39	0.89
Additional school nutrition staff is required.	311	2.38	0.86
Costs are increased due to additional equipment/supply needs.	309	2.33	0.77
School nutrition staff is required to work additional hours.	310	2.32	0.89

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

Table 5

School Professionals' Opinions on Recess Placement Issues When Recess is After Lunch

Statement	N	Mean[a]	SD
Support for the program is needed from school administrators.	310	3.34	1.14
Children are more active at recess.	315	3.28	1.03
Children socialize more during mealtime.	306	3.23	0.82
Support for the program is needed from teachers.	304	3.17	1.01
Support for the program is needed from school nutrition staff.	306	3.10	1.05
Children are more alert in class.	311	3.00	0.85
Support for the program is needed from parents.	306	2.97	1.00
Children have more instructional time.	313	2.96	0.82
Children perform better academically.	301	2.95	0.71
Support for the program is needed from children.	304	2.94	0.95
Children consume more water.	306	2.91	0.88
Children consume more fruits.	315	2.90	0.65
Children consume more breads/whole grain items.	314	2.87	0.67
Children are more orderly in the serving line.	309	2.86	0.89
Children are less hungry in the afternoon.	302	2.86	0.89
Children have fewer conflicts/disputes in the classroom.	311	2.85	0.77
Children have fewer conflicts/disputes in the cafeteria.	311	2.85	0.85
Children consume more milk.	311	2.82	0.74

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

(table continues)

Table 5 *(continued)*

School Professionals' Opinions on Recess Placement Issues When Recess is After Lunch

Statement	N	Mean[a]	SD
Difficulties in scheduling lunch periods occur.	305	2.82	0.84
Children are more likely to try new foods.	307	2.81	0.62
Children have fewer conflicts/disputes during recess.	300	2.81	0.72
Children consume more vegetables.	316	2.78	0.60
Difficulties in scheduling classes occur.	308	2.78	0.91
Children experience fewer stomach aches and less nausea.	309	2.77	0.80
Children consume a greater variety of foods.	314	2.77	0.72
Children return to the classroom more ready to learn.	303	2.76	0.91
Difficulties in scheduling recess periods occur.	309	2.75	0.93
Children make less noise during mealtime.	317	2.74	0.88
Children return their trays in a more orderly fashion.	313	2.71	0.74
Hand washing logistics are a concern.	308	2.71	1.07
Children are better behaved/less rowdy at mealtime.	315	2.68	0.90
Children consume more of the entrée.	306	2.67	0.79
Snack needs are a concern.	305	2.67	0.90
Storing children's winter/rain clothing is a concern.	306	2.65	1.01
Children are hungrier.	309	2.64	0.99

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

(table continues)

Table 5 *(continued)*

School Professionals' Opinions on Recess Placement Issues When Recess is After Lunch

Statement	N	Mean[a]	SD
Children are more focused on eating during mealtime.	313	2.62	0.91
Children consume more food.	311	2.58	0.86
Teachers have additional work.	307	2.57	0.75
Children have better appetites.	310	2.56	0.85
Children spend more time eating.	312	2.55	1.00
Children discard/throw away less food.	317	2.53	0.88
Storing children's backpacks/book sacks is a concern.	305	2.48	0.91
School administrators have additional work.	305	2.48	0.84
The ability to use recess as an incentive for good behavior is lost.	306	2.47	0.90
Children play with toys from recess during mealtime.	312	2.46	0.91
Additional recess and/or eating areas are needed.	308	2.45	0.88
Difficulties in scheduling school nutrition staff occur.	309	2.39	0.83
Storing/transporting sack/cold lunches is a concern.	308	2.38	0.82
Costs are increased due to additional equipment/supply needs.	306	2.36	0.77
Additional school nutrition staff is required.	309	2.35	0.80
School nutrition staff is required to work additional hours.	308	2.24	0.78

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

With respect to recess before lunch, the statements with the highest mean agreement ratings generally reflected opinions that scheduling recess before lunch has a positive impact on children's dietary intake. This is illustrated by the fact that four of the five statements with the highest mean agreement ratings indicated that children are hungrier (3.84 $\pm$ .96), have better appetites (3.79 $\pm$ .87), spend more time eating (3.77 $\pm$ 1.01), and consume more food (3.66 $\pm$ .93) when recess is scheduled before lunch. With respect to recess after lunch, the statements with the highest mean agreement ratings reflected opinions related to other aspects of children's behavior, including that children were more active at recess (3.28 $\pm$ 1.03) and socialize more at mealtimes (3.23 $\pm$ .82) when recess is scheduled after lunch. In addition, three of the five statements with the highest mean agreement ratings indicated a need for support for the recess after lunch program from various school professionals, including administrators (3.34 $\pm$ 1.14), teachers (3.17 $\pm$ 1.01), and school nutrition staff (3.10 $\pm$ 1.05). It is important to note, however, that each of the mean scores for the highest scored recess after lunch items was closer to "neutral" than to the "agree" end of the response scale. Support for the program from school administrators (3.69 $\pm$ 1.08) also was one of the five statements with the highest mean agreement ratings with respect to recess before lunch, indicating respondents' opinion that administrative support is important regardless of which recess schedule is implemented.

Exploratory factor analysis was conducted on the two sets of matching items assessing opinions on recess placement issues, that is, the set of 51 items answered first with respect to recess before lunch and then with respect to recess after lunch. The goal was to identify common factors for both sets of items, if possible. A principal component factor analysis with varimax rotation initially generated an eight factor solution for both sets of items, using the criterion of eigenvalues ≥ 1. 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. Eleven items that did not load similarly in both factor solutions were omitted from analysis. No items were omitted due to lack of cognitive association with other items in the factors. The analysis was repeated until matching factor solutions emerged for the recess before lunch and recess after lunch items.

The final factor solution for each set of items included six factors. For the recess before lunch items, the six factor solution explained 58.9% of the variance, and for the recess after lunch items, the six factor solution explained 56.2% of the variance. Table 6 presents the factors, items loading on each factor, and the Cronbach's alphas for each set of factors. All factors demonstrated adequate internal consistency for both the recess before lunch and recess after lunch items, with Cronbach's alphas ranging from .72 to .91. The first factor, food consumption, included 13 items related to amount of foods and beverages consumed by children, children's appetite or degree of hunger, and children's attention to eating. The second factor, cafeteria behavior, included five items related to aspects of children's behavior in the cafeteria, including general cafeteria behavior, behavior in serving lines and when returning trays, conflicts in the cafeteria, and noise levels in the cafeteria. The third factor, classroom/recess behavior, included eight items related to aspects of children's behavior both at recess and in the classroom. Items included addressed level of activity and conflicts at recess and conflicts, amount of instructional time, and readiness to learn in the classroom. The fourth factor, additional needs, included six items related to needs created by a given recess schedule, such as needs for additional staff, recess and/or eating areas, and increased costs. The fifth factor, support, includes five items related to support for a given recess schedule from all involved parties, including school administrators, teachers, school nutrition staff, parents, and children. The sixth factor,

scheduling, includes three items related to difficulties in scheduling lunch periods, classes, and recess periods created by a given recess schedule.

Table 6

Factor Descriptions for Opinions on Recess Placement Issues for Recess Before Lunch (RBL) and Recess After Lunch (RAL) Factors

Factor	Items Included in Factor	Cronbach's alphas
Food Consumption	Children consume more fruits.	RBL: .91
	Children discard/throw away less food.	RAL: .90
	Children consume more milk.	
	Children are hungrier.	
	Children consume a greater variety of foods.	
	Children consume more breads/whole grain items.	
	Children consume more food.	
	Children are more focused on eating during mealtime.	
	Children have better appetites.	
	Children consume more vegetables.	
	Children consume more of the entrée.	
	Children are more likely to try new foods.	
	Children consume more water.	

(table continues)

Table 6 *(continued)*

Factor Descriptions for Opinions on Recess Placement Issues for Recess Before Lunch (RBL) and Recess After Lunch (RAL) Factors

Factor	Items Included in Factor	Cronbach's alphas
Cafeteria Behavior	Children are more orderly in the serving line.	RBL: .84
	Children have fewer conflicts/disputes in the cafeteria.	RAL: .81
	Children make less noise during mealtime.	
	Children are better behaved/less rowdy at mealtime.	
	Children return their trays in a more orderly fashion.	
Classroom/ Recess Behavior	Children are more active at recess.	RBL: .84
	Children have fewer conflicts/disputes in the classroom.	RAL: .79
	Children experience fewer stomach aches and less nausea.	
	Children have more instructional time.	
	Children are more alert in class.	
	Children return to the classroom more ready to learn.	
	Children have fewer conflicts/disputes during recess.	
	Children perform better academically.	

(table continues)

Table 6 *(continued)*

Factor Descriptions for Opinions on Recess Placement Issues for Recess Before Lunch (RBL) and Recess After Lunch (RAL) Factors

Factor	Items Included in Factor	Cronbach's alphas
Additional Needs	Additional school nutrition staff is required.	RBL: .82
	Additional recess and/or eating areas are needed.	RAL: .86
	Difficulties in scheduling school nutrition staff occur.	
	Storing/transporting sack/cold lunches is a concern.	
	School nutrition staff is required to work additional hours.	
	Costs are increased due to additional equipment and/or supply needs.	
Support	Support for the program is needed from parents.	RBL: .82
	Support for the program is needed from teachers.	RAL: .84
	Support for the program is needed from school nutrition staff.	
	Support for the program is needed from children.	
	Support for the program is needed from school administrators.	
Scheduling	Difficulties in scheduling lunch periods occur.	RBL: .84
	Difficulties in scheduling classes occur.	RAL: .72
	Difficulties in scheduling recess periods occur.	

Paired samples t-tests were used to test differences in mean scores for the recess before lunch and recess after lunch factors for the entire sample. Means and standard deviations for each set of factor scores are presented in Table 7. For each of the six factors, the score for the recess before lunch factor was significantly higher than the score for the recess after lunch factor. This indicates that the participants believed that recess before lunch programs had more positive impacts on children's food consumption ($p < .001$), cafeteria behavior ($p < .001$), and recess/classroom behavior ($p < .001$) compared with recess after lunch programs. However, they also believed that recess before lunch programs created additional needs ($p < .001$), required more support from all involved parties ($p < .001$), and created more scheduling difficulties ($p < .001$) compared with recess after lunch programs.

Table 7

Means and Standard Deviations for Opinions on Recess Placement Issues Factor Scores for Recess Before Lunch and Recess After Lunch Factors

Factor	N[a]	Mean	SD
Food Consumption[*]			
Recess Before Lunch	314	3.49	0.57
Recess After Lunch	314	2.73	0.54
Cafeteria Behavior[*]			
Recess Before Lunch	313	3.19	0.71
Recess After Lunch	313	2.76	0.64

[a]N is based on cases included for paired samples t-tests comparing recess before lunch and recess after lunch factors.
[*]$p < .001$ for paired samples t-test comparing recess before lunch and recess after lunch factors.

(table continues)

Table 7 *(continued)*

Means and Standard Deviations for Opinions on Recess Placement Issues Factor Scores for Recess Before Lunch and Recess After Lunch Factors

Factor	N[a]	Mean	SD
Classroom/Recess Behavior*			
Recess Before Lunch	314	3.28	0.56
Recess After Lunch	314	2.92	0.54
Additional Needs*			
Recess Before Lunch	306	2.42	0.66
Recess After Lunch	306	2.36	0.62
Support*			
Recess Before Lunch	306	3.37	0.78
Recess After Lunch	306	3.10	0.80
Scheduling*			
Recess Before Lunch	306	3.08	0.87
Recess After Lunch	306	2.79	0.71

[a]N is based on cases included for paired samples t-tests comparing recess before lunch and recess after lunch factors.
*$p < .001$ for paired samples t-test comparing recess before lunch and recess after lunch factors.

Mixed multivariate analysis of variance (MANOVA) with one within subjects effect (recess placement) and one between subjects effect (job title) was used to test for differences in factor scores according to recess placement and job title. The interaction between recess placement and job title was also examined. The multivariate test for the interaction was significant ($p < .001$), and univariate analysis of variance (ANOVA) tests were significant for the

food consumption ($p < .001$), cafeteria behavior ($p < .001$), classroom/recess behavior ($p = .001$), and support ($p = .001$) factors. There were no significant differences in the additional needs and scheduling factors at the univariate level. Factor scores for recess before lunch and recess after lunch factors by job title are presented in Table 8. Examination of these factor scores by job title reveals that for each of these four factors, food consumption, cafeteria behavior, classroom/recess behavior, and support, school nutrition directors had greater differences in opinion regarding recess before lunch programs compared with recess after lunch programs than did principals/assistant principals and teachers. Thus, the entire sample indicated that recess before lunch programs, when compared to recess after lunch programs, had a positive impact on children's food consumption, cafeteria behavior, and recess/classroom behavior, but required a greater need for support from all involved parties. However, these differences in opinion were more pronounced in the school nutrition directors than in principals or assistant principals and teachers.

Table 8

Means and Standard Deviations for Opinions on Recess Placement Issues Factor Scores By Job Title

Factor	N[a]	Mean	SD
Food Consumption			
Recess Before Lunch			
School Nutrition Director	114	3.69	0.58
Principal/Assistant Principal	89	3.37	0.54
Teacher	91	3.31	0.52
Recess After Lunch			
School Nutrition Director	114	2.59	0.58
Principal/Assistant Principal	89	2.81	0.52
Teacher	91	2.83	0.47
Cafeteria Behavior			
Recess Before Lunch			
School Nutrition Director	114	3.42	0.74
Principal/Assistant Principal	89	3.04	0.62
Teacher	91	3.07	0.67
Recess After Lunch			
School Nutrition Director	114	2.59	0.64
Principal/Assistant Principal	89	2.86	0.60
Teacher	91	2.88	0.63

[a]N is based on cases included for MANOVA comparing factor scores by job title.

(table continues)

Table 8 *(continued)*

Means and Standard Deviations for Opinions on Recess Placement Issues Factor Scores By Job Title

Factor	N[a]	Mean	SD
Classroom/Recess Behavior			
Recess Before Lunch			
School Nutrition Director	114	3.43	0.52
Principal/Assistant Principal	89	3.20	0.55
Teacher	91	3.13	0.57
Recess After Lunch			
School Nutrition Director	114	2.82	0.48
Principal/Assistant Principal	89	2.94	0.52
Teacher	91	3.01	0.55
Additional Needs			
Recess Before Lunch			
School Nutrition Director	114	2.30	0.61
Principal/Assistant Principal	89	2.40	0.72
Teacher	91	2.58	0.63

[a]N is based on cases included for MANOVA comparing factor scores by job title.

(table continues)

Table 8 *(continued)*

Means and Standard Deviations for Opinions on Recess Placement Issues Factor Scores By Job Title

Factor	N[a]	Mean	SD
Recess After Lunch			
School Nutrition Director	114	2.26	0.61
Principal/Assistant Principal	89	2.33	0.67
Teacher	91	2.49	0.56
Support			
Recess Before Lunch			
School Nutrition Director	114	3.65	0.74
Principal/Assistant Principal	89	3.14	0.83
Teacher	91	3.25	0.66
Recess After Lunch			
School Nutrition Director	114	3.23	0.85
Principal/Assistant Principal	89	2.98	0.79
Teacher	91	3.06	0.70

[a]N is based on cases included for MANOVA comparing factor scores by job title.

(table continues)

Table 8 *(continued)*

Means and Standard Deviations for Opinions on Recess Placement Issues Factor Scores By Job Title

Factor	N[a]	Mean	SD
Scheduling			
Recess Before Lunch			
School Nutrition Director	114	3.24	0.75
Principal/Assistant Principal	89	2.91	0.96
Teacher	91	3.02	0.91
Recess After Lunch			
School Nutrition Director	114	2.93	0.64
Principal/Assistant Principal	89	2.61	0.76
Teacher	91	2.74	0.72

[a]N is based on cases included for MANOVA comparing factor scores by job title.

Issues to Consider When Scheduling Recess

Participants were provided with 27 statements regarding issues to consider when determining how recess should be scheduled in relation to lunch and were asked to rate the importance of each issue using a scale of 4 *(very important)* to 1 *(not important)*. Table 9 presents the means and standard deviations for each of the 27 statements in descending order of agreement. Issues that were rated as most important to consider when determining a recess schedule were those related to academics, including maintaining instructional time (3.77 $\pm$ .49) and children's academic performance (3.72 $\pm$ .54), and those related to children's health and nutritional status, including promoting children's health and well-being (3.70 $\pm$ 54), making sure children get enough to eat/are not hungry (3.64 $\pm$ .60), making sure children have enough time to

eat (3.53 ± .66), and meeting children's dietary/nutritional needs (3.50 ± .73). Issues rated as least important included the logistics of managing children's belongings, however, one logistical issue, managing hand washing (3.19 ± .82) was rated as relatively important. In terms of the items related to support for the schedule from various involved parties, support from principals/school administrators (3.22 ± .81) was rated as most important, followed by support from teachers (3.18 ± .75), and then school nutrition staff (2.95 ± .85).

Table 9

School Professionals' Perceived Importance of Issues to Consider When Scheduling Recess

Statement	N	Mean[a]	SD
Maintaining instructional time	315	3.77	0.49
Children's academic performance	316	3.72	0.54
Promoting children's health and well-being	302	3.70	0.54
Making sure children get enough to eat/are not hungry	311	3.64	0.60
Making sure children have enough time to eat	307	3.53	0.66
Meeting children's dietary/nutritional needs	314	3.50	0.73
Children's behavior in the classroom	308	3.41	0.73
Children's food consumption at lunch	309	3.30	0.71
Children's behavior in the cafeteria	306	3.26	0.72
Support for the schedule from principals/school administrators	315	3.22	0.81
Logistics of managing hand washing	315	3.19	0.82

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

(table continues)

Table 9 *(continued)*

School Professionals' Perceived Importance of Issues to Consider When Scheduling Recess

Statement	N	Mean[a]	SD
Support for the schedule from teachers	304	3.18	.75
Lunch period scheduling	316	3.13	.80
Impact on meal digestion	306	3.13	.79
Class scheduling	307	3.12	.75
Consideration of existing school facilities, including cafeteria and recess/activity areas	313	3.05	.83
Recess period scheduling	310	2.99	.79
Support for the schedule from school nutrition staff	313	2.95	0.85
Research documenting the effectiveness of one recess schedule over another	311	2.80	0.90
Workload/burdens on teachers	309	2.74	0.87
Workloads/burdens on school nutrition staff	315	2.72	0.86
School nutrition staff schedules	310	2.71	0.99
Consideration of costs	313	2.71	0.91
Logistics of managing sack/cold lunches	317	2.47	0.94
Workload/burdens on principals/school administrators	312	2.37	0.93
Logistics of managing winter/rain clothes	322	2.20	0.94
Logistics of managing backpacks/book sacks	316	2.07	0.89

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

Exploratory factor analysis was conducted on the set of 27 items relating to issues to consider when determining how recess should be scheduled in relation to lunch. A principal component factor analysis with varimax rotation initially generated a seven factor solution, using the criterion of eigenvalues ≥ 1. 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. Only one item loaded on the seventh factor, so the analysis was repeated selecting a six factor solution. Four items were omitted from analysis due to lack of cognitive association with other items in the factors. The fifth factor contained three items, but removal of one of these items produced an increase in internal consistency (Cronbach's alpha increased from .61 to .66). The sixth factor contained only two items, which demonstrated inadequate internal consistency (Cronbach's alpha of .48). Thus, these three additional items were removed from the analysis. However, as these three items were rated as the most important issues to consider when scheduling recess in relation to lunch, they were retained for use in further analyses, as described in a later section.

After omitting the items above, the factor analysis was repeated. The final factor solution contained five factors, which explained 63.4% of the variance. Table 10 presents the factors, items loading on each factor, and the Cronbach's alpha for each factor. Three of the factors demonstrated adequate internal consistency, with Cronbach's alphas ranging from .73 to .86. Two factors had Cronbach's alphas below the commonly used standard of .70, with Cronbach's alphas of .68 and .66. The researchers recognize this as a limitation, but given that this research is exploratory, made the decision to conduct follow up analyses using these factors as well.

Table 10

Factor Descriptions for Issues to Consider When Scheduling Recess

Factor	Items Included in Factor	Cronbach's alpha
Personnel Support/ Workload	School nutrition staff schedules	.86
	Workload/burdens on principals/school administrators	
	Support for the schedule from school nutrition staff	
	Support for the schedule from teachers	
	Workload/burdens on teachers	
	Workload/burdens on school nutrition staff	
	Support for the schedule from principals/school administrators	
Child Feeding Implications	Children's food consumption at lunch	.80
	Making sure children get enough to eat/are not hungry	
	Impact on meal digestion	
	Meeting children's dietary/nutritional needs	
	Making sure children have enough time to eat	
Scheduling	Lunch period scheduling	.73
	Recess period scheduling	
	Class scheduling	
Logistics	Logistics of managing hand washing	.68
	Logistics of managing winter/rain clothes	
	Logistics of managing sack/cold lunches	

(table continues)

Table 10 *(continued)*

Factor Descriptions for Issues to Consider When Scheduling Recess

Factor	Items Included in Factor	Cronbach's alpha
Behavior	Children's behavior in the classroom Children's behavior in the cafeteria	.66

The first factor, personnel support/workload, included items related to support for the recess program from school administrators, teachers, and school nutrition staff, as well as items related to the associated workload for these parties. The second factor, child feeding implications, included items related to children's food consumption, meeting nutritional needs, and impact of the schedule on meal digestion. The third factor, logistics, included items related to the logistical concerns associated with recess schedules. This included managing winter/rain clothing, hand washing, and sack/cold lunches. The fourth factor, scheduling, included items addressing the scheduling of lunch periods, recess, and classes. The fifth factor, behavior, included only two items addressing children's behavior in the classroom and in the cafeteria.

Means and standard deviations for the factor scores are presented in Table 11. Mean factor scores indicate that child feeding implications is rated as the most important issue to consider when scheduling recess, followed by behavior, scheduling, personnel support/workload, and logistics. Thus, issues related to what is best for children emerged as most important.

Table 11

Means and Standard Deviations for Issues to Consider When Scheduling Recess Factor Scores

Factor	N	Mean[a]	SD
Child Feeding Implications	326	3.42	0.54
Behavior	320	3.34	0.64
Scheduling	326	3.08	0.63
Personnel Support/Workload	327	2.83	0.65
Logistics	327	2.62	0.70

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

MANOVA was used to determine if differences existed in factor scores and scores on the three retained individual items by job title. The multivariate test for job title was significant ($p < .001$), and univariate ANOVAs were significant for the personnel support/workload ($p < .001$), child feeding implications ($p < .001$), and logistics ($p < .001$) factors. There were no significant differences in the scheduling and behavior factors, or in the three retained individual items, by job title at the univariate level. Factor scores and scores for the three retained individual items by job title are presented in Table 12. Follow-up tests revealed that for each of the three factors that were significant at the univariate level, school nutrition directors rated personnel support/workload ($p < .01$), child feeding implications ($p < .001$), and logistics ($p < .001$) as significantly more important issues to consider when scheduling recess than did principals/assistant principals or teachers.

Table 12

Means and Standard Deviations for Issues to Consider When Scheduling Recess Factor Scores or Individual Items By Job Title

Factor or Item	N[a]	Mean[b]	SD
Personnel Support/Workload[*]			
School Nutrition Director	103	3.04	0.57
Principal/Assistant Principal	83	2.68	0.69
Teacher	90	2.75	0.62
Child Feeding Implications[*]			
School Nutrition Director	103	3.63	0.40
Principal/Assistant Principal	83	3.26	0.52
Teacher	90	3.30	0.54
Logistics[*]			
School Nutrition Director	103	2.89	0.62
Principal/Assistant Principal	83	2.43	0.66
Teacher	90	2.50	0.77
Scheduling			
School Nutrition Director	103	3.10	0.56
Principal/Assistant Principal	83	3.06	0.71
Teacher	90	3.08	0.60

[a]N is based on cases included for MANOVA comparing factor scores by job title.
[b]The response scale was a 4-point Likert-type scale ranging from 4 *(very important)* to 1 *(not important).*
[*]$p < .001$ for ANOVA comparing factor scores or individual items by job title.

(table continues)

Table 12 *(continued)*

Means and Standard Deviations for Issues to Consider When Scheduling Recess Factor Scores or Individual Items By Job Title

Factor or Item	N[a]	Mean[b]	SD
Behavior			
School Nutrition Director	103	3.34	0.56
Principal/Assistant Principal	83	3.30	0.66
Teacher	90	3.39	0.69
Individual Item: Maintaining instructional time			
School Nutrition Director	103	3.70	0.48
Principal/Assistant Principal	83	3.81	0.53
Teacher	90	3.86	0.38
Individual Item: Promoting children's health and well-being			
School Nutrition Director	103	3.78	0.44
Principal/Assistant Principal	83	3.65	0.55
Teacher	90	3.69	0.55
Individual Item: Children's academic performance			
School Nutrition Director	103	3.69	0.52
Principal/Assistant Principal	83	3.77	0.48
Teacher	90	3.74	0.53

[a]N is based on cases included for MANOVA comparing factor scores by job title.
[b]The response scale was a 4-point Likert-type scale ranging from 4 *(very important)* to 1 *(not important).*
[*]$p < .001$ for ANOVA comparing factor scores or individual items by job title.

Implementing a Recess Before Lunch Program

Participants were provided with 33 statements regarding issues to consider when implementing a recess before lunch program and were asked to rate the importance of each issue using a scale of 4 *(very important)* to 1 *(not important).* Table 13 presents the means and standard deviations for each of the 33 statements in descending order of agreement. The three issues that were rated as most important were having strong leadership for the program (3.53 $\pm$ .64), all involved parties working together to establish policy (3.48 $\pm$ .68), and maintaining a positive attitude about the program (3.48 $\pm$ .68). The next two issues both related to scheduling, including advance consideration of scheduling issues (3.44 $\pm$ .64) and being flexible with respect to scheduling (3.42 $\pm$ .64). Thus, leadership, inclusion of all involved parties in policy decisions, and scheduling were reported as key issues when implementing a recess before lunch program.

Table 13

School Professionals' Perceived Importance of Issues to Consider When Implementing a Recess Before Lunch Program

Statement	N	Mean[a]	SD
Having strong leadership for the program	310	3.53	0.64
All involved parties working together to establish policy	313	3.48	0.68
Maintaining a positive attitude about the program	313	3.48	0.68
Advance consideration of all scheduling issues	312	3.44	0.64
Being flexible with respect to scheduling	310	3.42	0.64
Communication about the program to school administrators	314	3.38	0.70
Communication about the program to teachers	311	3.37	0.68

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

(table continues)

Table 13 *(continued)*

School Professionals' Perceived Importance of Issues to Consider When Implementing a Recess Before Lunch Program

Statement	N	Mean[a]	SD
Support from school administrators for the program	312	3.35	0.76
Extensive planning ahead for the program	312	3.34	0.73
Support from teachers for the program	312	3.33	0.70
Commitment to try the program for a specified period of time	311	3.27	0.75
Consideration of program impact on special needs students	315	3.25	0.69
Communication about the program to parents	311	3.23	0.78
Providing all involved parties an opportunity to offer input and voice concerns	313	3.20	0.73
Learning from other districts/schools with similar programs	310	3.19	0.77
Evaluation of feasibility of the program in existing facilities	311	3.17	0.78
Consideration of hand washing logistics	313	3.17	0.83
Support from school nutrition staff for the program	310	3.17	0.79
Research addressing program benefits/effectiveness	314	3.17	0.76
Communication about the program to school nutrition staff	312	3.17	0.79
Marketing the benefits of the program to all involved parties	307	3.14	0.83
Continuous assessment of program effectiveness	311	3.13	0.72
Communication about the program to children	313	3.11	0.79

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

(table continues)

Table 13 *(continued)*

School Professionals' Perceived Importance of Issues to Consider When Implementing a Recess Before Lunch Program

Statement	N	Mean[a]	SD
Agreement by all members of the school community to adopting the program	311	3.10	0.83
Support from parents for the program	311	3.08	0.80
Creating a timeline for program implementation	308	3.06	0.76
Soliciting input from all involved parties regarding scheduling	309	3.05	0.78
Research addressing potential negative impacts of the program	312	2.99	0.76
Providing training for school nutrition staff	312	2.99	0.88
Planning for materials/supplies/equipment that might be required	309	2.97	0.84
Support from children for the program	312	2.87	0.84
Continuous assessment of program costs	315	2.81	0.88
Consideration for storing children's personal belongings	312	2.36	0.89

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

Exploratory factor analysis was conducted on the set of 33 items relating to issues to consider when implementing a recess before lunch program. A principal component factor analysis with varimax rotation generated a seven factor solution, using the criterion of eigenvalues ≥ 1. However, the factors were not cognitively interpretable, and further analysis of factors was not pursued.

Knowledge and Attitudes about Recess Before Lunch Programs

In the final section of the survey, participants' knowledge and attitudes about recess before lunch programs were also assessed. Table 14 provides information about professional awareness of discussions regarding recess placement issues, sources of information about recess placement issues, and level of support for recess before lunch programs. The majority of participants (62.7%) reported that they were aware of professional discussions or information regarding the scheduling of recess placement in elementary schools. The most common sources of this information included school wellness committee discussions (58.4%), personal experience working in a school/district with recess before lunch (52.5%), and professional journals or magazines (49.0%). In addressing the question of whether currently available research/information supports the benefits of scheduling recess before lunch, the largest percentage of participants (33.3%) reported that they were not aware of any research on this issue. This was closely followed by the percentage of participants (32.1%) who reported that research does support the scheduling of recess before lunch. Overall, the majority of participants (52.6%) reported that they do support the scheduling of recess before lunch in elementary schools.

Table 14

School Professionals' Knowledge and Attitudes About Recess Before Lunch Programs

Item	Frequency	%
Professional Awareness of Discussions Regarding Recess Placement Issues (n = 322)		
Yes	202	62.7
No	120	37.3
Sources of Information About Recess Placement Issues (n = 202)		
School wellness committee discussions	118	58.4
Personal experience working in school/district with recess before lunch	106	52.5
Professional journals or magazines	99	49.0
Professional conferences or meetings	83	41.1
Information from state associations	74	36.6
Knowledge of experiences of other schools/districts	74	36.6
Information from national associations	48	23.8
Information from a sample wellness policy	43	21.3
Current Research Support for Recess Before Lunch (n = 321)		
Not aware of any research on this issue	107	33.3
Yes, research supports scheduling recess before lunch	103	32.1

(table continues)

Table 14 *(continued)*

School Professionals' Knowledge and Attitudes About Recess Before Lunch Programs

Item	Frequency	%
Current Research Support for Recess Before Lunch (n = 321)		
No opinion on this issue	57	17.8
Not enough research available to make an informed decision	43	13.4
No, research does not support scheduling recess before lunch	11	3.4
Support for Scheduling of Recess Before Lunch (n = 323)		
Yes	170	52.6
No opinion	102	31.6
No	51	15.8

CONCLUSIONS AND RECOMMENDATIONS

Limitations to the Research Study

The main limitation to this research study was the response rate to the mailed survey instrument. At 15.8%, the response rate was lower than desired, which may cause concern for the generalizability of the results. However, although the response rate for the survey was low, all categories of school professionals and all seven USDA regions were represented in the group of participants. One factor that may have contributed to the low survey response rate was the timing of survey administration, which may have been too close to the end of the school year. This is an especially busy time of year for school professionals, and they may have been unable to devote the time required for survey completion.

Research Study Conclusions

While still limited, a growing body of research suggests that scheduling recess before lunch may positively impact children's nutritional intake and behavior. The current study identified six categories of potential effects of recess schedule in relation to lunch in elementary schools. These include food consumption, cafeteria behavior, classroom/recess behavior, additional needs, support, and scheduling. School professionals believed that recess before lunch programs, compared with recess after lunch programs, had more positive impacts on children's food consumption, cafeteria behavior, and recess/classroom behavior. However, participants also identified several potential barriers associated with recess before lunch programs. They believed that recess before lunch programs created additional needs, required more support from all involved parties, and created more scheduling difficulties compared with recess after lunch programs. Thus, the general opinion of participants was that recess before lunch programs were

associated with nutritional, behavioral, and academic benefits for children, but that there were some additional challenges associated with these programs.

This study also identified five categories of issues to consider when determining how recess should be scheduled in relation to lunch in elementary schools. These included personnel support/workload, child feeding implications, logistics, scheduling, and behavior. Participants indicated that child feeding implications was the most important factor to consider when scheduling recess, followed by behavior, scheduling, personnel support/workload, and logistics. The individual items rated as most important to consider when scheduling recess in relation to lunch were maintaining instructional time, children's academic performance, and children's health and well-being. Thus, issues related to what is best for children emerged as most important.

Issues important for successfully implementing a recess before lunch program were also identified in this study. Issues rated as most important by participants included having strong leadership for the program, all involved parties working together to establish policy, and maintaining a positive attitude about the program. Additional issues related to scheduling emerged as important, including advance consideration of scheduling issues and being flexible with respect to scheduling. Thus, strong program leadership, inclusive policy making, and scheduling were all considered key factors in successful implementation of recess before lunch programs.

Finally, school professionals' knowledge and attitudes about recess before lunch programs were also assessed in this study. The majority of participants reported being professionally aware of discussions or information about recess placement issues in elementary schools. However, a third of the participants reported that they were not aware of any research

supporting or refuting the benefits of scheduling recess before lunch. Overall, the majority of participants supported scheduling recess before lunch in elementary schools.

Education and Training Implications

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

- Education materials are needed to increase the awareness of the potential effects of recess placement in relation to lunch in elementary schools. Modules could be developed around the six categories of potential effects of recess scheduling identified in this study, including food consumption, cafeteria behavior, classroom/recess behavior, additional needs, support, and scheduling. The materials should provide strategies for overcoming possible barriers, such as handling of logistical issues.
- Education materials should be developed that target the entire school community, including administrators, teachers, school nutrition staff, and parents.
- Additional resources are needed to assist schools in implementing recess before lunch programs, such as samples of recess and lunch schedules, and draft policies that can be used as templates.

Research Implications

Findings from this study suggest the need for additional research in the following areas:

- Research is needed to build on this project by identifying best practices or quality indicators for implementing a recess before lunch program in elementary schools. This best practices resource could be used as a guide or assessment tool for school districts implementing or considering implementing a recess before lunch program.

- Research is needed that examines whether students' behavior, readiness to learn, and academic performance in afternoon classes are improved when recess is scheduled prior to lunch.
- Case studies of successful programs should be conducted to identify the effects of recess schedule in relation to lunch in elementary schools, using the six categories of effects identified in this project. Those categories included food consumption, cafeteria behavior, classroom/recess behavior, additional needs, support, and scheduling.

- Pre- and post-studies of schools that change from a recess after lunch to a recess before lunch schedule should be conducted to assess the effects of this change, as well as to identify practices that were important during the implementation of the schedule change.

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Appendix A

Email Invitation Letter to Participate in Study:

Recess Before Lunch Participants

Dear (School Nutrition Director's Name):

The National Food Service Management Institute (NFSMI), Applied Research Division (ARD) is beginning a project designed to investigate the perceptions and practices of school professionals related to recess scheduling in elementary schools. Because of your experience working in a school district that has implemented a recess before lunch program, we would like to talk with you about allowing us to visit your school district to conduct a focus group discussion with school professionals.

If you are willing to share your professional experience by participating in this research project, I will send a follow-up email with additional information about the project, and what your participation would involve. Please let me know if you will consider participating in this important study. You can contact me via email at Wendy.Bounds@usm.edu. I look forward to hearing from you soon.

Sincerely,
Wendy Bounds, PhD, RD
Researcher
National Food Service Management Institute
Applied Research Division

Appendix B

Follow Up Email Letter:

Recess Before Lunch Participants

Hello (Name),

Thanks so much for your prompt response, as well as your willingness to participate in this project! As I mentioned in my previous email, the study in question is designed to investigate the perceptions and practices of school professionals related to the scheduling of recess placement in elementary schools. NFSMI will be conducting six focus groups across the nation to learn more about this issue. Because you have experience working in a school district that has implemented a recess before lunch program in elementary schools, we are very appreciative that you are interested in giving us the opportunity to learn from your experiences. To accomplish this, we are requesting your assistance to:

- Identify eight to ten school professionals from elementary schools with recess before lunch. This includes you as the school nutrition director, school nutrition managers, school administrators/principals, and teachers.

- Identify a date, time, and location that are convenient to you and the other participants for a focus group lasting approximately 90 minutes.

We are also hoping to conduct focus groups with school professionals who do NOT have recess before lunch programs in elementary schools. I would be very appreciative if you could provide the name and email address of a colleague who works in a school district that has not implemented a recess before lunch program - someone who you think might be willing to participate in this study as well. On the other hand, if you have additional schools in your district that do not have recess before lunch, and you would be willing to host a second focus group for us, that would be great, too! We hope to accomplish both focus groups during the same visit, if possible.

Again, we sincerely appreciate your willingness to share your professional experience by participating in this research project. The information that we gain from the focus groups will be used to develop a survey that will be sent to school professionals across the nation. It is only with the help of people like you that our research can be successful and represent the viewpoints of a diverse group of school professionals.

Is there a time that I could phone you to further discuss the project, address any questions that you might have, and begin to discuss potential dates for the focus group? This is an important issue within the field of child nutrition, and we are eager to schedule the focus groups as soon as is convenient! I look forward to hearing from you.

Thanks again,
Wendy Bounds, PhD, RD
Researcher
National Food Service Management Institute
Applied Research Division

Appendix C

Email Invitation Letter to Participant in Study:

Recess After Lunch Participants

Dear (School Nutrition Director's Name):

The National Food Service Management Institute (NFSMI), Applied Research Division (ARD), is inviting you to participate in a research study designed to investigate the perceptions and practices of school professionals related to the scheduling of recess placement in elementary schools. We will be conducting six focus groups across the nation to learn more about this issue.

NFSMI respects your experience in working in a school district that schedules recess after lunch in elementary schools. Because of this, we would like to conduct a focus group in your school district to learn from your experiences. To accomplish this, we are requesting your assistance to:

- Identify eight to ten school professionals from elementary schools with recess after lunch. This includes you as the school nutrition director, school nutrition managers, school administrators/principals, and teachers.

- Identify a date, time, and location that are convenient to you and the other participants for a focus group lasting approximately 90 minutes.

We sincerely hope that you will consider sharing your professional experience by participating in this research project. The information that we gain from the focus groups will be used to develop a survey that will be sent to school professionals across the nation. It is only with the help of people like you that our research can be successful and represent the viewpoints of a diverse group of school professionals.

I would like to schedule a time that I could phone you to further discuss this project and address any questions that you might have. Please let me know by (Date) if you might be willing to participate in the focus groups so that we can schedule a time to talk further. You can contact me via email at Wendy.Bounds@usm.edu. I look forward to hearing from you.

Sincerely,
Wendy Bounds, PhD, RD
Researcher
National Food Service Management Institute
Applied Research Division

Appendix D

Letter Confirming Focus Group Arrangements

Dear (School Nutrition Director's Name):

Thank you for agreeing to participate in a research project being conducted by the National Food Service Management Institute, Applied Research Division, to investigate the perceptions and practices of school professionals related to the placement of recess in elementary schools.

To accomplish the project goal, (Name of NFSMI researcher) and I will visit your school district and conduct a focus group with you and the other school professionals you have identified to participate in the study. Our intent is to engage these individuals in a 90 minute discussion on issues related to recess placement in your elementary school. Per our previous communication, the selected date for the focus group is (Date) at (Time). The selected location for the focus group is (Location).

Please invite the eight to ten identified school professionals (yourself, school nutrition manager, administrators/principals, and teachers) to participate in the focus group discussion, confirm their attendance, and verify the meeting location. I have enclosed copies of a consent form describing the study that you can provide to each of the focus group participants. Please know that we appreciate your support and assistance in making this project a success. Once again, thank you for agreeing to participate in the focus groups.

Closer to the date of our meeting, I will contact you with details regarding our travel arrangements and telephone numbers where you can reach us. If you have additional questions, please do not hesitate to contact me via email at Wendy.Bounds@usm.edu. Thank you again for your support and I look forward to visiting (name of school district) and meeting you.

Sincerely,
Wendy Bounds, PhD, RD
Researcher
National Food Service Management Institute
Applied Research Division

Appendix E

Final Survey Instrument

Issues Related to Recess Placement in Elementary Schools

Completely fill in the circle of your answer. Use a #2 pencil.

Correct ●●● Use No. 2 Pencil Only Incorrect ⊗⊙✓

For the purposes of this survey, recess placement refers to whether recess is scheduled BEFORE LUNCH or AFTER LUNCH during the school day. Recess before lunch is defined as recess scheduled any time prior to the lunch period. Recess after lunch is defined as recess scheduled any time after the lunch period.

SECTION I: Your Opinion on Recess Placement Issues

INSTRUCTIONS:

Indicate your level of agreement with each of the following statements by using the scale 5 (STRONGLY AGREE) to 1 (STRONGLY DISAGREE).

You should indicate your opinions in BOTH columns, regardless of how recess is scheduled at your district or school.

First respond to each statement with respect to RECESS BEFORE LUNCH in the "When Recess Is Before Lunch" column.

Then respond to each statement with respect to RECESS AFTER LUNCH in the "When Recess Is After Lunch" column.

		When Recess Is Before Lunch					When Recess Is After Lunch				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1.	Children are more active at recess.	⑤	④	③	②	①	⑤	④	③	②	①
2.	Children spend more time eating.	⑤	④	③	②	①	⑤	④	③	②	①
3.	Children consume more fruits.	⑤	④	③	②	①	⑤	④	③	②	①
4.	Children have fewer conflicts/disputes in the classroom.	⑤	④	③	②	①	⑤	④	③	②	①
5.	Children are more orderly in the serving line.	⑤	④	③	②	①	⑤	④	③	②	①
6.	Children discard/throw away less food.	⑤	④	③	②	①	⑤	④	③	②	①
7.	Children experience fewer stomach aches and less nausea.	⑤	④	③	②	①	⑤	④	③	②	①
8.	Children consume more milk.	⑤	④	③	②	①	⑤	④	③	②	①
9.	Children have more instructional time.	⑤	④	③	②	①	⑤	④	③	②	①
10.	Children are hungrier.	⑤	④	③	②	①	⑤	④	③	②	①
11.	Children consume a greater variety of foods.	⑤	④	③	②	①	⑤	④	③	②	①
12.	Children consume more breads/whole grain items.	⑤	④	③	②	①	⑤	④	③	②	①
13.	Children are more alert in class.	⑤	④	③	②	①	⑤	④	③	②	①
14.	Children have fewer conflicts/disputes in the cafeteria.	⑤	④	③	②	①	⑤	④	③	②	①
15.	Children make less noise during mealtime.	⑤	④	③	②	①	⑤	④	③	②	①
16.	Children are better behaved/less rowdy at mealtime.	⑤	④	③	②	①	⑤	④	③	②	①
17.	Children consume more food.	⑤	④	③	②	①	⑤	④	③	②	①
18.	Children are more focused on eating during mealtime.	⑤	④	③	②	①	⑤	④	③	②	①
19.	Children return their trays in a more orderly fashion.	⑤	④	③	②	①	⑤	④	③	②	①
20.	Children have better appetites.	⑤	④	③	②	①	⑤	④	③	②	①
21.	Children play with toys from recess during mealtime.	⑤	④	③	②	①	⑤	④	③	②	①
22.	Children consume more vegetables.	⑤	④	③	②	①	⑤	④	③	②	①

Page 1

SECTION I: Your Opinion on Recess Placement Issues (Continued)

		When Recess Is Before Lunch					When Recess Is After Lunch				
		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
23.	Children consume more of the entree.	⑤	④	③	②	①	⑤	④	③	②	①
24.	Children return to the classroom more ready to learn.	⑤	④	③	②	①	⑤	④	③	②	①
25.	Children socialize more during mealtime.	⑤	④	③	②	①	⑤	④	③	②	①
26.	Children are more likely to try new foods.	⑤	④	③	②	①	⑤	④	③	②	①
27.	Children have fewer conflicts/disputes during recess.	⑤	④	③	②	①	⑤	④	③	②	①
28.	Children consume more water.	⑤	④	③	②	①	⑤	④	③	②	①
29.	Children are less hungry in the afternoon.	⑤	④	③	②	①	⑤	④	③	②	①
30.	Children perform better academically.	⑤	④	③	②	①	⑤	④	③	②	①
31.	Difficulties in scheduling lunch periods occur.	⑤	④	③	②	①	⑤	④	③	②	①
32.	Teachers have additional work.	⑤	④	③	②	①	⑤	④	③	②	①
33.	Additional school nutrition staff is required.	⑤	④	③	②	①	⑤	④	③	②	①
34.	Additional recess and/or eating areas are needed.	⑤	④	③	②	①	⑤	④	③	②	①
35.	Support for the program is needed from parents.	⑤	④	③	②	①	⑤	④	③	②	①
36.	Support for the program is needed from teachers.	⑤	④	③	②	①	⑤	④	③	②	①
37.	Storing children's backpacks/book sacks is a concern.	⑤	④	③	②	①	⑤	④	③	②	①
38.	Storing children's winter/rain clothing is a concern.	⑤	④	③	②	①	⑤	④	③	②	①
39.	School administrators have additional work.	⑤	④	③	②	①	⑤	④	③	②	①
40.	Support for the program is needed from school nutrition staff.	⑤	④	③	②	①	⑤	④	③	②	①
41.	Hand washing logistics are a concern.	⑤	④	③	②	①	⑤	④	③	②	①
42.	Difficulties in scheduling classes occur.	⑤	④	③	②	①	⑤	④	③	②	①
43.	Snack needs are a concern.	⑤	④	③	②	①	⑤	④	③	②	①
44.	Support for the program is needed from children.	⑤	④	③	②	①	⑤	④	③	②	①
45.	The ability to use recess as an incentive for good behavior is lost.	⑤	④	③	②	①	⑤	④	③	②	①
46.	Difficulties in scheduling school nutrition staff occur.	⑤	④	③	②	①	⑤	④	③	②	①
47.	Storing/transporting sack/cold lunches is a concern.	⑤	④	③	②	①	⑤	④	③	②	①
48.	School nutrition staff is required to work additional hours.	⑤	④	③	②	①	⑤	④	③	②	①
49.	Difficulties in scheduling recess periods occur.	⑤	④	③	②	①	⑤	④	③	②	①
50.	Costs are increased due to additional equipment/supply needs.	⑤	④	③	②	①	⑤	④	③	②	①
51.	Support for the program is needed from school administrators.	⑤	④	③	②	①	⑤	④	③	②	①

REMINDER: Now that you have responded to each statement with respect to recess before lunch in the "When Recess Is Before Lunch" column, go back and respond to each statement with respect to recess after lunch in the "When Recess Is After Lunch" column.

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SECTION II: Issues to Consider When Scheduling Recess

	INSTRUCTIONS: Indicate your opinion about the level of importance of each of the following issues when determining how recess should be scheduled in relation to lunch in elementary schools. Use the scale 4 (VERY IMPORTANT) to 1 (NOT AT ALL IMPORTANT). **In your opinion, how important are the following issues when scheduling recess?**	**Level of Importance**			
		Very Important	Important	Somewhat Important	Not Important
1.	Maintaining instructional time	④	③	②	①
2.	Promoting children's health and well-being	④	③	②	①
3.	Logistics of managing hand washing	④	③	②	①
4.	Children's behavior in the classroom	④	③	②	①
5.	Children's food consumption at lunch	④	③	②	①
6.	Logistics of managing winter/rain clothes	④	③	②	①
7.	Lunch period scheduling	④	③	②	①
8.	School nutrition staff schedules	④	③	②	①
9.	Children's academic performance	④	③	②	①
10.	Making sure children get enough to eat/are not hungry	④	③	②	①
11.	Logistics of managing sack/cold lunches	④	③	②	①
12.	Workload/burdens on principals/school administrators	④	③	②	①
13.	Research documenting the effectiveness of one recess schedule over another	④	③	②	①
14.	Support for the schedule from school nutrition staff	④	③	②	①
15.	Consideration of existing school facilities, including cafeteria and recess/activity areas	④	③	②	①
16.	Support for the schedule from teachers	④	③	②	①
17.	Children's behavior in the cafeteria	④	③	②	①
18.	Recess period scheduling	④	③	②	①
19.	Impact on meal digestion	④	③	②	①
20.	Consideration of costs	④	③	②	①
21.	Workload/burdens on teachers	④	③	②	①
22.	Logistics of managing backpacks/book sacks	④	③	②	①
23.	Meeting children's dietary/nutritional needs	④	③	②	①
24.	Workloads/burdens on school nutrition staff	④	③	②	①
25.	Class scheduling	④	③	②	①
26.	Making sure children have enough time to eat	④	③	②	①
27.	Support for the schedule from principals/school administrators	④	③	②	①

SECTION III: Implementing a Recess Before Lunch Program

	INSTRUCTIONS: Indicate your opinion about how important each of the following issues would be in terms of successfully implementing a recess before lunch program. Use the scale 4 (VERY IMPORTANT) to 1 (NOT AT ALL IMPORTANT). **In your opinion, if an elementary school adopted a recess before lunch program, how important are the following issues to successful implementation?**	Level of Importance			
		Very Important	Important	Somewhat Important	Not Important
1.	Communication about the program to school administrators	④	③	②	①
2.	Extensive planning ahead for the program	④	③	②	①
3.	Continuous assessment of program costs	④	③	②	①
4.	All involved parties working together to establish policy	④	③	②	①
5.	Communication about the program to children	④	③	②	①
6.	Consideration of program impact on special needs students	④	③	②	①
7.	Evaluation of feasibility of the program in existing facilities	④	③	②	①
8.	Communication about the program to parents	④	③	②	①
9.	Agreement by all members of the school community to adopting the program	④	③	②	①
10.	Research addressing potential negative impacts of the program	④	③	②	①
11.	Support from children for the program	④	③	②	①
12.	Providing all involved parties an opportunity to offer input and voice concerns	④	③	②	①
13.	Marketing the benefits of the program to all involved parties	④	③	②	①
14.	Soliciting input from all involved parties regarding scheduling	④	③	②	①
15.	Continuous assessment of program effectiveness	④	③	②	①
16.	Consideration of hand washing logistics	④	③	②	①
17.	Support from school nutrition staff for the program	④	③	②	①
18.	Communication about the program to teachers	④	③	②	①
19.	Research addressing program benefits/effectiveness	④	③	②	①
20.	Support from school administrators for the program	④	③	②	①
21.	Commitment to try the program for a specified period of time	④	③	②	①
22.	Learning from other districts/schools with similar programs	④	③	②	①
23.	Communication about the program to school nutrition staff	④	③	②	①
24.	Consideration for storing children's personal belongings	④	③	②	①
25.	Support from teachers for the program	④	③	②	①
26.	Creating a timeline for program implementation	④	③	②	①
27.	Planning for materials/supplies/equipment that might be required	④	③	②	①
28.	Advance consideration of all scheduling issues	④	③	②	①
29.	Maintaining a positive attitude about the program	④	③	②	①
30.	Being flexible with respect to scheduling	④	③	②	①
31.	Having strong leadership for the program	④	③	②	①
32.	Support from parents for the program	④	③	②	①
33.	Providing training for school nutrition staff	④	③	②	①

SECTION IV: Program and Personal Characteristics

1. Which of the following best describes your job title?
   - ◯ School Nutrition Director
   - ◯ Principal/Assistant Principal
   - ◯ Teacher

2. In what USDA region do you work?
   - ◯ Western - AK, AZ, CA, GU, HI, ID, NV, OR, WA
   - ◯ Mountain Plains - CO, IA, KS, MO, MT, ND, NE, SD, UT, WY
   - ◯ Midwest - IL, IN, MI, MN, OH, WI
   - ◯ Northeast - CT, MA, ME, NH, NY, RI, VT
   - ◯ Mid-Atlantic - DC, DE, MD, NJ, PA, PR, VA, VI, WV
   - ◯ Southeast - AL, FL, GA, KY, MS, NC, SC, TN
   - ◯ Southwest - AR, LA, NM, OK, TX

3. In your professional role, are you aware of discussions or information regarding the scheduling of recess placement in elementary schools?
   - ◯ Yes
   - ◯ No

4. If you answered yes to question 3, which of the following is/are sources of the discussion or information? Choose all that apply.
   - ◯ Professional journals or magazines
   - ◯ Professional conferences or meetings
   - ◯ Information from state associations
   - ◯ Information from national associations
   - ◯ Personal experience working in a school/district with recess before lunch
   - ◯ Knowledge of the experiences of other schools or districts
   - ◯ School wellness committee discussions
   - ◯ Information from a sample wellness policy

5. In your opinion, does currently available research/information support the benefits of scheduling recess before lunch? Choose the statement that best describes your opinion.
   - ◯ I am not aware of any research/information on this issue.
   - ◯ Yes, research/information supports scheduling recess before lunch.
   - ◯ No, research/information does not support scheduling recess before lunch.
   - ◯ There is not enough research/information available on this issue to make an informed decision.
   - ◯ I have no opinion on this issue.

6. Do you support the scheduling of recess before lunch in elementary schools?
   - ◯ Yes, I support scheduling recess before lunch.
   - ◯ No, I do not support scheduling recess before lunch.
   - ◯ I have no opinion on this issue.

Principals/Assistant Principals and Teachers, Answer Questions 7 and 8 (Next Page)

School Nutrition Directors, skip to Question 9 (Next Page)

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These questions are for Principals/Assistant Principals and Teachers only.

7. Which of the following best describes the elementary school in which you work?

- ◯ Recess is scheduled after lunch for all students.
- ◯ Recess is scheduled before lunch for all students.
- ◯ Some students have recess after lunch, and some have recess before lunch.
- ◯ There is no recess at my school.

8. In your elementary school, which grades have recess scheduled before lunch? Choose all that apply.

- ◯ Pre-Kindergarten
- ◯ Kindergarten
- ◯ Grade 1
- ◯ Grade 2
- ◯ Grade 3
- ◯ Grade 4
- ◯ Grade 5
- ◯ Grade 6
- ◯ None of the children in my school have recess scheduled before lunch

These questions are for School Nutrition Directors Only

9. Which of the following best describes the elementary schools in your district? Answer this question regarding elementary schools only.

- ◯ None of the elementary schools in my district have a recess before lunch schedule.
- ◯ Some of the elementary schools in my district have a recess before lunch schedule.
- ◯ All of the elementary schools in my district have a recess before lunch schedule.

10. What is your certification status? Choose all that apply.

- ◯ Not certified
- ◯ State Department of Education certified
- ◯ SNA certified
- ◯ SNS (formerly SFNS) credentialed
- ◯ Registered Dietitian
- ◯ Licensed Dietitian/Nutritionist

Thank you for taking the time to complete and return this survey!

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Appendix F

Pilot Survey Evaluation Form

Pilot Survey Evaluation Form

Recess Placement Issues in Elementary Schools

Thank you for assisting us in the review of this scannable survey. We also want to be sure that the cover letters and scannable survey are clear and easy to respond to before beginning our research study. Please assist us by answering the following questions. Revisions will be made based on your suggestions.

Cover Letter - School Nutrition Director	**YES**	**NO**	**Recommendations for Improvement**
Did the cover letter clearly indicate the purpose of the research? If not, suggest improvement.			
Did the cover letter clearly indicate what is expected of the school nutrition director? If not, suggest improvements.			
Cover Letter - Study Participants	**YES**	**NO**	**Recommendations for Improvement**
Did the cover letter clearly indicate the purpose of the research? If not, suggest improvement.			
Did the cover letter clearly indicate what is expected of the study participant? If not, suggest improvements.			
Section I: Your Opinion on Recess Placement Issues	**YES**	**NO**	**Recommendations for Improvement**
Were the instructions for completing the section clear? If not, suggest improvement.			
Were the statements written clearly? If not, suggest improvement.			
Were there statements in this section that you would exclude from the survey? If yes, indicate the statement(s) that you would exclude.			

Were there any other statements that you would include in this section? If yes, indicate the statement(s) that you would add.			
Were the response categories understandable? If not, suggest improvement.			
Section II: Issues to Consider When Scheduling Recess	**YES**	**NO**	**Recommendations for Improvement**
Were the instructions for completing the section clear? If not, suggest improvement.			
Were the statements written clearly? If not, suggest improvement.			
Were there statements in this section that you would exclude from the survey? If yes, indicate the statement(s) that you would exclude.			
Were there any other statements that you would include in this section? If yes, indicate the statement(s) that you would add.			
Were the response categories understandable? If not, suggest improvement.			
Section III: Implementing Recess Before Lunch	**YES**	**NO**	**Recommendations for Improvement**
Were the instructions for completing the section clear? If not, suggest improvement.			
Were the statements written clearly? If not, suggest improvement.			
Were there statements in this section that you would exclude from the survey? If yes, indicate the statement(s) that you would exclude.			

Were there any other statements that you would include in this section? If yes, indicate the statement(s) that you would add.			
Were the response categories understandable? If not, suggest improvement.			
Section IV: Program and Personal Characteristics	**YES**	**NO**	**Recommendations for Improvement**
Were the instructions for completing the section clear? If not, suggest improvement.			
Were the statements written clearly? If not, suggest improvement.			
Were there statements in this section that you would exclude from the survey? If yes, indicate the statement(s) that you would exclude.			
Were there any other statements that you would include in this section? If yes, indicate the statement(s) that you would add.			
Were the response categories understandable? If not, suggest improvement.			

How long did it take you to complete the scannable survey? _____ Minutes

In the space below, indicate any additional suggestions for improvement of the scannable survey.

Thank you for your assistance!

Appendix G

Survey Packet Cover Letter for School Nutrition Directors

Dear School Nutrition Director:

The National Food Service Management Institute (NFSMI), Applied Research Division, is conducting a national study to investigate the perceptions and practices of school nutrition directors, principals, and teachers related to recess placement issues in elementary schools. You play a vital role in the success of this study. We need your help to distribute the survey packets as listed in the steps below.

Step 1 – Select an elementary school in your district. If you have more than one elementary school, please select an elementary school with a supportive principal.

Step 2 – The survey packets are labeled for each of the study participants (school nutrition director, principal, and teacher). The teacher survey packet is clipped to the principal's packet.

- Please distribute those surveys to the school principal at the school selected in Step 1.
- Please request that the principal select and distribute the survey packet to one teacher, as instructed on the principal's survey packet.
- Please ask that each study participant complete his/her survey without assistance from others who are also completing the survey.

Step 3 – Complete the survey in the packet labeled school nutrition director and return the survey in the enclosed self-addressed, postage-paid envelope **on or before May 2, 2007**. You may complete the school nutrition director survey independently or in cooperation with one of your elementary school managers.

Step 4 – Remind the study participants to complete and return their surveys in the enclosed self-addressed, postage-paid envelope provided to them **on or before May 2, 2007.**

In each packet, there is a cover letter explaining the study, survey, and a self-addressed, postage-paid envelope. The survey is to be completed by the study participants previously identified. It should take approximately 20 minutes to complete the survey. We are asking participants to return their completed survey in the envelopes provided **on or before May 2, 2007.**

School professionals representing the study participant groups contributed to the development of the survey, as NFSMI realizes that our research efforts are made better by involving those at the local level. The results of this study will assist USDA, state agencies, and NFSMI in the development of resources for local school districts.

Due to the anonymous nature of this study, there are no identifying codes linking responses to any individuals. We solicit open and honest answers. We also ask that each person respond based on his/her position as requested on the survey packet. Thank you for taking time from your busy schedule to distribute the survey packets, complete your survey, and return it **on or before May 2, 2007**. If you have any questions, please do not hesitate to contact us by email at Wendy.Bounds@usm.edu or Mary.Nettles@usm.edu or telephone at 1-800-321-3054.

Sincerely,

Wendy Bounds, PhD, RD
Researcher

Mary Frances Nettles, PhD, RD
Research Scientist

Enclosure

This project has been reviewed by the Human Subjects Protection Review Committee at The University of Southern Mississippi, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406, (601) 266-6820.

Appendix H

Survey Cover Letter for Participants

Dear Study Participant:

The National Food Service Management Institute (NFSMI) is a national center that conducts applied research and provides information and services that promote the continuous improvement of Child Nutrition Programs. The Applied Research Division of NFSMI is conducting a research study to investigate the perceptions and practices of school nutrition directors, principals, and teachers related to recess placement issues in elementary schools. We developed this survey based on focus group discussions with school nutrition directors, principals, and teachers in elementary schools across the country. We solicit your open and honest answers and ask that you respond based on your opinions about recess placement issues in elementary schools. Due to the anonymous nature of the study, there are no identifying codes that link your responses to you.

In this packet, you will find a survey and a self-addressed, postage-paid envelope. The survey is to be completed by you and should take approximately 20 minutes of your time. Several school professionals in your school district have been asked to complete the survey as well; please complete your survey without assistance from those who are also completing the survey. Please return the completed survey in the envelope provided **on or before May 2, 2007**. If you have questions, please do not hesitate to contact us by email at Wendy.Bounds@usm.edu or Mary.Nettles@usm.edu or by telephone at 1-800-321-3054.

Sincerely,

Wendy Bounds, PhD, RD
Researcher

Mary Frances Nettles, PhD, RD
Research Scientist

Enclosure

This project has been reviewed by the Human Subjects Protection Review Committee at The University of Southern Mississippi, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research subject should be directed to the chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406, (601) 266-6820.

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

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