Environmental Scan and Formative Research of Student Engagement Practices in Support of School Meal Programs – Phase I

2021
Applied Research Division
The University of Southern Mississippi
1-800-321-3054

Environmental Scan and Formative Research of Student Engagement Practices in Support of School Meal Programs – Phase I

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2021

Institute of Child Nutrition
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This project has been funded at least in part with Federal funds from the U.S. Department of Agriculture, Food and Nutrition Service, through an agreement with the Institute of Child Nutrition at the University of Mississippi. The content of this publication does not necessarily reflect the view or policies of the U.S. Department of Agriculture, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.

Suggested Reference Citation:
Institute of Child Nutrition. (2021). *Environmental scan and formative research of student engagement practices in support of school meal programs – Phase I.* University, MS: Author.

5/18/2021

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EXECUTIVE SUMMARY

Student participation and positive engagement are the foundation of a successful school meal program. Participation in school meal programs has become an increasing challenge, as additional National School Lunch Programs (NSLP) regulations have been released. School food authorities are tasked with serving nutritious and flavorful food, including free and reduced-price lunches for low-income students, all while under noted budget restraints. This was a recognized challenge, one that has been referred to as the school meal "trilemma," which involves maintaining the meal's nutritional value, managing program costs, and encouraging student participation in the program. A change to one part of the trilemma can have an unintended impact on either or both of the other components. Shifting student tastes, competing foods, and shortened mealtimes can all negatively impact student participation in the NSLP.

Student engagement is an interactive strategy to involve youth as important and dynamic, hands-on participants in programs. The self-determination theory suggests that engagement can increase both intrinsic motivation and dedication to an idea or habit. School food authorities, allied organizations, and school food industry vendors all work to increase student engagement.

This project was designed to accomplish the following research objectives:

1) Identify specific strategies schools, districts, and stakeholders are utilizing to engage students in school meal program participation and healthy eating behaviors within the context of the school nutrition program (SNP).

2) Determine the methods used to promote sharing of information within the SNP-to-the student and from student-to-student.

3) Assess the impact of each identified strategy on the students' perception of school meals, students' food selection and consumption, school meal program participation, and students' healthy eating behaviors.

A qualitative research design method was utilized to accomplish the research objectives, using semi-structured interviews with SNP stakeholders (n=24). Purposive sampling techniques were conducted to form a broad sample of SN stakeholders, including allied organizations working with SNPs (n=7), SNP industry vendors (n=5), school foodservice management companies [two national companies, one regional company (n=3)], and SNP professionals (n=9). Two SNP professional participants were consultants working with SNPs. The remaining participants worked in school districts in various roles, including SN director, SN dietitian, SN

specialist, and an SN chef (who was also the wellness coordinator). The SNP participants were selected to obtain a diverse sample based on school district student enrollment size (small < 2,800, medium 2,800 – 30,000, large > 30,000) with each group, including participants from various United States Department of Agriculture (USDA) regions and National Center for Education Statistics (NCES) (n.d.) urban-centric locale categories (i.e., city [small, medium, large], suburb [small, medium, large], town [fringe, distant, remote], and rural [fringe, distant, remote]).

The semi-structured interviews were conducted via Zoom teleconferencing and lasted from 60- to 90-minutes per session. The questioning structure utilized in all interviews reflected a Pragmatic inquiry practice and Grounded Theory Method analysis processes. Descriptive statistics were included to add context to the qualitative data collection.

The analysis of data revealed themes and subthemes that resulted from the semi-structured interviews. Based on the findings that emerged in analyzing the strategies and activities used to promote student engagement, three main themes, each with several subthemes, were most prominent. The first major theme was *Adapting to student needs and preferences.* Subthemes included 1) menu development, 2) cafeteria environment, and 3) food accessibility. The second main theme was *Marketing,* and subthemes included 1) social media, 2) digital media, and 3) traditional marketing tools. The third and final theme was *Stakeholder engagement.* Subthemes included 1) nutrition education, 2) communicating with stakeholders, 3) collaborating with stakeholders, 4) involving various stakeholders in activities that promote student engagement, 5) engaging students in decisions related to school meal programs, and 6) employing interactive activities with the students to encourage engagement.

The strategies to promote SNP-to-student sharing of information involved making sure the SNP workers were provided with continuing education, as they had the most interaction with the students daily. Activities such as food-tasting events, cooking competitions, and serving food in the cafeteria promoted interaction and sharing of information between the SNP worker and students.

Peer-to-peer sharing of information occurred when students were involved in making decisions, being a part of advisory committees, and becoming ambassadors or school meal champions. Peer-to-peer marketing and sharing of information were reported to occur through several student engagement activities, including students preparing foods for others to taste, game competitions, school gardening activities, and in some cases, through digital mobile apps.

The impact of the strategies and activities employed by SNP stakeholders included an increase in the consumption of fruits and vegetables and other healthier foods, as well as growth in participation both at breakfast and lunch. Participants reported they observed increases in students consuming healthier foods after participating in activities, such as taste tests, digital contests, and learning to cook foods. The design of the interview guide did not capture quantitative results.

Phase I of this study provided the researcher with more comprehension of the student engagement strategies that SNP stakeholders employ to improve student involvement in school

meal programs. This information is valuable for the development of Phase II, which has been put on hold due to the COVID-19 pandemic. However, based on information collected in Phase I interviews, to better understand training and resource needs, Phase II methodology should take a mixed-method approach, obtain qualitative data, and conduct a national survey to obtain a larger sample size. At this point, the SNP's landscape may look very different post-pandemic, as new challenges may arise; therefore, the clear focus and methodology for Phase II will require additional research.

Although Phase I was not intended to produce training and resource recommendations, participants reported some challenges in implementing student engagement activities during the interviews. The challenges were staffing, lack of stakeholder support and assistance, finances and budgets, not having enough time for the activities, and using technology. This information may guide future research endeavors.

RESEARCH BRIEF

Purpose of Study

The purpose of this study was: to 1) identify specific strategies schools, districts, and stakeholders are utilizing to engage students in school meal program participation and healthy eating behaviors within the context of the school nutrition program (SNP); 2) determine the methods used to promote sharing of information within the SNP-to-student and from student-to-student; and 3) assess the impact of each of these strategies on the students' perception of school meals, students' food selection and consumption, school meal program participation, and students' healthy eating behaviors. Phase I results were designed to build into Phase II of the study, which proposed visits to school districts to interview SN directors and stakeholders; however, due to the COVID-19 pandemic, Phase II was canceled at that time. Results of this study will inform the United States Department of Agriculture, Food and Nutrition Service (USDA, FNS) on what student engagement activities are occurring concerning student engagement in school meal program participation and promotion, as well as what is being done to promote healthy eating practices. This information can help guide the development of technical assistance, training, or resource development dedicated to student engagement in school meal programs.

Method

A qualitative research design was utilized for this study. Purposive sampling with maximum variation sampling strategy was used to identify a diverse selection of SNP stakeholders that use strategies and activities that encourage involvement in school meal programs and healthy eating activities. Data were gathered through semi-structured interviews via Zoom technology. The Grounded Theory Method (traditional, interpretive) was utilized for analysis.

Findings

Phase I was instrumental in garnering SNP stakeholders' knowledge about the strategies and activities to increase participation, promote healthy nutrition in schools, and report the challenges and best practices involved in employing those strategies and activities. Findings from this study identified three emerging themes of strategies that SNP stakeholders use to engage students in school meals to maintain or increase school meals program promotion and participation. One theme was *Adapting to student needs and preferences*, with subthemes of 1) menu development, 2) the cafeteria environment, and 3) food accessibility. Another theme was *Marketing* the SNP, with subthemes of 1) social media, 2) digital media, and 3) traditional marketing tools. The third theme was *Stakeholder engagement*. The stakeholder refers to those involved with the student or the school community, such as parents, school administration and staff, SN professionals, community members, and students. Stakeholder engagement had subthemes of 1) nutrition education, 2) communicating with stakeholders, 3) collaborating with stakeholders, 4) involving various stakeholders in activities that promote student engagement, 5)

engaging students in decisions related to school meal programs and 6) employing interactive activities with the students to encourage student engagement.

The strategies to promote SNP-to-student sharing of information involved making sure the SNP staff were provided with continuing education, as they had the most interaction with the students daily. Activities, such as food tasting events, cooking competitions, and serving food in the cafeteria, promoted interaction and sharing of information between the SNP staff and the students.

It was revealed that the student-to-student sharing of information occurred in several different ways. When students are involved in making decisions, a part of advisory committees, or ambassadors or school champions, they share information. Peer-to-peer marketing and information sharing were reported to occur through several student engagement activities, including students preparing foods for others to taste, game competitions, school gardening activities, and in some cases, through digital mobile apps.

The data obtained from Phase I provided the researcher with more knowledge of the student engagement strategies that SNP stakeholders employ to improve student involvement in school meal programs. This information is valuable for the development of Phase II.

Future Research

Phase II of the *Environmental Scan and Formative Research of Student Engagement Practices in Support of School Meal Programs* should be planned post-pandemic. Phase II's protocol was designed to involve ten site visits to school districts that were recommended, because of student engagement activities that are implemented. During the site visits, interviews and focus groups with stakeholders, including the SN director, SN staff, school administration, parents, community members, and students, were planned. However, based on information collected in Phase I interviews, to better understand training and resource needs, Phase II methodology should take a mixed-method approach by obtaining qualitative data and conducting a survey to obtain a larger sample size. At this point, the SNP's landscape may look very different post-pandemic, as new challenges may arise; therefore, the clear focus and methodology for Phase II will require additional research.

Although Phase I was not intended to produce training and resources recommendations, participants reported some challenges in implementing student engagement activities during the interview. The main challenges were staffing, lack of stakeholder support and assistance, finances and budgets, not having enough time for the activities, and using technology. This information can guide future research endeavors.

BACKGROUND: LITERATURE REVIEW

The National School Lunch Program

The National School Lunch Program (NSLP) is one of the most extensive nutrition assistance programs in the United States, feeding millions of school-aged children daily. The NSLP was established under the Richard B. Russell National School Lunch Act (NSLA), signed into law by President Harry Truman in 1946. The NSLP operates in public and nonprofit private schools and residential child-care institutions. It provides low-cost or no-cost lunches, also known as reduced-price or free school lunches, respectively. It also offers opportunities to obtain nutrition education (U.S. Department of Agriculture, Food and Nutrition Service, 2020a). The Food and Nutrition Service of the USDA administers the NSLP at the Federal level. At the State level, the NSLP is administered by State agencies. In return, school food authorities (SFA) operate the NSLP through agreements with State agencies. (U.S. Department of Agriculture, 2017). In school years 20172018 and 20182019, about 29.7 million children participated in NSLP, where 68% received free meals, and six percent received reduced-price meals (U.S. Department of Agriculture, Food and Nutrition Service, 2020c). Congress identified the support of children's health and welfare as the main goal of the NSLP. In the early years, the NSLP combated malnutrition due to poverty, but this focus has shifted to childhood obesity (Ralston et al., 2008).

The meals provided under the NSLP are required to be nutritionally balanced and to reflect the Dietary Guidelines for Americans (DGAs), which can positively influence a child's dietary intake and nutritional status. The schools that participate in the program receive cash subsidies and USDA Foods for each reimbursable meal they serve (free or reduced-price meals). To receive Federal support, the meals must comply with the meal pattern that reflects DGAs. The new meal pattern included increased availability of fruits, vegetables, whole grains, and fat-free or low-fat fluid milk in school meals; reduction in the level of sodium, *trans* fats, and saturated fats in school meals; and modifications in serving sizes to meet the nutritional needs of the children, according to grade level ranges (i.e., K5, 68, and 912) (Au et al., 2016; Hager & Turner, 2016; Mansfield & Savaiano, 2017; Marcason, 2012; Oliveira, 2018; U.S. Department of Agriculture, 2012, 2017; U.S. Department of Agriculture, Food and Nutrition Service, 2016a; U.S. Department of Health and Human Services & U.S. Department of Agriculture, 2015).

The National School Lunch Program Policy Overview

The Child Nutrition Act (CNA) of 1966 and amendments to the NSLA and CNA merged the program's administration. Additionally, the creation of the Child and Adult Care Food Program (CACFP), the School Breakfast Program (SBP), and the Summer Food Service Program extended nutrition assistance (USDA, FNS, 2010). In the late 1970s, concerns were raised by some policymakers over the high program cost of the school meal programs. Changes were made with the passage of the Omnibus Budget Reconciliation Acts in 1980 - 81, which reduced subsidies for paid meals while expanding the income requirements for free meals eligibility. In response, meal prices were increased to make up for the reduction in subsidies, and participation rates dropped by 14% (J. Jones, 1981).

Concerns regarding children's health began to rise during the 1990s. The USDA established the School Meals Initiative in response to the Healthy Meals for Americans Act of 1994, which mandated that schools serve DGA-compliant meals. The School Meals Initiative introduced a new menu-planning system, created by Team Nutrition, to help schools design healthy menus with reduced sodium and fat content that were also appealing to children (U.S. Department of Agriculture, n.d.; U.S. Department of Health and Human Services & U.S. Department of Agriculture, 2015). Some notable changes in SN policy and regulation in the last century are outlined in Figure 1. It is important for us to understand how NSLP evolved over the years and got its present shape.

Table 1

National School Lunch Program Timeline

National School Lunch Program Timeline During the Last Century	
1900s	Fund raising began for providing school lunch on-site in response to growing malnutrition among students
1930s	• Agriculture surplus and Federal loans were provided to locally organized school lunch programs • The USDA was authorized to collect surplus farm commodities (later called USDA Foods) and supply them to local school lunch programs
1943	Special Milk Program was established, later became a part of NSLP, and was designated as Type C school meal.
1946	Establishment of the National School Lunch Act (NSLA), which introduced the NSLP. NSLP had the following characteristics: • Lunches were available to all students without discrimination. • Lunches could be provided at low cost or no cost to the students. • The school nutrition program had to be a nonprofit entity. • Lunches provided in school had to be nutritious; three types of meals prescribed were Type A, B, and C. • Schools were required to share details about the program, especially program expenditure, with the State agency.
1962	• The funding source changed from grant aid to state-funded guaranteed program. • Schools with higher low-income students were entitled to receive more funds.

(Federal Register, 2018, 2019; Gunderson, 1971; U.S. Department of Agriculture, Food and Nutrition Service, 2011, 2018)

(Table 1 continues)

(Table 1 continued)

National School Lunch Program Timeline

National School Lunch Program Timeline During the Last Century	
1966	Child Nutrition Act (CNA) was signed into law. Characteristics of CNA were: • Integrates school foodservice program into one program administered by USDA • Established and ran a two-year school breakfast program pilot • More funding for schools with a higher low-income population
1968	• Child and Adult Care Food Program (CACFP) was established under NSLA. • A three-year pilot of the Summer Food Service Program (SFSP) was established to provide meals to school-going students when school is not in session.
1970	The guidelines were established on free and reduced-price school meals, based on income poverty guidelines dependent on household composition.
1975	The School Breakfast Program was permanently authorized and established under NSLA.
1980	First *Dietary Guidelines for Healthy Americans* was established.
198081	Sharp budget cuts in NSLP under the Omnibus Budget Reconciliation Act of 1981.
1991	*Healthy People 2000: National Health Promotion and Disease Prevention* objectives called on NSLP to increase the nutritional standards of school meals so that it meets 90 percent of the standards set by DGAs by the year 2000.
1994	Healthy Meal for Healthy Americans Act requires the school meal to conform to the DGAs standards by the year 1996.
2002	The Fruit and Vegetable Pilot Program was set in four states to provide fresh and dried fruits and fresh vegetables for school students.
2004	Child Nutrition and WIC Authorization Act of 2004 brought in the following changes: • The Fresh Fruit and Vegetable Program was permanently established. • Direct certification of school meals was phased in over a period. • Hazard Analysis and Critical Control Point (HACCP) was established to ensure the food safety of school meals. • School food authorities were required to develop a local wellness plan to establish nutritional standards for all foods available in schools and to set goals for the physical fitness of school students

(Federal Register, 2018, 2019; Gunderson, 1971; U.S. Department of Agriculture, Food and Nutrition Service, 2011, 2018)

(Table 1 continues)

(Table 1 continued)

National School Lunch Program Timeline

National School Lunch Program Timeline During the Last Century	
2010	Healthy, Hunger-Free Kids Act (HHFKA) was established, which is considered the first act in three decades that allowed USDA to bring in significant changes in school meals' nutritional standards. The characteristics of HHFKA were: • Updated food quality and quantity available to school students, including: o Offer both fruits and vegetables every day of the week. o Increase the availability of whole grain-rich foods. o Offer only fat-free or low-fat milk. o Limit calories based on age to ensure proper portion sizes. o Increase the focus on reducing the amounts of saturated fat, *trans* fats, added sugars, and sodium. • Improved direct certification process and allowed mass eligibility through community eligibility program • Performance-based reimbursement rate increased to incentivize early compliance • Local wellness policy implementation • Availability of free potable water with every meal • Reporting and reviewing of school performance by school food authorities • Increased access to local food and support farm to school programs • Removed limit on the number of nonprofit sites that can participate in and provide SFSP • Established about $10 million funding for research on childhood hunger FLEXIBILITIES UNDER HHFKA: • More milk options in the National School Lunch Program and School Breakfast Program by allowing local operators to permanently offer flavored, low-fat milk (1% fat) and requiring that unflavored milk (low-fat or fat-free) be available at each school meal service o For consistency across nutrition programs, the same is allowed in the Special Milk Program for Children and the Child and Adult Care Food Program for participants ages six and older. • Effective SY 20142015, half of the weekly grains in the school lunch and breakfast menu be whole grain-rich, thus ending the need for the exemption process. • More time allowed schools to gradually reduce sodium by retaining Sodium Target 1 through the end of the school year (SY) 20232024, continuing to Target 2 in SY 20242025, and eliminating the Final Target that would have gone into effect in SY 20222023.

(Federal Register, 2018, 2019; Gunderson, 1971; U.S. Department of Agriculture, Food and Nutrition Service, 2011, 2018)

Nutrition Education

Apart from providing free meals, access to nutrition education is another goal of Federal food and nutrition assistance programs. Nutrition education to school children was delivered by conducting professional development workshops for schoolteachers, who can then design nutrition education for their students (Rosario et al., 2016). School interventions to provide nutrition education interventions included weekly fruit, vegetable, and physical activity lessons, taste tests, and educational materials for parents. While nutrition education has positive effects on children, demonstrated by an increase in fruit and vegetable intake (Keihner et al., 2017; Rosario et al., 2016), these programs fail to effectively communicate nutrition-related information to a child's family. Interventions, such as nutrition education sessions and cooking demonstrations, affected the eating behavior of school children. These children's families also received recipe books and other educational materials, but the implementation of these interventions did not change the family's eating behavior. Therefore, NSLP participants' home-based eating behavior and food routine were not positively affected (Weisberg-Shapiro et al., 2019).

Childhood and adolescence are important stages of life, as children and teens are growing and developing. It is crucial to instill healthy eating habits early to ensure adequate physical and mental growth and development. Moreover, these are the life stages when children and adolescents also begin to make independent choices about when, where, and what they eat (Centers for Disease Control and Prevention, 2018; Mansfield & Savaiano, 2017). Poor dietary habits, such as low produce intake among children, can increase the prevalence of chronic and lifestyle diseases such as obesity, high blood pressure, and metabolic syndrome. Successful prevention and treatment of chronic diseases in the early years of life can ensure healthy adulthood (Freedman et al., 1999; Romero-Polvo et al., 2012; Sorof & Daniels, 2002).

Student Engagement

School meal programs must attract and maintain student participation to stay financially viable. This has become increasingly challenging, as more stringent nutrition/meal pattern regulations have been put on the NSLP (Cohen et al., 2015; Federal Register 2012; Johns Hopkins University Bloomberg School of Public Health, 2014; Pope et al., 2018). Unfortunately, mechanisms for increasing NSLP involvement have received scarce attention from researchers (Pope et al., 2018). School food authorities are tasked with serving nutritious and flavorful food, including free and reduced-price lunches for low-income students, all while under budget restraints. In 2016, the Pew Charitable Trusts surveyed 489 SN managers throughout the nation, and 60% reported facing significant challenges trying to comply with the mandated requirements (Grill, n.d.).

Maintaining the meal's nutritional value, managing program costs, and encouraging student participation in the school meal program can be a challenge, one that has been referred to as the school meal "trilemma." A change to one part of the trilemma can have an unintended impact on either or both of the other components (Ralston et al., 2008). Shifting student tastes, competing foods, and shortened mealtimes can all negatively impact student participation in the NSLP.

Student engagement is an interactive strategy to involve youth as important and dynamic, hands-on participants in programs (MacArthur et al., 2016). Self-determination theory suggests that engagement can increase intrinsic motivation and dedication to an idea or habit (Ryan & Deci, 2000). For example, a study that took place in four Nebraska public elementary schools investigated vegetable consumption and plate waste utilizing 1,614 observations and digital photography to validate the results. Findings indicate that while each of the intervention groups increased vegetable consumption, the children exposed to the marketing materials they created significantly increased their consumption of vegetables, more than doubling their vegetable consumption (Gustafson et al., 2017). In addition to creating buy-in for the SNP, similar studies suggest that designing the materials helps educate and shape student attitudes regarding their nutritional habits (Sharps & Robinson, 2016). Similarly, participation in school gardening projects has also been found to boost student attitudes about food and improve their willingness to taste and consume vegetables (Carney et al., 2012; Gatto et al., 2012; Ratcliffe et al., 2011). Student engagement in cooking has been shown to improve the likelihood that children will eat the meals they helped prepare (Chu et al., 2013; Van Der Horst et al., 2014).

School nutrition professionals, allied organizations, and school food industry vendors all work to increase student engagement. They increase student engagement by involving students on student nutrition councils or advisory committees and by getting student input on menu creation. Student engagement can also occur through student surveys, conducting focus groups, taste testing events, and taking students on field trips to school industry conferences or restaurant food shows. Fun-themed events, contests, and marketing to students can also play a significant role in promoting NSLP during school, sporting, and/or community events and on diverse social media platforms (Rowser & Castillo, 2013). Studies have found that educational activities that stress student participation while exposing them to new foods can be successful (Liquori et al., 1998).

Local Wellness Policy Boards and School Health Advisory Councils

The Child Nutrition and Women, Infants, and Children (WIC) Reauthorization Act of 2004 included the requirement that every local educational agency (LEA) participating in the NSLP develop a "local school wellness policy." The purpose of the written policy is to "encourage nutrition education while emphasizing the importance of physical activity" (U.S. Department of Agriculture, Food and Nutrition Service, 2019). As of School Year 20062007, all districts must establish a Local Wellness Policy (LWP), a written document intended to promote healthy school environments. These written guidelines were designed to promote healthy nutrition and increased physical activity in students. The LWP must be approved by the school board and/or the local school authority, and it is up to the School Health Advisory Councils (SHACs) to design a plan for LWP implementation in their school. The SHAC consists of diverse stakeholders, such as parents, students, schoolteachers, administrators, student nutrition staff, and community members. Their job is to implement the LWP into their school environment through strategic planning, goal setting, and implementation. The committee can provide input on school menus, recipe development, feedback on the school menu, promote and market the menu to other students, and help manage the SN services' social media communications.

The Healthy, Hunger-Free Kids Act (HHFKA) of 2010 legislation expanded upon the 2004 legislation in that it emphasized a need for schools to focus on implementation, evaluation, and reporting of LWPs. The law required schools to follow the requirements of the final rule by June 30, 2017. These requirements include the items below:

- Identify one or more school official(s) who will be responsible for LWP leadership and for ensuring compliance.
- Allow students, parents, teachers of physical education, school health professionals, school board members, teachers and administrators, and the general public to participate in the design, implementation, assessment, and update of the LWP.
- Inform the community about the specific goals of the LWP, evidence-based strategies for implementation, and evaluation of the LWP.
- Reinforce nutrition guidelines for all foods and beverages on the school campus, including school meal nutrition standards, Smart Snacks in SN standards, and the policies for any additional foods and beverages available on the school campus during the school day (e.g., in classroom parties, incentives, etc.).
- Develop marketing policies that allow only the advertising of foods and beverages that comply with the Smart Snacks in SN standards.

The LWPs are further strengthened by the HHFKA. Diverse stakeholders, including school students, develop such policies. All LWPs must be evaluated at least once every three years to assess the policy's ability to improve overall student wellness, as school wellness policies are only useful if and when they are implemented (Gaines et al., 2011; Lanier et al., 2011; Schwartz et al., 2015). Research shows that student involvement in designing and implementing SN policies has been shown to increase student acceptance of school meals and enhance health-promoting behaviors. Student involvement in the development of LWPs also resulted in comprehensive and rigorous policies (Jomaa et al., 2010; U.S. Department of Agriculture, Food and Nutrition Service, 2014, 2016b). The extensiveness and effectiveness of wellness policies vary by district size. The smaller districts in their study utilize stronger language in their policies and comply more closely with government standards than the larger districts (Meendering et al., 2016). It was also determined that elementary schools have been more successful in implementing LWPs than middle and high schools (Mâsse et al., 2013).

Despite these variations in implementation and evaluation, LWP implementation should be a recommended strategy for school wellness promotion. In 2013, administrators from 1,333 schools completed surveys following the 20122013 and 20142015 school years and found that schools with wellness committees had higher LWP implementation than schools without committees (McIlree et al., 2019).

Food Marketing Aimed at Children

Food and beverage marketing can be found throughout the school environment, from scoreboards to posters to vending machines. Before HHFKA legislation, many of the foods marketed in schools were of low nutritional quality (Gustafson et al., 2017). Much like the push to ban alcohol and tobacco from television, health advocates began targeting junk food advertising as detrimental to public health. Sugary breakfast cereal, high-calorie snacks, and

fast-food advertisements make up many advertisements on children's television. With childhood obesity at an all-time high, there has been a considerable surge in the amount of research being done on the impact of advertising on children's diets. A high correlation between the number of hours children viewed television and their eating preferences has been found (Harris et al., 2009; Harris et al., 2009; Horgen et al., 2001). These studies made the case that it is not the sedentary lifestyle to blame; instead, it is the junk food advertisements. Other studies have documented just how effective these advertisements are in shaping and changing eating behavior (Borzekowski & Robinson, 2001; Taras et al., 1989).

A three-year study was conducted, involving 2,454 parents with children aged 217 in 2009, 2010, and 2011 to learn about their perceptions of food marketing and how it affects their children's food preferences. Findings indicate that many parents would support policies to limit unhealthy food and beverage marketing to children. Eighty-one percent of parents stated that they were as concerned about unhealthy food marketing as they are about alcohol and cigarette marketing to children. The percentage of parents who believe that food marketing negatively affects their children's food choices rose from 59% in 2009 to 65% in 2011. The majority of parents favored regulation prohibiting junk food advertising to children under 12, including advertising in schools, TV advertising, viral marketing, mobile marketing, and online advertising (Fleming-Milici et al., 2013).

In contrast, marketing techniques designed to promote healthy nutritional habits can positively impact student behavior (Hanks et al., 2012, 2013). There have been calls among health organizations to engage in healthy food marketing to increase students' nutritious food habits. The American Academy of Pediatrics, the Centers for Disease Control and Prevention, and the Institute of Medicine recommend that school districts implement policies and practices to promote foods and beverages that support healthful diets.

School Marketing Plans

In 2013, the Institute of Child Nutrition (formerly called National Food Service Management Institute) published a resource entitled ***Best Practices for Marketing the School Nutrition Program***. Based on recommendations from across the United States, SN professionals gave input on the best practices for marketing NSLP. These best practices were designed to increase participation in the NSLP while increasing revenue. This online resource was designed to be utilized as a tool for self-assessment and program planning. Within the guide, goals and best practice statements are provided to develop and implement a school-wide marketing initiative. Specific best practices focus on involving the SN staff, how and why to communicate the initiative to various stakeholders, and how students benefit by engaging in the marketing initiative. The best practices for student engagement and marketing included involving multiple students, parents, and diverse stakeholders to be engaged in giving program feedback, marketing the program throughout the school and on social media, and increasing student buy-in by implementing student-centered activities such as recipe contests, taste tests, and nutrition mascots. Offering alternative foodservice programs such as reimbursable vending machines, grab-and-go options, and breakfast in the classroom was also recommended to increase student engagement and meet the changing needs of students (Rowser & Castillo, 2013).

Researchers at the Pew Research Center (Anderson & Jiang, 2018) found that American teens between the ages of 13-17 used several forms of social media. The survey results indicated that YouTube was reported to be used the most at 85%, followed by Instagram (72%), Snapchat (69%), Facebook (51%), and Twitter (32%). The site Reddit was reported by only 7% of survey respondents. Ninety-five percent of participants reported they have a smartphone or access to one and, 45% reported they are online on a near-constant basis. Additional research from the Pew Foundation (2019) indicates that adults visit the same social media sites daily that teens do, but in different frequency: YouTube (73%), Facebook (69%), Instagram (37%), Pinterest (28%), LinkedIn (27%), Snapchat (24%), and Twitter (22%). Food advertisers have recognized that marketing efforts to reach children and adolescents need to shift to forms of media used by their target audience. They are utilizing multi-dimensional marketing techniques, such as video games, online videos, text messaging, and social networks, that use the child's or adolescent's connectivity with his or her friends to promote food, beverages, or restaurants (Yale Rudd Center for Food Policy and Obesity, 2013). The commercial fast-food industry has invested heavily in marketing on social media that is popular with teens and has seen a positive response. In 2012, fast-food restaurants placed 6 billion display ads on Facebook, accounting for 19% of their online advertising. Starbucks was the most popular in the industry on social media, with 35 million Facebook likes and 4.2 million Twitter followers. McDonald's and Subway had more than 23 million Facebook likes, and more than 1.4 million Twitter followers each. Increases in Facebook likes from 2010 to 2013 for these three social-media advertisers ranged from 208% to 1007%, while increases in Twitter followers for the same advertisers during the same period ranged from 326% to 6406% (Yale Rudd Center for Food Policy and Obesity, 2013).

School Mascots and Cartoon Characters

Costume-wearing characters are being utilized throughout schools to promote student engagement and nutrition education. Research has found while using cartoon characters and mascots to promote healthy eating is favorable; the effects tend to be minor and are dependent on a students' level of exposure (Hanks et al., 2016; Olesen et al., 2016). Therefore, it is best practice to combine cartoon characters or mascots with additional marketing strategies and student engagement approaches. For example, in 2014, an empirical study examined the effects of cartoon characters on elementary school children's selection of fruits and vegetables. These cartoon characters were coupled with a reward-based game in the cafeteria that encouraged students to finish their produce. This intervention increased actual fruit consumption by over 5% from the pre-implementation phase for grades one, two, and three. Likewise, the frequency of trays with a fruit serving grew by 17%, 7%, and 10% for grades one, two, and three, which significantly increased (Thapa, 2018). A similar field experiment examined vegetable consumption from ten elementary schools who were exposed for six weeks to a randomly assigned to a control condition or 1 of 3 treatment conditions: 1) a vinyl banner displaying vegetable cartoon characters located close to the salad bar, 2) short television "commercials" featuring vegetable characters, or 3) a combination of the cartoon banner and the television messages. Findings showed that while the consumption of vegetables rose across all media types, more students took vegetables from the salad bar when exposed to the vinyl banner only, and 239.2% (from 10.2% to 34.6%; $p < .001$) more students visited the salad bar when exposed to both the banners and the television messages.

While much more empirical research is needed on the impact of utilizing costumed characters, reports from across the country indicate that school mascots play an important role in engaging students around nutrition (Gingerella, 2020). For example, The Minneapolis School District's B. Well Bee visits elementary and middle schools during lunchtime throughout the year. B. Well Bee also attends the True Food Taste Tests, which occur three times during the year at lunchtime. These taste tests and samplings expose children to new flavors and encourage them to try new things. In Los Angeles, the mascot, La Ray's job duties include "smiling, waving, giving high-fives, moonwalking and jumping with excitementall to get our students and parents excited about the many meal programs offered throughout Los Angeles Unified." In Lake Charles, the Louisiana Chef Buddy educates students about how each food plays a unique role in their bodies and how it is essential to eat all kinds of foods with an emphasis on fruits and vegetables. Along with education, Chef Buddy works with students, parents, and teachers to taste test new foods and recipes that are being introduced. Surveys are sent to students, parents, and teachers to encourage their feedback on the food and determine that their input is utilized in future menu development (Gingerella, 2020).

Student Taste Tests, Sampling, and Student Input

Students tend to be resistant when foods are added to the menu that they do not recognize (Murimi et al., 2018). Thus, efforts to obtain student feedback on new menu items and offer samples are considered a best practice for SN staff (Rowser & Castillo, 2013). Offering students food samples or conducting taste tests is a commonly utilized marketing method. Enticing customers to try a product before they commit to buying it is a behavioral strategy that effectively increases purchase (Cuddeford-Jones, 2011). Research on the effectiveness of offering food samples to entice consumers to purchase is well-established (Bawa & Shoemaker, 2004). A plethora of research demonstrates children are more likely to eat something if they have been offered several opportunities to try it (Lakkakula et al., 2010; Wardle et al., 2003). This research may lead to the assumption that sampling and taste tests will lead students to choose the food they have tasted, but in actuality, there is little research on the impact of sampling on student lunch choices (Pope et al., 2018).

Only two empirical studies examined the effects of sampling a food item related to SNPs found in the body of literature. A pilot study in 2015 in a Vermont middle school investigated the impact of student sampling. Students were introduced to four entrees in a low-stakes taste test opportunity on the day before the meal was served. This study suggests that sampling may positively affect NSLP participation rates, especially for those eligible for free/reduced-price meals. Aggregate results from each of the new entrées show a significant increase in the percentage of students who chose the sampled entrée and a slight decrease in those who choose another entrée or a la carte item (Pope et al., 2018). In the second study, students standing in the cafeteria line were allowed to sample bell peppers (Elsbernd et al., 2016). Next, they were given a choice to select bell peppers, another vegetable, or no vegetable as part of their lunch. There was no significant difference in the percentage of students consuming vegetables post-intervention, suggesting that the taste sample did not improve its acceptability. While there is limited empirical research on taste testing and its impact on student meal choices, nutrition experts theorize that as students become more acquainted with the new menu items, they become more apt to purchase them.

While allowing students to sample healthy foods is a vital student engagement strategy (Cooke, 2007), there is empirical evidence that food taste is the most influential factor in determining a child's eating habits (Horne et al., 2004; Jonsson et al., 2005; Lakkakula et al., 2010; Lowe et al., 2004; Wardle et al., 2003). There is also a widely held perception that good-tasting foods cannot be healthy (Cho & Nadow, 2004; Freeland-Graves & Nitzke, 2002). This can lead to a challenge for SNPs that are implementing SN guidelines. Cooking food onsite and at the right temperature also increases student perceptions of taste quality (Murimi et al., 2015). Offering menu items representing students' religious and cultural backgrounds is also one of the strongest predictors of student satisfaction (Meyer & Conklin, 1998).

Since 2012, four studies have been published about chef-based interventions that focus on adapting food to make it healthier while still appealing to children's tastes (Cohen et al., 2015, 2012; Zellner & Cobuzzi, 2017). The studies examined partnerships between SN professionals and chefs to makeover school menus. Student food selection, palatability, and consumption were measured in each study. In all four of the studies, results found greater satisfaction and consumption of chef-prepared foods. Only one of the studies executed an additional component, in that half of the chef-enhanced schools and half of the typical-meal schools also received cafeteria modification known to promote the selection of fruits and vegetables (Cohen et al., 2015). Interestingly, all students in the cafeterias that were modified increased their fruit and vegetable selection. In contrast, only students in the chef-enhanced schools increased their actual fruit and vegetable consumption, which points to the importance of food palatability.

To take student preference into account, it is essential to provide opportunities for student feedback on menu items. In a formative study, Garrett and Vaden (1978) found that student participation increased when students provided input on school menus, and their preferences were included in menu development. Student surveys and other opportunities to provide feedback on school lunch items are considered best practices (Garrett & Vaden, 1978; Rowser & Castillo, 2013).

Cafeteria Environment and Décor, Trends, and School Food Preferences

Many schools across the United States utilize low-cost environmental change interventions to promote healthy eating behaviors (Action for Healthy Kids, 2019). These relatively simple, low-cost interventions have been identified as the "Smarter Lunchrooms Movement" and comprise six smarter lunchroom principles. These principles include managing portion sizes, increasing convenience, improving visibility, enhancing taste expectations, utilizing suggestive selling, and setting smart pricing strategies. The overall anticipated outcome of instituting these research-based principles is to increase fresh produce and low-fat white milk consumption while decreasing the consumption of high-calorie/high-fat foods. Approximately 3,000 schools implement these smarter lunchroom principles (Cornell University, 2017).

Several studies provide evidence supporting the use of Smarter Lunchroom techniques in schools to increase the selection and consumption of healthy food items. These studies combine a behavioral economics approach that explains a person's choice can be influenced through behavioral cues while at the same time allowing for choices to remain intact (Greene et al., 2017;

Hanks et al., 2013). Ten middle schools participated in the fruit intervention, vegetable intervention, or control group in a randomized study. In this study, fruits and vegetables were displayed attractively and in convenient locations near the checkout register. Fruit selection increased overall by 36%, and fruit consumption increased overall by 23%. Vegetable selection and consumption and white milk selection also increased significantly in the treatment schools (Greene et al., 2017). In 2013, a study took place in Western New York and examined the effects of several small cafeteria interventions implemented in two schools (grades 7-12). In the cafeterias, fresh fruits were displayed next to the cash register in attractive bowls, and staff utilized verbal prompts to the students such as, "Would you like to add a piece of fruit to your meal?" Trained observers measured and tracked what remained on lunch trays after lunch, both before and after the intervention. Students were 23% more likely to select vegetables and 13% more likely to choose fruits. Actual vegetable consumption increased by 25%, and fruit consumption increased by 18%. In addition, students were prone to eat the entire serving of produce taken (Hanks et al., 2016).

A multi-component intervention involving a change in cafeteria decor, the addition of unique recipe names, taste tests, and flavor stations were executed in three rural elementary school cafeterias by SN staff (Hamdi et al., 2020). Selection and consumption of fruits and vegetables at lunch were measured through monthly plate waste assessments over eight months (n=1255 trays). Interviews were also conducted with three SN staff. Cafeteria decorations and taste tests had higher reported implementation metrics for acceptability and feasibility than other interventions. These findings suggest that these interventions are promising and could lead to an increase in produce selection and consumption in NSLP.

Other cafeteria makeovers have come in the form of catering to students' changing tastes. For example, the Florida One program, called Moo Brew, which is run by the association of Florida Dairy Farmers, funds the addition of coffee kiosks at several high schools (Wida, 2019). Each kiosk serves lattes made with 8 ounces of milk and 2 ounces of coffee, plus additional flavors. This trend extends beyond Florida, with programs growing in popularity throughout the country. In Texas, the Dairy Dollars for Schools "Moo-Latte" program offers schools grants for coffee bar equipment. Proponents of these kiosks say that they promote dairy consumption in students who may not usually select milk, increase school revenue, and help the cafeteria look more appealing (Dickson, 2017).

Peer-to-Peer Marketing

While parental eating habits and parental attitudes about nutrition are a child's primary influence on food consumption, peer influence has been well-documented for several years (Birch, 1980). The influence of a child's peer group on their attitudes and behaviors regarding food consumption has been reported for teens (Lally et al., 2011), older children (Parkin & McKeganey, 2000), and preschoolers (Birch, 1980). Including peers in the design, marketing, and implementation of the SNP is an essential strategy, as students view their peers as dependable sources of information (Turner & Shepherd, 1999). The use of peer leaders, particularly in middle schools, can be utilized as social agents for change when peer influence is heightened (Lytle et al., 2004). Evidence suggests that peer leaders who are trained to model healthy behaviors and encourage others to do the same can impact student health outcomes. Peer

leaders have also been utilized successfully in numerous studies to influence a child's willingness to try new food (Bogart et al., 2011, 2014; French et al., 2004; Gittelsohn et al., 2013; Story et al., 2002).

Activities That Enhance/Incentivize Positive Eating Behavior

Cooking Classes/Club

To increase the preference for and consumption of minimally processed whole grains and vegetables, a cooking program featuring cooking in the classroom was introduced to elementary school students. Additionally, the program featured multiple exposures to the same food and parental involvement. The program resulted in positive effects on preferences, knowledge, and a decrease in plate waste. It also enhanced cooking self-efficacy in older children (Liquori et al., 1998). Cooking classes can increase school students' confidence in cooking and may lead to the development of additional non-cooking-related skills (Hansen et al., 2019). Not only cooking competitions/programs can have a positive effect on school students' food choices, but also school gardening may affect willingness to try new fruit and vegetables and acceptance of fruit and vegetables.

School Gardens and Farm to School Program

The 2015 USDA Farm to School Census demonstrates the rapid growth in the area of farm to school and school gardening (Hayes et al., 2018a; U.S. Department of Agriculture, Food and Nutrition Service, n.d.). A few points to note from the analysis of the Farm to School Census are listed below:

1. $789 million were invested in local communities by farm to school programs (105% increase over the first USDA Farm to School Census completed in 2013)
2. 42% of the districts surveyed by USDA participated in farm to school activities
3. 7,101 school gardens have sprouted across the country (42% increase over the first USDA Farm to School Census)

Farm to school and school garden programs have been shown to positively affect students (i.e., general health, fruit and vegetable consumption, physical activity, food system awareness, food choices, academic achievement, social-emotional wellbeing, and advancing equity). These programs have also had a positive impact on SN departments (meal participation, meal cost, school food environment, foodservice staff, food literacy, and learning opportunities); farmers (income, markets); and local communities (local economy, jobs, enhancing food security of parents and families, food waste, and transportation) (National Farm to School Network, 2020). Blair (2010) reviewed United States literature on the potential effects of school gardening on children and found that quantitative studies showed positive outcomes of school-gardening initiatives in the areas of science achievement and food behavior.

On the other hand, qualitative studies documented a wider scope of desirable results, including positive environmental and social behaviors (Blair, 2010). Informal settings, such as school gardens, can influence students' enthusiasm and engagement on this topic. The program

aimed to improve environmental awareness and help school students to engage in environmental stewardship by providing meaningful outdoor learning experiences using school gardens. After implementing school gardening in Washington, D.C., the knowledge component (where the food is coming from) declined in post-test scores. In contrast, in the case of environmental attitude, component scores increased. This shows that the students' level of engagement and enthusiasm seemed to increase as a result of participation in school garden lessons (Fisher-Maltese et al., 2018).

Games and Competitions Implemented in Schools

Research has demonstrated interventions that include active engagement in games and competition can help improve nutrition knowledge and healthy food choices. In one study, a school-based nutrition program with cardiovascular exercise showed improvement in the fitness/nutrition knowledge of children and their parents (Hopper et al., 2009a). In another study, researchers implemented a comprehensive intervention, including weekly classroom education for one academic year and behavioral cafeteria intervention. This comprehensive intervention showed significant improvement in some indicators, including eating vegetables for lunch, the number of eating fruits and vegetables days in the past one week, and self-efficacy in preparing fruits and vegetables at home when compared to control and cafeteria only groups (Song et al., 2016a).

Incentive-based interventions have yielded promising results, especially in fruit and vegetable intake (Jones et al., 2014). Game-based rewards were provided to heroic characters within a fictional narrative read by teachers. The narrative was read on days when school met a fruit or vegetable consumption goal. This incentive resulted in increased fruit and vegetable intake by 39% and 33%, respectively (Jones et al., 2014). Another experimental study with intervention and control groups showed similar results. A 10-session multimedia formatted game based on Social Cognitive Theory (SCT) provided fruit, 100% juice, and vegetable (FJV), and their consumption was assessed using a pre-post design. The results showed higher FJV intake in the intervention group than the control group (Cullen et al., 2005). Jones and colleagues (2014) conducted a behavioral-based gamification approach to increase fruit and vegetable consumption using an alternating-treatments experimental design. School-level fruit and vegetable consumption was quantified using a weight-based waste measure in the cafeteria. For 13 days, fruit and vegetable consumption increased above the baseline by 66% and 44%, respectively. Although using an alternating treatment design with a differential level of fruit and vegetable consumption on specifically targeted days supported the role of intervention, the study was conducted for a short period of 13 days. This study's findings suggest that a behavior-based gamification approach may help address poor dietary decision-making by children (Jones et al., 2014). Therefore, games and gamification-based intervention for health are a novel field. New research is emerging, indicating beneficial effects of these health tools, such as gamification, in preventing childhood obesity. When employed in a group of people, gamification encourages competition, therefore resulting in user adherence (Bamidis et al., 2016; González et al., 2016).

Livingood and colleagues (2017) conducted a study to examine how youth are engaged in digital communication and the implications for nutrition and health promotion. The results indicated the potential importance of messaging, mobile and computer apps, gaming, wearable

technology, and rapid changes in how the youth utilize and use digital technology. These findings suggest that digital technologies, such as messaging, mobile and computer apps, gaming, and wearable technology, are potential avenues for SN professionals to engage students in SN participation and healthy eating (Livingood et al., 2017).

Research Gap

Student engagement in school meal programs is more than student participation in consuming school meals. Student engagement is an interactive strategy to involve students as important and dynamic, hands-on participants in school meal programs. It is thought that having student engagement in the school meal programs can increase the basic motivation and dedication to an idea or habit, in this case, healthy eating habits. While studies have been conducted focusing on individual student engagement strategies as outlined in the literature review, research has not been completed to encompass a diverse set of SNP stakeholders' student engagement strategies and activities. This study was undertaken to explore what engagement activities are occurring around the country by districts, schools, students, and parents, particularly in relation to school meal program participation, promotion, and healthy eating.

Objectives

The purpose of this research project was to 1) identify what specific strategies schools, districts, and SN stakeholders utilize to successfully engage students to promote school meal program participation and healthy eating within the context of the SN program; 2) determine the methods used to promote sharing of information within the SNP-to-the student and from student-to-student, and 3) assess the impact of each of these strategies on the students' perception of school meals, students' food selection and consumption, school meal program participation, and students' healthy eating behaviors.

METHODOLOGY

Research Design Overview

A qualitative research design method was utilized using semi-structure interviews with SNP stakeholders to study their experiences with strategies and activities employed to engage students in SN program participation and healthy eating, and the impact of these strategies concerning student's perception of school meals, consumption of more nutritious foods and student's involvement in the school meal program. The pragmatic approach to inquiry was employed because researchers should use the methodology that works best for the particular research problem that is being examined (Morgan, 2007). The American Psychological Association guidelines for qualitative reporting of this research were followed (Levitt, 2020). The University of Southern Mississippi Institutional Review Board approved the study method and protocol prior to data collection.

Theoretical Framework

This research project utilized an interpretivist theoretical framework. The interpretivist researcher will ask broad questions to facilitate participants' construction of meaning in the situations (Crotty, 1998). This perspective asserts that reality and thus knowledge is socially constructed. Therefore, knowledge is multiple and any meanings that exist between people have to be mutually agreed upon. These mutual agreements are temporary and contextual (Eisenhart, 1988). Interpretivist research is a field-based inductive methodology that is "grounded", as it uses a grounded approach like grounded theory (Lincoln & Guba, 1988). Grounded theory utilizes coding that can allow for many different readings, allow for multiple interpretations, and leave data open for many different purposes. Interpretivist research represents a move away from the oversimplification to complexity and dissimilarities. It is not about the need to be searching for a formal theory; instead, it is about asserting the value of theoretically infused analysis. Interpretivist knowledge is not generalizable because it comes from an insider perspective that is embedded within a context that is bound by specifics, such as location and time (Lincoln & Guba, 1985). From an interpretivist perspective, "The purpose of interviewing then is to allow us to enter into another person's perspective. Qualitative interviewing begins with the assumption that the perspective of others is meaningful, knowable and able to be made explicit" (Patterson, p. 341).

Sample

A purposeful sampling technique employing the maximum variation sampling strategy was utilized. With this type of sampling, at least 10 or more participants are needed that will illustrate the range of variation in student engagement strategies and activities (Gall et al, 2003). Guest et al (2006) stated that data saturation can occur within the first 12 interviews and after that very few phenomena are likely to emerge. Obtaining a diverse sample of SN stakeholder groups was desired to capture the widest range of perspectives. The researcher identified potential participants through a literature review that encompassed an evaluation of peer-reviewed research, industry and organization websites and blogs, and school websites to identify SN program stakeholders and SN program professionals that utilized strategies and activities to

encourage involvement in school meal programs and healthy eating activities (Cresswell & Plano Clark, 2011). This sampling technique's objective was to form a broad sample of SN stakeholders, including allied organizations working with SN programs, school food industry vendors, school foodservice management companies, SN program professionals. Two participants in the SN program professionals' group were consultants working with SN programs. The remaining participants worked in school districts in various roles including SN director, SN dietitian, SN specialist and SN chef, and wellness coordinator. The participants were selected to obtain a diverse sample based on school district student enrollment size (small < 2,800, medium 2,800-30,000, large > 30,000) with each group including participants from various USDA regions and NCES urban-centric locale categories (i.e., city [small, medium, large], suburb [small, medium, large], town [fringe, distant, remote], and rural [fringe, distant, remote]) (*Rural Education in America Definitions*, n.d.). Contact information of stakeholders was obtained from the internet search and entered into a database for organization. Information included stakeholder name, website address, email address, and phone number (if available). For stakeholders associated with school districts, student enrollment size, USDA region, and NCES urban-centric locale categories were included.

Recruitment

Potential participants were contacted by email with a letter explaining the project's purpose and procedures, and they were invited to participate in the study. The invitation explained their participation involved a semi-structured interview scheduled at a time of their convenience. They were informed that the interview would be recorded, and a confidentiality statement was provided addressing the interviews as strictly voluntary. The researcher's contact information was provided to answer any questions and concerns. A long-form consent form was provided to participants detailing the purpose, description, benefits, risks, confidentiality, and participant assurance. Contact information for the Human Subjects Protection Review Committee was provided regarding questions or concerns. Acceptance of the invitation signified consent to participate in the study.

When the researcher received a return email from the potential participant and their willingness to participate was indicated, a reply email was sent to request a phone call to further explain what the study entails and answer any questions the potential participant may have regarding their commitment to the study. During the phone call, the date and time for the semi-structured interview were set at a time that was convenient for the participant. This process was repeated until 24 interviews were scheduled. In some attempts to reach stakeholders, the researcher was unable to secure a connection with individuals to interview due to inaccurate contact information or potential participants' refusal to respond.

Participants

Twenty-four SNP stakeholders agreed to participate in the study. Seven stakeholders were associated with allied organizations working with SNPs; five represented school food industry vendors, three were school foodservice management companies (two national companies and one regional company), and nine SN professionals with seven representing SN professionals who worked in a school district and two SNP consultants. The seven SN

professionals working in school districts represented five USDA regions: one from a large school district, four from medium-sized school districts, and two from small school districts. Descriptive characteristics of the stakeholder groups and the distribution of SNP professionals working in school districts can be found in Table 2 and Table 3, respectively.

Table 2

Descriptive Statistics of SNP Stakeholders (N=24)

Stakeholder Type	n	Stakeholder Description
Allied Organizations	7	Organizations that partner to advance the quality of school meal programs through education and support
School Food Industry Vendors	5	Offer products or services to enhance SN programs
Foodservice Management Companies	3	A commercial enterprise or a nonprofit organization is or may be contracted by the school food authority to manage any aspect of the school foodservice
SN Professional	9	
SNP Professional	7	Individuals that work in school districts
SN Consultant	2	Individuals that partner with SN program professionals to enhance school meal programs

Table 3

Descriptive Statistics of SN Professional Participants by Region, School District Size (Based on Student Enrollment), and Degree of Urbanization (N=7)

Variable	n
Student Enrollment	
Large >30,000	1
Medium 2,800 – 30,000	4
Small <2,800	2
Region[a]	
SERO	2
NERO	1
MWRO	1
MPRO	1
SWRO	2
Degree of Urbanization	
SuburbanLarge	1
SuburbanSmall	1
CitySmall	2
TownDistant	1
TownFringe	1
RuralRemote	1

Note: [a]*SERO=South East Regional Office; NERO=Northeast Regional Office; MWRO=Mid-West Regional Office; MPRO=Mountain Plains Regional Office; SWRO=Southwest Regional Office*

Data Collection

Semi-structured interviews were utilized to allow for a more in-depth exploration of individual perceptions and experiences with promoting student engagement (DiCicco-Bloom & Crabtree, 2006). The interview guide was developed according to the research methodology for writing a semi-structured interview guide to answer the study's overarching objectives (McIntosh & Morse, 2015). The interview guide was designed to have open-ended, non-leading questions and probes focused on the study's objectives. The interview guide was internally assessed to ensure it was written clearly and logically. To test for readability and face value, experts in the field of SNPs evaluated the interview guide utilizing an evaluation form to ensure validity. The guide was revised based on feedback from the experts. To help participants prepare for the interview, the interview guide was provided to them prior to their scheduled interview time. Each participant provided consent before participating in the semi-structured interview. Table 4 includes the primary questions from the interview guide.

Table 4

Semi-Structured Interview Guide: Overview of Major Study Objectives and Questions

Objective	Participant Interview Guide Questions

Encouraging involvement in school meal programs	• Identify and describe any strategies or activities that have been implemented by your organization to encourage student involvement in school meal programs and healthy eating activities within the school context.
	• Describe any social media or other digital tools your organization uses to engage students or parents to encourage school meals involvement.
	• What impact do the strategies or activities have on the students':
	  • Consumption of healthy foods
	  • Participation in school meal programs
	  • Perception and satisfaction of school meals
	• How do you evaluate the impact of activities and strategies?

SN program-to-student sharing of information	• How does your organization promote sharing of information or communication between SN program staff and students?
Student-to-student sharing of information	• What strategies or activities has your organization implemented to promote peer-to-peer sharing of information regarding nutrition, healthy eating habits, and the school meal programs?
Additional information	• What challenges or barriers has your organization encountered while implementing the approaches to promote school meals? • What did you do to overcome any challenges or barriers? • Considering your success and challenges, what are your best practices in encouraging involvement in school meal programs and healthy eating activities?

The semi-structured interviews were conducted via ZOOM teleconferencing. Online technology offered convenience, efficiency, cost-effectiveness, and flexibility to interview stakeholders who were geographically distant (Archibald et al., 2019). Additional advantages over telephone interviews included the audio-video recording feature, the shared screen

capabilities to view websites, resources, tools the participant shared pertinent to the study's objectives, and the secure platform (Archibald et al., 2019; Zoom Video, 2021). Further, the ability to view the participants during the interview may have resulted in a better establishment of rapport. To maintain consistency in the interview process, one researcher conducted all semi-structured interviews. Twenty-four interviews were completed, ranging from 60- to 90-minutes of duration.

Analysis

Researchers used a Grounded Theory approach where categories and concepts emerge from the text and are then linked together to create themes (Charmaz, 2014). Researchers reviewed copies of the interview transcription files and imported all the transcripts into NVivo, a data analysis software for the first round of coding. This first cycle of coding included two researchers creating initial codes independently, examining the data for first impressions of themes, and creating analytic memos. After this first cycle, researchers shared their codebook and evaluated key themes utilizing these codes. They also reviewed each other's coding of data and discussed at lengths and in multiple meetings and differences in individual interpretations regarding why a piece of data was coded in a particular way, in check for inter-rater reliability. Next, the researchers merged similar themes and developed subthemes into a higher-order category, which became a working set of codes.

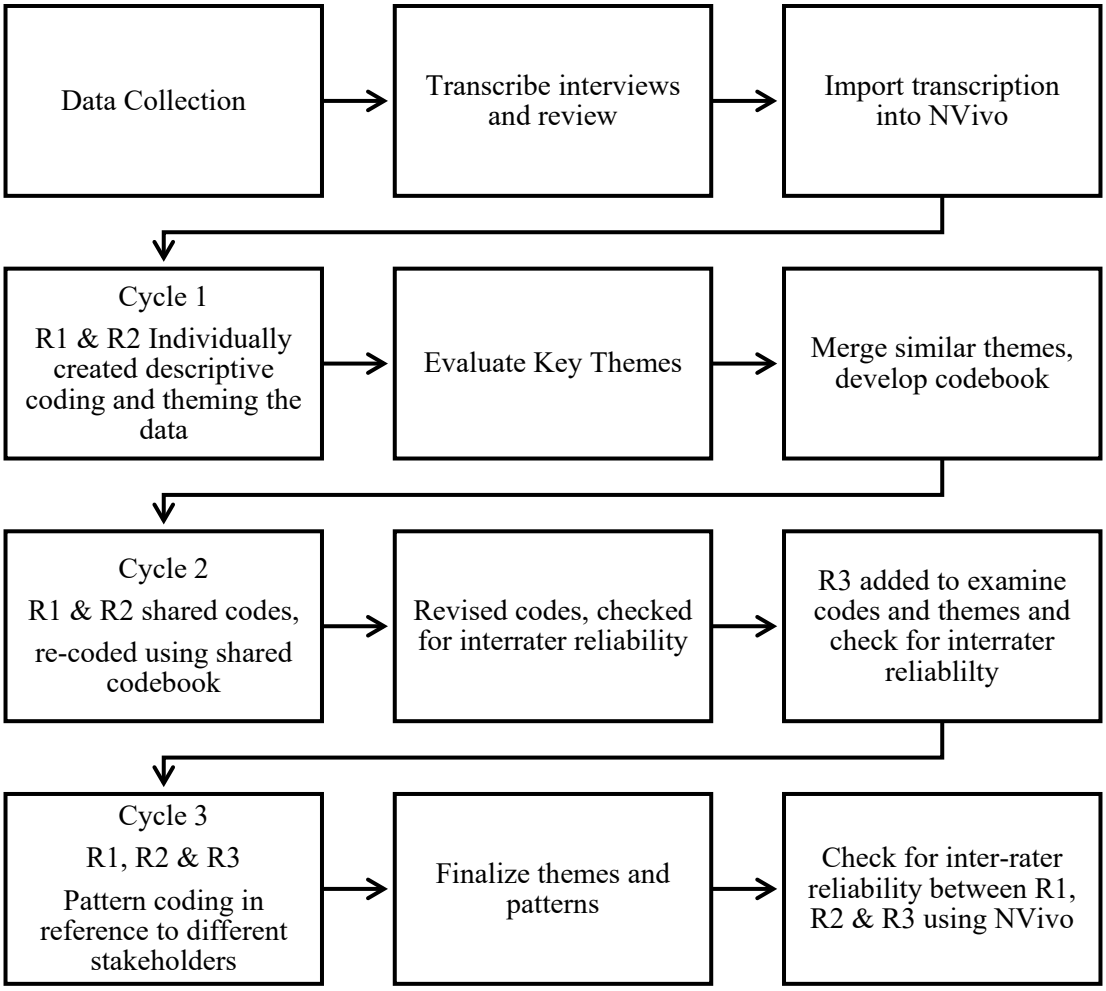
In cycle two, the researchers independently coded all transcripts using the shared codebook and evaluated key themes using the method described previously. These two researchers then independently examined the codes and merged redundant or analogous codes and then these became the final set of codes. Next, researchers examined each other's coding and discussed potential discrepancies to ensure higher inter-rater reliability. A third researcher was brought on to examine the initial codebook created and to review cycle one and cycle two coding memos and themes to check for inter-rater reliability between the two researchers' coding. At this point, researchers decided that a saturation point was found within the data and that no new codes or themes were emerging.

In the third and final coding cycle, the three researchers divided the participants according to the stakeholder group to code specifically for patterns related to that group of participants. Transcripts were coded in NVivo, memos, and an extensive spreadsheet was created with stakeholder characteristics. Patterns, including similarities and differences between and among the stakeholder groups, were identified. Next, intercoder reliability (ICR) was measured between all researchers by utilizing the "coding comparison" feature in NVivo. Five interview transcripts (about 10% of the total interviews), coded by each team member, were identified and examined for the intercoder percentage agreement. A fourth researcher with expertise in inter-rater reliability was consulted to review the teams' ICR and to ensure that the methodology for arriving at a percentage agreement was conducted accurately. The percentage agreement is the number of units of agreement divided by the total units of measure within the data item, displayed as a percentage. The ICR rate between the three researchers was measured at 92%. Neuendorf (2002) posits that in addition to being a requisite part of validating a coding scheme, instituting a high level of reliability also allows the research team to divide the process of manual coding among multiple coders (Neuendorf, 2002). After the third cycle of coding was completed,

the themes and subthemes that emerged from the data were reviewed by all three researchers. In multiple peer-debriefing sessions, themes were discussed, evaluated by multiple researchers to reduce bias, and finalized. (See Figure 1.)

Figure 1

Flowchart of Data Analysis Process



FINDINGS

The analysis of data revealed themes and subthemes that resulted from the semi -structured interviews. Based on the findings that emerged in analyzing the strategies and activities used to promote student engagement, three main themes, each with several subthemes, were most prominent. The first major theme was *Adapting to student needs and preferences.* Subthemes within the theme included 1) menu development, 2) cafeteria environment and 3) food accessibility. The second main theme was *Marketing,* and subthemes included 1) social media, 2) digital media and 3) traditional marketing tools. The third was *Stakeholder engagement.* Subthemes included 1) nutrition education, 2) communicating with stakeholders, 3) collaborating with stakeholders, 4) involving various stakeholders in student engagement activities, 5) engaging students in decisions related to school meal programs, and 6) employing interactive activities with the students to encourage engagement. The themes and subthemes are listed in Table 5 and are explained in detail in the following section.

Table 5

Strategies and Activities Used to Promote Student Engagement: Major Themes and Subthemes

Theme	Subthemes
Adapting to student needs and preferences	Menu development Cafeteria and school environment Food Accessibility
Marketing	Social media Digital media Traditional marketing tools
Stakeholder engagement	Nutrition Education
• Parent/school administration and staff/SN professionals/ community member engagement	Communicating with stakeholders Collaborating with stakeholders Involving various stakeholders in activities that promote student engagement
• Student engagement	Engaging students in decisions related to school meal programs Employing interactive activities with the students to encourage engagement

Findings are reported in both narrative and table form. In the tables, participants are separated and reported according to an assigned stakeholder group. The four stakeholder categories include 1) SN Professionals made up of SN program consultants (n=2) and SN

directors (n=7), 2) allied organizations working with SN programs (n=7), 3) SN program vendors (n=5), and 4) foodservice management companies (n=3). This was done to search for patterns and trends that may pertain only to the specific stakeholder groups and compare the various groups during analysis.

Strategies and Activities to Promote Student Engagement

Theme 1: *Adapt to Meet Student Needs and Preferences*

A theme that emerged from the data analysis was the strategy that stakeholders must adapt to meet student needs and preferences. Meeting student needs and preferences involved paying particular attention to menu development that would appeal to students, modifying the cafeteria environment, and having food accessible to students. Those strategies are explained in the following sections.

Subtheme 1: Menu Development

Menu development was reported as an essential tool to handle the 'trilemma' that SNPs face, including program cost, nutritional value, and program participation. Participants stated that menu development must consider students' food choices to increase program participation. This included menu development based on students' food choices and demands; being aware of and reactive to students' changing tastes; maintaining both the quality and taste of food available in a school cafeteria; and having a variety of food available. The following excerpt depicts the power of students' choices and demands in menu development:

> *We're [SNP] going to testing these fresh fruits and vegetables with the idea that students will vote on their top five favorite ones, and then we're going to incorporate those into the salad bar or our meal program. Or we're going to test these recipes, the top ones will be integrated into our menu, or we'll be adjusting them as we go so that we can integrate all of them into our menu.*

Meal timing and customization have helped school foodservice programs cater to the needs and demands of students. Creating menu items to fit the lunch schedule, combined with the lunch line's development to fit a short lunch period and scheduling recess before lunch, has helped some SN programs succeed. A participant explained:

> *I think it links to those press releases; they highlight many of the things that we feature, which is doing student taste tests, free samples, gathering student feedback, to develop menu items that not only meet the nutrition standards but also appeal to students. We see a lot of meal customization, making sure that kids can have a lot of choices on the menu and then be able to prepare an entrée that meets their flavor profile and preference, whether it'd be through salad bars or made to order bars or entrees that can be customized with separate sauces or with flavor stations. We see a lot of that. A lot of nutrition education-type programs, whether it's a Harvest of the Month program featuring a different vegetable or fruit on the menu each month, menued in a variety of ways.*

Another participant reported that offering foods in a way in which students can manage to eat can help improve participation:

> *For example, if a whole fruit is offered, it's challenging for some students to eat that entire piece of fruit, especially for kids with braces or for kids with changing teeth. Instead, if schools provide fresh produce that is cut into pieces, the kids will be able to eat much more of that apple, if not all of it. Strategies like this help reduce plate waste are very easy things to do but are sometimes overlooked when foodservice employees are looking at putting meals out.*

Participants reported that meal timing was critical. They stated that constructing menus to serve many students in a small amount of time was key, as some schools have as little as a 20-minute lunch break. Some schools struggle to move the line quickly enough for students to sit down and eat. The cafeterias are packed, especially in the schools where they serve more children than they should. It is a challenge to create a menu that allows students time to sit and consume and then go on to their next activity. Participants reported that parents were undoubtedly concerned about it, and the district was as well.

Innovative menu items were reported as ensuring high participation in school meal programs. One of the SN directors spoke about having a chef's round table at their school. They brought in emerging chefs from across the country, and a day at the school was used to organize round table meetings, focus groups, discussions with staff, and students from the culinary arts program. The chefs spent time with the students, allowing them to ask questions. There was time spent for innovation, where chefs came up with ideas using sauces and figuring out how innovative menu items can be created and implemented in high schools. The chefs spent the entire day working in the kitchen. The SN director felt it was an excellent partnership, and the students were very involved. In addition, they reported their SNP gained recipes from the round table event, and they were able to move forward with making menu changes. Another participant stated, "One of the biggest challenges for an SNP is that kids want to have about 2 seconds with the last product, and then they want a new one. So, the SNP has to make changes frequently; their menus change all the time. The SNPs must be aware and reactive to what students want and offer to them."

Another trend to attract more participation reported by participants was local food procurement and farm to school initiatives. They indicated menus were being modified throughout schools nationwide to reflect these initiatives. One trend observed is "Harvest of the Month" programming. Several states have developed their own "Harvest of the Month" tools and curricula, which is a series of lesson plans, recipes, educational activities, and resources that highlight a different food for each month. These resources were distributed to schools and early education sites and allowed those schools to take a multi-tiered approach to education throughout the curriculum. One participant gave an example of how they implemented the "Harvest of the Month" programming. They reported:

> *Schools have Beets as their Harvest of the Month, and the cafeteria can feature those beets in multiple ways. They could do a taste test of beets or have a beet smoothie for Valentine's Day. In the classroom, food and nutrition education can be done by looking*

at the beet's different parts, learning about the plant's features, and talking about how it grows. In art class, beet prints can be used, beet leaves can be used for painting. This is a full integration of the classroom and the curriculum.

Stakeholders reported the menu was made interesting by having pop-up/limited-time menu items, as mentioned in an interview with an allied organization. Using the limited-time offers, the SNP tried to mimic students' ongoing trends when they eat out. The limited-time offer, where the students get a surprise, like the "smash burger grill today," was not typically on the menu. A school in the Mid-Atlantic USDA region conducted a creative pop-up; the SNPs had barbeque days, where they had a specialty grill to bring to a different high school each week. Hamburgers and hotdogs were prepared over a fire instead of on a griddle. The SNPs reported that "…these limited-time offers make kids excited because it's like a little surprise day, a unique offering."

Schools also found creative methods to help students consume their suggested "5 fruits/vegetables a day." Serving a snack of fruits or vegetables outside regular mealtimes, such as in between classes, offered additional opportunities to increase fruit and vegetable consumption. This innovative strategy encouraged students to eat fresh produce and to form healthy snacking habits.

Apart from providing pop-up/limited-time offers on the menu, schools embraced other innovative techniques, such as scratch cooking, salad bars (fruits and vegetables bar), cooking demonstrations featuring a guest chef or a guest server, culturally diverse or festive foods, innovative food presentation or packaging, and attractive and creative verbiage on the menu. The following excerpts from participant interviews support these results:

One of our common activities at the elementary school level might be an A-to-Z salad Bar. They'll either do this as a one-time promotion or set it up over time. But literally, where you are promoting a different fruit or vegetable from every letter of the alphabet. We do that a lot with the younger kids, and they really seem to love it. Across all grade levels, you'll also see taste testing or culinary exhibitions, where we try to encourage kids to try new things. And then share them when these things are on the menu.

Students named the recipes like "crazy, crunchy chicken nuggets," …This way, they can incorporate the students in the classroom with the SNP. I have gone into some of the classes, and we have done smoothies and noodle bowls, but with vegetables and called it zoodle bowls.

Strategies and activities that involve menu development as reported by the stakeholder group can be found in Table 6.

Table 6

Strategies and Activities that Involve Menu Development Reported by Stakeholder Group

Strategies or Activities	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Develop menu kids like	2(22)	4(57)	3(100)	5(100)	14(58)
Be aware of and reactive to students' changing tastes	1(11)	——[a]	3(100)	3(60)	7(29)
Food taste/ food quality	2(22)	4(57)	3(100)	4(80)	13(54)
Local food/farm fresh/fresh food/ sustainable	7(78)	4(57)	3(100)	4(80)	18(75)
Variety of foods	2(22)	2(29)	3(100)	——	7(29)
Understand student demand related to creating the menu	——	2(29)	1(33)	2(40)	5(21)
Create menu items to fit the lunch schedule	1(11)	——	3(100)	3(60)	7(29)
Develop the lunch line to fit the short lunch period	1(11)	——	2(67)	3(60)	6(25)

[a]Dash (—) indicates the response did not apply to the stakeholder group, and or response was not provided.

(Table 6 continues)

(Table 6 continued)

Strategies and Activities that Involve Menu Development Reported by Stakeholder Group

Strategies or Activities	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Meal timing	——	2(29)	——	1(20)	3(13)
Schedule recess before lunch	——	1(14)	——	——	1(4)
Made to order foods	1(11)	1(14)	1(33)	1(20)	4(17)
Meal customization/ flavor station	2(22)	1(14)	1(33)	——	4(17)
Provide food that's easy to eat	2(22)	——	——	1(20)	3(13)
Offer foods from the share table	1(11)	——	——	——	1(4)
Scratch cooking	6(67)	3(43)	——	——	9(38)
Salad/fruit bar	2(22)	3(43)	2(67)	1(20)	8(33)
Limited-time offers/specials	2(22)	2(29)	2(67)	1(20)	7(29)
Cooking demonstrations	4(44)	——	2(67)	1(20)	7(29)

[a]Dash (—) indicates the response did not apply to the stakeholder group, and or response was not provided.

(Table 6 continues)

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Strategies and Activities that Involve Menu Development Reported by Stakeholder Group

Strategies or Activities	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Culturally diverse/ festive food	3(33)	——	2(67)	1(20)	6(25)
Food presentation/ innovative packaging	——	2(29)	2(67)	4(80)	8(33)
Innovative menu items	3(33)	1(14)	3(100)	2(40)	9(38)
Preorder food option	——	——	2(67)	3(60)	5(21)
Verbiage on menu	1(11)	1(14)	1(33)	1(20)	4(17)

[a]Dash (—) indicates the response did not apply to the stakeholder group, and or response was not provided.

Subtheme 2: Cafeteria and School Environment

Participants from each stakeholder group reported utilizing several strategies and activities to create a positive cafeteria environment for students and staff. The need for modern, well-equipped, air-conditioned, and attractive cafeteria environments was stressed. There should be enough seating space and enough room to allow food stations and/or salad bars that encourage student choice and variety. Decorations, signage, music, and entertainment during mealtimes, and friendly and engaged staff, were also crucial for making the cafeteria environment pleasurable and inviting.

There are some aspects related to the cafeteria environment that may be difficult to change. The room's physical layout, outdated equipment, and low lighting are often associated with the school's age and budget. Participants mentioned that cafeteria makeovers could have an enormous impact on student participation. For example, one stakeholder spearheaded a couple of small cafeteria makeovers to increase SN participation and reported the following:

> *You always think it's the large districts that are being showcased. Still, sometimes there are small to medium-sized districts when all they see is like a huge district like LA*

Unified doing things in their cafeteria, they can't relate to it; it doesn't resonate because their program is small. So, we have done a few cafeteria makeovers that have been pro bono type situations, but then, in essence, we capture how that participation has helped because the cafeteria looks nicer. Or how it increased. So, we are in the middle of two little makeovers now, and then we use that in our marketing resources to help give smaller and medium-size districts the idea that they can do this too. You can take small steps and get big rewards. So, we do that.

Having the proper equipment to keep up with trends is also essential. A participant from a national allied organization shared that there are grants given to schools for cafeteria makeovers to improve flow and appearance; many are simply to provide some of the equipment to be able to implement new eating programs. For example, these grants are used to purchase blenders for schools to offer smoothies on their breakfast menu. Other schools have ordered equipment so that they can add a hot chocolate bar to encourage breakfast participation.

Attractive signage and decorations were mentioned as strategies that improve the appearance of the cafeteria. One participant reported the following:

We do use a lot of signage in the dining areas, both directional to show where things are and to support positive messages, and a lot of times, we'll customize those for the school district also. We get the yearbook staff or somebody to get us photos of kids in activities, some are sports, some are band, some are music, some are academic debate, and we'll group those photos and make a nice sign for the dining area with the message that "Great Nutrition Powers Great Results" the results are depicted in photos of those kids from that school in their activities.

Signage, posters, and banners were also mentioned as a means to promote healthy eating. One school food industry vendor participant stated:

They [banners] just kind of make things more appealing. If you can imagine these as 15 feet tall and 5 feet wide, not only are we teaching kids about whole grains, lean protein, fruit, vegetables, and milk, but we're making it visually appealing. If you were to go into a Whole Foods Market, you will not see an institutional look and feel; you're going to see things that are beautifully marketed and make you feel good about why you are there shopping. That's kind of the rubber meets the road, it's not just all technology, it's also what's your cafeteria looks like, what is your serving line look like.

Signage was described as not only improving the appearance of the cafeteria, but also engaging students by educating them about the food they are eating. An SN program participant reported that students want to know what they eat; therefore, using signage with descriptions of the featured item helped them participate in school meals.

While many participants described signage and displays as ways to encourage healthy eating habits, one participant pointed out that nutrition education also needs to take place away from the cafeteria. She shared,

> *Sometimes it's hard to sit here and explain to them in the lunchroom when they only have so little time to sit. They don't want to talk to me. They don't want to hear about eating lettuce and carrots. They want to eat their lunch and play with their friends. That's where that SNAP educator is nice. We also have the PE teacher that has a class where they talk about healthy eating and stuff like that.*

Creating a school environment to support healthy habits was reported by 46% of the participants from allied organizations, SN industry vendors, and foodservice management companies. They conveyed that the overall environment of the school should promote healthy habits, not just the school lunchroom. This was not reported by the SN professionals.

Many participants stressed the importance of customer service. Schools should have well-trained staff who are knowledgeable, friendly, and engaged. The staff should be visible to students and should connect with them on multiple levels. Enthusiastic staff, who are creative and have fun, were mentioned as an essential aspect of the cafeteria environment. One SN professional explained, "In the cafeteria, our staff hold up the entrees and are having a good time; they have special shirts they wear. It's been amazing to me the engagement we get from staff, which spills over to engagement from students. They're excited, and the students are excited."

Another participant stated how important it was to be visible and available to students in the following excerpt:

> *It's important that people know us and recognize us, and our staff. We have open and friendly communication. We are not mystery people. I think that helps a lot. You gotta' be visible. You don't know how your program is going on. It is pretty much like management 101, management by walking around, that's what I call it. You need to be out there. What sets us apart from other districts is that we are out there. That's very positive.*

The appearance of the serving lines and how the staff interact with students in the cafeteria were also an essential aspect of providing good customer service. For example, a participant from an allied organization reported:

> *When we visit schools, we actually see the changes that are happening on the serving lines. We see how much more attractive their serving lines look. Also, when I do trainings in marketing and customer service with employees, I get feedback from the districts that the kids really like being treated like a customer. Instead of telling them, you have to take another component, for example, to make a reimbursable meal, it's like prompting them to make healthier choices as they pass through the serving line. Our training does help the employees to be able to point out different options that are available rather than saying, you need a vegetable.*

Several schools mentioned that providing music, theater, and other entertainment forms for students to enjoy while dining improved the cafeteria environment. An SN director from a small school district shared the following:

I have music in the lunchroom to make a nice environment for eating. We have live music at least four times a year, once before Spring Break, once before Christmas Break, Thanksgiving Break, and then once before summer vacation. We advertise that. We put it on the website, and we send out emails and stuff like that to make sure parents that want to come can come. I send out staff emails so all the staff can come and listen to music. The staff really like doing it too because it's something different from their regular lunchtime.

In addition to live music, some schools have incorporated live theater in their cafeterias, providing "dinner and a show" for school lunch. One participant shared they arranged a dinner-themed event with some of the cast for an upcoming musical. The SN director stated that "it's fun for the kids and good practice for the students who have to perform."

According to the stakeholder group, reported strategies that involve the cafeteria and school environment and the respective activities used by participants can be found in Table 7.

Table 7

Strategies and Activities that Involve the Cafeteria and School Environment Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Provide friendly and open customer service	4(44)	2(29)	2(67)	5(100)	13(54)
Cafeteria environment/ decorations/ambience	4(44)	3(43)	2(67)	3(60)	12(50)
Create a school environment to support healthy habits	——[a]	4(57)	3(100)	4(80)	11(46)
Connect staff with students in the cafeteria	3(33)	3(43)	——	1(20)	7(29)
Entertainment during mealtime	1(11)	——	1(33)	——	2(8)
Foodservice staff creativity/dress up	1(11)	——	1(33)	——	2(8)
Encourage staff to eat in the cafeteria	1(11)	1(14)	——	——	2(8)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

Subtheme 3: Food Accessibility

Participants in this study utilize various school meal service strategies to make meals more accessible for their students. Stakeholders from foodservice management companies reportedly use nontraditional ways to serve food most often. Offering food outside of the cafeteria was the most common nontraditional meal service strategy. Grab-and-go food stations in the hallways, both staffed and unstaffed, are utilized to increase access and participation for breakfast and lunch. Participants report that students appreciate being able to avoid the cafeteria lines and make quick choices about what to eat when they are on the go.

Some schools are increasing access to food while reducing waste in creative ways. A participant reported boxing up leftovers for students to eat either after school or to take a meal home. For example, one participant shared that they package leftover foods and display signs that say, "do you want dinner tonight?" or "do you need a meal before or after a school activity?" If so, students are encouraged to take these meals home or to eat them at school. Another school provides share tables, where students can place their food on a table, and if another student is hungry, they can take it. They do this for anything which is not perishable. The participant explained how this works: "If it is 'packaged' food, it goes to the food pantry run by parent liaisons. There may be kids who need food after school or for snacks or something like that. So, they can go grab the food. We kind of increase our participation by letting kids share their food."

Employing food trucks is another popular way to provide access and variety to students. Food trucks that remain at specific schools permanently and trucks that travel and rotate between various school campuses are being employed. Food trucks were also mentioned as an innovative way to market the SN Program. A participant described it like this: "Kids are like, 'hey, the food is good here,' which means it is as good in the cafeteria." School districts reportedly owned some food trucks, and parents bought others. A school in the NERO region has a student-run food truck that is part of the culinary club. A participant reported, "They even go to actual events like the Beer Festival, a way to integrate into the community. They were very involved with getting a state-wide Jr. Iron Chef contest going. Its students' teams in a cooking competition, developing recipes that meet the nutrition standards that will eventually make it onto the cafeteria menu. It's student engagement at a whole new level. We see that in districts all over the country."

While most breakfast options were traditional, Breakfast in the Classroom and Breakfast After the Bell were reported as being widely employed in various ways to make food more accessible. A participant shared information on how to be successful when implementing Breakfast in the Classroom:

> *The menu matters, so the more time you put into providing hot meals that mimicked or met the students' demands, understanding what the student demand was important. So, food mattered. You could tell the programs that did well often had dietitians on staff, who had people who put nutrition and presentation number one on their priority list, that they didn't just serve cold food that was grab-and-go; they got innovative with figuring out how to get hot grits and shrimp and grits in a to-go container. Or chicken biscuit in a to-go container.*

Meal delivery to the classrooms is another novel way school meal programs make food more accessible and convenient. Students and teachers can order their meals through digital apps to preorder their meals and get them delivered to them, much like placing an order through popular services like Door Dash and Uber Eats. An SN professional elaborated,

> *We also found that using students as part of the delivery method for direct delivery to the classroom promoted engagement. The student ambassador program was very successful. When you had these student ambassadors that delivered the meal, they tended to be champions in the school, and they encouraged their peers to eat it as well.*

According to the stakeholder group, reported strategies and activities that involve food accessibility can be found in Table 8.

Table 8

Strategies and Activities that Involve Food Accessibility Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Nontraditional ways to serve food	4(44)	4(57)	2(67)	2(40)	12(50)
Offer foods in other areas/ accessible locations/ hallway/ Grab-and-Go/ food truck	4(44)	4(57)	3(100)	1(20)	12(50)
Breakfast in the classroom/ breakfast after the bell	4(44)	3(43)	3(100)	2(40)	11(46)
Delivery from the SN program	1(11)	——[a]	2(67)	3(60)	6(25)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

Theme 2: ***Marketing***

The second theme to emerge from the data indicated marketing the SN program played a role in student engagement. When the participants were asked to describe any social media or other digital tools, they use to engage students or parents to encourage school meal involvement, the data revealed social media and digital tools were used for marketing. Most of the participants interviewed (n=18) reported marketing and advertising using various traditional and nontraditional methods. Traditional methods included print media, signage, menus, food displays, inviting the media to cover social events, and word of mouth marketing from teachers and other students. Nontraditional methods included using social media, digital menus, apps, websites, collaborating with a marketing class, and using school mascots and cartoon characters.

Participants reported digital and non-digital displays were employed to tell a story through videos in the cafeteria. They included pictures of food items made to appear like a restaurant menu in an effort to make food items appear enticing and delicious, while also promoting healthy choices. Mimicking the restaurant menu image was a method used to cater to student preferences for visually appealing pictures.

Most participants leverage school email, but as was mentioned by some stakeholders, this is dependent on permission from each school district. Email communications were used to notify students and parents about special events, such as Chef-Demo Day or Taste Testing Days. Specialized software was also utilized to help school districts promote and market their SNPs. School websites regularly feature upcoming and past events regarding school nutrition and provide links to the menu itself. All the interactive features, such as nutrition and allergy information, prices, and online pre-ordering, vary between schools and districts.

The participants reported small and large schools were employing interactive menus via phone apps. The menu apps offer nutrition information, allergen information, calories, fat grams, and other information for students to see what is in the menu item. This feature was well utilized by parents, especially if their children had any food intolerance or allergies. It was explained that as the user rolls over items, the nutrition facts pop up, and there is the ability to show critical information via the application. There was also a direct contact link to their onsite SN directors as a reference.

Social media was mentioned throughout interviews to communicate with parents, students, and other stakeholders. Participants reported using social media as part of an overall marketing campaign and noted that the different social media platforms reached different audiences. Facebook was the most popular social media platform mentioned by participants. However, several times, it was stated that it was “mainly for parents” and/or “for information sharing with other SN professionals” in the field. It was also used because it “garners a large audience.” One participant explained the following:

> *I like to network with other schools. There’s a couple of schools that are within like 30 minutes of us. We network all the time and share ideas; we get together and talk about our programs and try and feed off each other and give them ideas on what they can improve on and what we can improve on. It’s a special tool to do that. We’ll post*

something on Facebook and tag each other and stuff like that. I have a lot of parents that are my friends on Facebook, so they get to see that kind of stuff, too.

LinkedIn was a platform mentioned by two participants to be used to target parents. It was more of a professional platform, and not used by students. Twitter and Instagram were used to reach students, with Twitter being used just slightly more than Instagram. Twitter and Instagram were popular because it was easy for schools to retweet and share photos quickly and easily. According to one SN professional, "I think the food in the cafeteria is optimal for Instagram because you can get these really beautiful pictures of meals and fruits and vegetables and gardens, so I think Instagram is a really increasing leverage point, especially for the food and farms focus."

Two participants mentioned Snapchat, acknowledging that this was where the students were. As one SN professional explained below:

We talked about doing Snapchat. We tried it for a little bit, but most of us are in our 30s and 40s, and it is foreign to us, so we don't know how to do it. Instagram is the main place where we are doing most of our social media marketing because it is the place where both parents and students are actively involved these days.

Another participant explained that while they don't have Snapchat, they incorporated it into their activities. "At Thanksgiving, we gave away the Snapchat Spectacles, where the student can use it on their Snapchat because that's where they are at. They can post it to their timeline anytime they want, so we've had some success with that." Reported social media platforms utilized by participants according to stakeholder group are included in Table 9.

Table 9

Social Media Platform Usage Reported by Stakeholder Group

Social Media Platform	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Facebook	7(78)	6(86)	2(67)	4(80)	19(79)
Twitter	6(67)	4(57)	——[a]	4(80)	14(58)
Instagram	5(56)	5(71)	1(33)	1(20)	12(50)
Pinterest	——	1(14)	——	——	1(4)
YouTube	——	1(14)	——	1(20)	2(8)
Flickr	——	1(14)	——	——	1(4)
Foco	——	1(14)	——	——	1(4)
Mailchimp	——	1(14)	——	——	1(4)
LinkedIn	1(11)	1(14)	——	——	2(8)
Snapchat	1(11)	——	——	——	1(4)
Huddle	——	1(14)	——	——	1(4)
Blog	——	2(29)	——	——	2(8)
Canva	1(11)	——	——	——	1(4)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or a response was not provided.

Beyond marketing, schools reported incorporating social media into their nutrition education programs. For example, trivia contests were placed on Facebook and Twitter and scrolled on the MealViewer screen in the school cafeterias. When students participated, they were automatically entered into the contest to win prizes. Another school created a hashtag #VeggiesAreLit and then set up a photo booth in the high school for a week and encouraged the students to come and take their pictures. They created signs stating “VeggiesAreLit” and had a variety of health and garden-related props for use. Photos were shared on social media pages,

and a contest was set up based on the number of shares and likes. Contest winners received "swag," which consisted of t-shirts, sunglasses, and bracelets.

While most participants viewed social media as an excellent tool to share information with students and parents, one participant was quick to point out that not all social media exposure is positive, stating, "I don't necessarily think that social media is our friend, very often. It certainly can destroy us quickly." Another participant warned that "We've all seen that terrible picture that gets sent across the social media about a really bad lunch that was served at the school and the fact of the matter is it's not wrong, it's wrong in the fact that it's isolated." Several participants expressed the idea that social media can be tricky. One explained a preference for one-directional messaging:

> *We have a nice interface with Twitter that we can build right into the website, the mobile app, and the digital boards. They can take a one-directional message out and not worry about defamatory stuff coming back. So, when I say a safe way to do social media, the thing that I think we have to be careful of is the comments that could potentially come back in like a Facebook environment, especially in a school environment.*

Strategies and the respective activities that involve marketing can be found in Table 10.

Table 10

Strategies and Activities that Involve Marketing Reported by Stakeholder Groups

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Marketing/advertise SN program	7(78)	4(57)	3(100)	4(80)	18(75)
Marketing with app	4(44)	2(29)	3(100)	3(60)	12(50)
Social media	3(33)	7(100)	2(67)	4(80)	16(67)
Marketing in cafeteria/signage	4(44)	1(14)	3(100)	4(80)	12(50)
Printed media/ newsletters/menu	5(56)	2(29)	2(67)	3(60)	12(50)
Market foods are local, farm fresh	2(22)	2(29)	3(100)	4(80)	11(46)
Marketing on webpage	2(22)	1(14)	3(100)	4(80)	10(42)
Teachers/staff market to students	2(22)	6(85)	——[a]	2(40)	10(42)
Students market to students	4(44)	3(43)	1(33)	1(20)	9(38)
Food characters/ heroes/cartoons/ mascot/logo	1(11)	2(29)	2(67)	1(20)	6(25)
Media to cover special event	3(33)	——	1(33)	——	4(17)
Collaborate with marketing class	1(11)	1(14)	——	——	2(8)
Food displays to promote participation/sales	1(11)	——	1(33)	——	1(4)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

Theme 3: *Stakeholder Engagement*

The third theme which emerged for strategies and activities for student engagement was stakeholder engagement. Stakeholder engagement involves ensuring there is nutrition education, communicating with stakeholders, collaborating with stakeholders to accomplish goals, involving various stakeholders in activities that promote student engagement, engaging students in decisions related to the school meal programs, and involving students in action-oriented activities.

Subtheme 1: *Nutrition Education*

All the stakeholder groups, including SN professionals, allied organizations, foodservice management companies, and school food industry vendors, have utilized nutrition education and food awareness initiatives to inform the customers better; this has helped augment the school meal participation. Nutrition education is happening through special channels such as school gardening and farm-to-school initiatives taught in the curriculum or the menu as featured harvest. Nutrition education is also deployed through various marketing tools (educational signage and digital tools), activities (cooking clubs/classes), and diverse stakeholders. The following excerpts depict nutrition education happening through classes/curriculum, gardening/farm-to-school initiatives, cooking initiatives/activities, and digital tools:

> *Integrating local food education into the curriculum. So, whether that's agricultural classes or I use the example of little ones in kindergarten, working on counting by planting seeds, so both learning about where food comes from and how it grows, and also integrating local foods into these other curricular opportunities as well. Learning about history in social studies by talking about and planting foods from different cultures. Developing that integration of the different curricular aspects and local foods.*

> *With tower gardens, we have an 8th grade STEM teacher; we have 6th-grade science, we have a physical education teacher to help with her health curriculum for a while. There are lots of ways to get creative and incorporate it into their curriculum to provide nutrition education to students.*

> *We have a mobile cooking cart; it's essentially equipped with everything that you would need to bake, to sauté, to blend, and it has tools for children that are appropriate for children to cook with. Nutrition education is provided two days a week through this program in different schools. Essentially, teachers are welcome to sign up for it. It's a voluntary program, but they sign up for a 1-hour slot. And during that time, the students will prepare something and get to taste it and learn about it through the nutrition of it, the food origins, if they're learning about something specific in the class. Program directors work with the teachers to tailor it to their educational needs, based on whatever students are learning about. A theme and a recipe are pre-decided, and the students get to be hands-on, and they're the ones that prepare the recipe, and they get to taste it all together at the end.*

One SN professional reported how they utilized marketing tools for the nutrition education of school students. With that program, marketing tools such as TVs/digital displays outside of the lunchrooms were being used. The TV displays menu with an 'L' mark next to

menu items to symbolizing local. They also specify vegetarian or vegan next to each menu item. Each meal also specifies the nutrition information, such as calories, fats, sodium, and carbohydrates, next to each item. Information about allergens, such as menu items containing wheat or peanut, or milk, is also specified. "That's how we market the program to the kids. I think that it has been very, very successful and a great way to increase participation of especially fruits and vegetables."

It was reported that diverse stakeholders helped transmit nutrition education to students. The stakeholders included teachers, parents, SNP staff, community members, and guest chefs/servers. An allied organization reported they created toolkits for the teachers to help provide nutrition education to their students. This was a way to empower the teachers and provide them with resources they can utilize. These resources were available through this organization's website.

Another allied organization evaluated student feedback to find ways to get SN professionals in contact with the students. In addition to looking at feedback, the foodservice employees were also encouraged to help students with different hands-on school activities. For example, students have completed lunchroom case studies under a fresh produce availability program with SN employees' help. When SN professionals help students, it fosters a relationship between foodservice staff and students. While taste testing in cafeterias, foodservice staff educate students about the samples that they're trying, the different fruits and vegetables, they're engaging more on a personal level with students, so that's a unique opportunity for foodservice staff to get out from behind the line and have more in-depth conversations with students. It also helps students feel more comfortable eating school lunch and sees it as more approachable. They can taste the food that's being served; so next time they think about eating school lunch, it becomes not as an intimidating process, where students feel, "I don't know what this food is, I don't know what this vegetable is, am I going to like it, I'm just going to throw it away." Students are more open to trying new things. One participant stated the following:

> *The idea behind this is to make the cafeteria an educational space. Students are learning all kinds of subjects in their different classrooms, and the cafeteria is this lost space that can also be utilized for educational purposes. Sometimes it's used as a literal test to see if students like food prepared this way; what if the meal was prepared the other way. The taste tests have to be open to students regardless of their participation in school lunch that day. Therefore, it also encourages students who have brought their lunch from home.*

While nutrition education is essential for the students, parents need to be informed, and some need to be convinced of the importance. Advocacy toolkits have been created based on experiences from parents that have worked with districts across the country to change foods provided in a school. These toolkits help educate, organize the parents, and help them take action when there is a need. A participant from an allied organization reported, "Getting parents educated is probably the most significant piece that frustrates SN professionals. Some parents reach out to SN professionals, wanting to change school food without knowing how the SNP operates." These education materials are available on their websites and are also disseminated via webinars or one-to-one meetings (online or in-person).

According to the stakeholder group, reported strategies and activities that involve nutrition education can be found in Table 11.

Table 11

Strategies and Activities that Involve Nutrition Education as Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Nutrition education/ Food awareness	8(89)	5(71)	3(100)	5(100)	21(88)
Garden/food/nutrition based education integrated throughout the curriculum	3(33)	5(71)	3(100)	2(40)	13(54)
Garden/farm to school/ featured harvest	5(56)	4(57)	2(67)	2(40)	13(54)
Education signage	5(56)	——[a]	3(100)	3(60)	11(46)
Utilizing digital tools for education	2(22)	——	——	——	2(8)
Involving different stakeholders	2(22)	——	3(100)	2(40)	7(29)
Cooking club/class	4(44)	2(29)	1(33)	——	7(29)
Staff toolkits to SN education/ activities/garden program	——	5(71)	3(100)	3(60)	11(46)
Make cafeteria an educational space	1(11)	1(14)	2(67)	3(60)	7(29)
Empower foodservice staff to create an education program within their lunch program that works for them	——	1(14)	2(67)	3(60)	6(25)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

Subtheme 2: *Communicating with Stakeholders*

Nearly all the participants (17) reported that communicating with stakeholders and educating them about the SN program was a strategy to increase student engagement. The stakeholders referred to included parents, administration, teachers, and students, all of those involved with the SNP. Participants reported, "educating other stakeholders, including administration and teachers about the SN program was a fundamental strategy to help promote the program to the students. School administration and teachers can be role models for the students."

Changing the students' and parents' perception of school meals and building trust in the SNP were verbalized as strategies to promote student engagement. Communicating with parents and educating them about how the food is prepared and allowing them to sample the menu items can give rise to more trust from parents, leading to increased participation and engagement. One participant stressed the importance of the engagement of parents and the students in the following excerpt:

> *It's not just getting kids to eat and participate in those programs, but sometimes the other barriers besides their own likes and preferences are the perceptions that parents and other key stakeholders have about the nutritional adequacy and quality of the programs offered in K12.*

One SN director reported that parents' perception of the meals in their district was inaccurate, so they did activities to increase their understanding of how the food was prepared in the district. One of the activities they did was host a parent taste testing night. The SN director stated, "A lot of people had a stereotypical view of school lunch. Frozen everything. Pre- packages, everything. Since we have gone to educate the students as well as parents now the parents are much likely to encourage their child as well."

Activities reported that could be used to educate students and parents and change their perception of the SNP included providing resources to educate parents about the SNP, presenting to parent groups, the Parent Teacher Organization, and hosting a coffee session for parents to inform them about the program and to answer questions. Other activities to communicate and familiarize parents, students, and other stakeholders include making presentations or having information available at parent night/back-to-school events and health fairs.

In addition to the previously listed activities, allied organizations and school food industry vendors reported providing webinars and training to educate parents and other stakeholders, holding focus groups for parents, providing information through the website or blog, and utilizing the program menu program as an educational resource. One of the school food industry vendors stated their company tries to help SNPs improve the communication that goes out to parents and students. Their goal is to increase transparency, provide easier access for parents and students to information, make it easier for the SNP, and ultimately do the marketing that drives participation. An allied organization participant reported that changing the perception of the SNP involves including the whole community:

It's important to conduct focus groups that include students and members of the school community, not only teachers but parents and family members, and even community partners. In thinking, it takes a village to raise a kid and so getting them involved in something as important as nutrition and changing the perception of school meals is very important.

According to stakeholder groups, reported strategies and activities that involve communicating with stakeholders can be found in Table 12.

Table 12

Strategies and Activities that Involve Communicating with Stakeholders Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Educate students/ parents/admin /teachers about the SNP	6(67)	5(71)	1(33)	5(100)	17(71)
Change student/parent perception of school meals	3(33)	1(14)	1(33)	4(80)	9(38)
Build trust	2(22)	1(14)	——[a]	3(60)	6(25)
Provide resources about the SNP for parents	7(78)	5(71)	2(66)	4(80)	18(75)
Connect with parent groups, PTO, PTA, parent coffee	3(33)	1(14)	1(33)	——	5(21)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

(Table 12 continues)

(Table 12 continued)

Strategies and Activities that Involve Communicating with Stakeholders Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Parent night/back to school event	4(44)	——	1(33)	——	5(21)
Parent taste testing	2(22)	2(29)	——	1(20)	5(21)
Webinar/ training	——	2(29)	——	——	2(8)
Website/blog	——	1(14)	——	1(20)	2(8)
Focus groups	——	1(14)	——	——	1(4)
Menu platform	——	——	——	2(40)	2(8)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

Subtheme 3: *Collaborating with Stakeholders*

Collaboration between key stakeholders and allied organizations was an important strategy employed by most participants (n=17). These key stakeholders included dietitians, policy makers, grant funders, federal programs, and culinary experts. Actual rates of collaboration differed significantly between the various participant groups. For example, 67% of foodservice management companies report having a registered dietitian on staff to help with menu development, planning, and managing special diet requests. In contrast, not one school food industry vendor said working with a dietitian. This is due to the different roles each participant group belongs to within the system, and the various needs each group has regarding collaboration. Forty-four percent of SN professionals reported that their school districts have dieticians on staff. Some of the participants we interviewed were dieticians and worked as SN professionals to implement nutrition education, training SN staff, helping with the implementation of wellness programs like farm to school, and coordinating programs and activities to promote nutrition with parents and students. School nutrition professionals report

working with federal programs, while this was less applicable to other participant groups. Similarly, allied organizations rely heavily on grant funding; therefore, it is not surprising that they collaborate most frequently with grant funders.

Of equal importance is the role that the participants play in collaborating. For example, a participant from an allied organization shared she needs to stay informed about what is happening in the schools in her role. Consequentially, one strategy she utilizes is to "meet with experts throughout the field, so we have ad hoc calls with our committee, where we'll get people that actually are in the school building and again ask them what's relevant, what's not relevant, what do you feel are the hot topics or the hot issues."

Policy makers were mentioned as collaborators. A participant reported, "We get our congressmen to come, and we bring the state school superintendent in, and it is a huge way to showcase farm to school and showcase how our kids love our food because they are eating watermelon and watermelon slushies and all this really cool stuff." Participants also reported collaborating with state departments. A representative from a food management company explained the following:

> *We work with the state department also because the schools get audited and reviewed, and they want to have a successful program, and they don't want demerits, so we're creating resources all the time that makes their program compliant. We are creating resources handed down from the USDA to help teach and promote the regulations that the USDA has mandated. And the state department has to follow up with reviews and audits, and we have resources like staff training resources to help them make sure their program is compliant so when they get audited or reviewed that they pass. You can't have a successful program if you're not compliant.*

In larger districts, chefs are utilized to help create menus that appeal to students' tastes. One SN professional described how she was able to partner with a culinary professional in the excerpt below:

> *We worked with a foodservice company a couple of years ago. They had a chef's round table, and they brought in emerging chefs from across the country. We did a whole day at our school, with round tables, focus groups, with our staff, and also with students from the culinary arts program. The chefs did Q& A with the kids. They did innovation time, where chefs came up with ideas using sauces etc., how we can create menu items from that and implement it in high school. They spent the entire day working in the kitchen. So, that was certainly a really good partnership and got students involved. We got some recipes out of it; we were able to move forward.*

Smaller districts are also collaborating with chefs but may have to be more creative about the guests they bring in, as they have fewer resources than the larger districts. As one SN professional from a smaller district explained:

> *Something that we have started recently is the guest chef. It hasn't necessarily been an actual chef. We kicked off our project with our superintendent. He came in and served.*

He ate lunch with the students and talked about what he does. This has been done in my 24 grade level school. Then we had a local chef come in. He made an avocado-banana pudding that the kids got to taste test. We had local news come in. They served, and then they talked to the kids. They then ate with them. I am kind of big on having guests come to school every couple of weeks. They love it when someone new is in the cafeteria. They love it when someone is there to make them try something new or tell them something about their job, which is really cool.

According to the stakeholder group, reported strategies and activities that involve collaboration with stakeholders can be found in Table 13.

Table 13

Strategies and Activities that Involve Collaborating with Stakeholders Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Partner with other stakeholders/ allied organizations	6(67)	3(43)	3(100)	5(100)	17(71)
Dietitian on staff	4(44)	1(14)	2(67)	——[a]	7(29)
Engage with policymakers	——	1(14)	1(33)	3(60)	5(21)
Grant funder	——	5(71)	——	——	5(21)
Utilize federal programs	1(11)	——	——	——	1(4)
Collaborating with culinary professionals	1(11)	——	——	——	1(4)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

Subtheme 4: *Involve Various Stakeholders in Activities That Promote Student Engagement*

Engagement with a diverse combination of stakeholders was reported by 19 participants. All the allied organizations and 8 of 9 SN professionals stated this was important for promoting student engagement in school meal programs. Based on the interviews, administration, teachers, parents, community members, and students were considered stakeholders. Participants reported that involving all stakeholders and obtaining their buy-in helped make more successful SN programs and led to better student engagement. One participant who represented allied organizations stated the following:

> *We really went in to do stakeholder interviews. The common theme for successful programs was having at the very least superintendent buy-in, principal buy-in, school meals, teachers, teacher's union, parents, and to involve students as much as possible in decision making, etc. That was a very important piece of our findings.*

Another participant from an allied organization reported the following:

> *Very clearly, when it was universal and breakfast after the bell, if it were implemented with all stakeholders on board, you would see somewhere between 70 – 80% participation in elementary schools and luckily 50%70% participation in secondary schools. So just having the program reduces your food insecurity. Just having breakfast after the bell in the classroom that's universal, free for all, increased participation.*

In addition to engaging stakeholders, 18 participants, or 75% of the participants, reported gathering feedback from stakeholders, particularly parents, staff, and advisory committee members was essential. Obtaining input from the stakeholders helped them create or update programs that would be accepted by students, parents, and other stakeholders.

Activities associated with those strategies include parent involvement with activities and playing the role of advocate for the SN program (10 participants), parent surveys, taste test opportunities, and focus groups for parents (8 participants). Additionally, five participants reported having focus groups for teachers and community members to gather opinions. It was shared that having the parents involved with taste tests, surveys, and focus groups were methods to help them better understand how the food tastes and better understand how it is prepared. This helped the parents encourage their children to eat school meals.

According to the stakeholder group, reported strategies and activities that promote student engagement involving various stakeholders can be found in Table 14.

Table 14

Strategies and Activities That Promote Student Engagement Involving Various Stakeholders Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Engagement with a diverse combination of stakeholders	8(89)	7(100)	2(67)	2(40)	19(79)
Gather feedback from parents/staff/ advisory committee	6(67)	5(71)	3(100)	4(80)	18(75)
Parent involvement/ advocate for SN program	3(33)	5(71)	1(33)	1(20)	10(42)
Parent survey, taste test, focus group	4(44)	2(29)	1(33)	1(20)	8(33)
Focus group with teachers/ community members	1(11)	1(14)	2(67)	1(20)	5(21)

Subtheme 5: *Engage Students in Decisions Related to School Meal Programs*

Strategies for engaging students in school meal programs emerged from the transcripts. The strategies included gathering feedback from students, involving students in decision-making, and involving students in processes.

Nearly all (n=22) participants reported that gathering feedback from students was a strategy that promoted student engagement. Several activities were reported that involve gathering feedback such as student taste tests (n=18), surveys (n=8), and holding focus groups (n=6). Participants stated that students like to be asked what they like, which promotes participation in meals. Students can taste the food that's being served, so they become less intimidated the next time they think about eating school lunch. Taste tests, surveys, and focus groups are ways students have voice and input in what is being prepared and served.

Sixteen participants reported the strategy of involving students in decision-making promoted student engagement. Activities included engaging students in menu planning (n=3), having students attend food shows (n=1), and connecting students to the producer, such as a farmer (n=3). A participant from an allied organization explained it by saying, "Another big piece that we found that was really important was having student taste tests and students involved in food shows in the previous season to decide what the menu would be for the next school year."

The strategy of involving students in the process was reported by 13 participants. Students engaged with school meal programs often serve as role models and school meal champions. A variety of activities were named related to this strategy. They include students serving meals or delivering meals to classrooms (n=7), student workers in the cafeteria (n=3), and having student council members participate in the school meal program to set an example for others (n=2). According to a participant:

> *We also found that using students as part of the delivery method for direct delivery to the classroom. The student ambassador program was very successful. When you had these student ambassadors that delivered the meal, they tended to be champions in the school, and they encouraged their peers to eat it as well.*

Twelve of the participants reported that having student ambassadors and students be members of advisory committees encouraged student involvement in school meal programs. One allied organization participant explained it this way:

> *One of the things I encourage a lot is the practice of involving students in decision-making as stakeholders for the SNP. So, with that in mind, I encourage school districts to include students in their nutrition advisory committees. The students actually help you promote the program, number one, which helps with marketing, so when you get students involved in the decision making it is a lot different than when adults are making decisions for what kids want to eat. So, I do encourage and recommend that as a practice for school districts.*

Another activity mentioned included collaborating with the culinary or foods class for menu ideas, which can promote engagement because the students are involved. An allied organization reported that having students interested in writing grant applications or initiatives and having trained student leaders helped develop leaders who influence their peers. One participant said about a student entrepreneurship program through gardening and food-based activities. Students' opportunities to take the lead in building their own business around gardening and farming opportunities promoted student engagement.

According to the stakeholder group, reported strategies and activities that engage students in decisions related to the school meal programs can be found in Table 15.

Table 15

Strategies and Activities that Involve Engaging Students in Decisions Related to School Meal Programs Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Gather feedback from students	8(89)	7(100)	3(100)	4(80)	22(92)
Involve students in decision making	5(56)	6(86)	2(67)	3(60)	16(66)
Involve students in processes	6(67)	4(57)	2(67)	1(20)	13(54)
Taste tests	8(89)	6(86)	3(100)	3(60)	18(75)
Surveys	4(44)	——[a]	2(67)	2(40)	8(33)
Focus groups	2(22)	2(29)	1(33)	1(20)	6(25)
Engage students in menu planning	1(11)	1(14)	1(33)	——	3(13)
Students attend food shows	——	1(14)	——	——	1(4)
Student ambassadors/ advisory committee members	3(33)	6(86)	2(67)	1(20)	12(50)
Connect student to producer	1(1)	1(14)	1(33)	——	3(13)
Collaborate with culinary class	2(22)	1(14)	2(67)	——	5(21)
Student serving meals/deliver meals to classrooms	4(44)	3(43)	——	——	(29)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

(Table 15 continues)

(Table 15 continued)

Strategies and Activities that Involve Engaging Students in Decisions Related to School Meal Programs Reported by Stakeholder Group

Strategy or Activity	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Worker in cafeteria	3(33)	——	——	——	3(13)
Student councils to set examples to participate in SNP	1(1)	——	1(33)	——	2(8)
Entrepreneurship program	——	1(14)	1(33)	——	2(8)
Student-led initiative/grant application	——	1(14)	——	——	1(4)
Student leader summit/training	——	1(14)	——	——	1(4)

[a]Dash (—) indicates the response did not apply to the stakeholder group and/or response was not provided.

Subtheme 6: ***Employing Interactive Activities with the Students to Encourage Engagement***

The subtheme of employing interactive activities with the students to encourage engagement emerged from the analysis. The activities were categorized into competitions, dynamic activities, and activities that involved incentives.

Activity 1*: Competitions*

Several stakeholders (n=11) reported that holding competitions and challenges engaged students to participate in the school meal programs. They claimed students enjoyed hands-on activities to learn about foods, new recipes, and nutrition while having fun. Five stakeholders reported cooking challenges. An SN professional stated, “Cooking challenges lead to the development of recipes that the kids want to eat. The task is to develop a healthy, nutritious

recipe that may make it onto the cafeteria menu. It is student engagement at a whole new level." Participants reported cooking challenges bring excitement to the entire school. One participant claimed they organized their challenge to be like a popular TV cooking show. The school administrators and teachers were judges, which enhanced the engagement of students.

Other examples of competitions and challenges included a food art contest. An SN professional stated, "It was an excellent way to introduce nutritious foods uniquely and excitingly. The food art contest can be done in the classroom in conjunction with a nutrition education lesson or done with a snack. It also is a way to form a partnership between the whole school community. The students create the artwork, and others in the school vote." One SN professional reported the school breakfast challenge they held between schools to see which school had better participation. A different SN professional said that when students win a contest in their classroom, they can rename a menu item. They stated that "the ability to name a menu item creates excitement for what is served in the cafeteria and can increase participation." An allied organization reported mini-challenges the students accomplish to improve their school environment.

A foodservice management company reported the "Healthy High School Challenge" that reaches several schools across the nation, and explained it below:

> *Kids earn points for making healthy food choices. That becomes a competition all across the United States, resulting in some schools receiving financial support for other wellness initiatives. So, it's driving that school spirit, that collaboration. I think any time you can make the kids feel engaged; then it's a positive thing. I can't speak to just one program, and I would just say blankly across all the things that we do if we are driving kids to be more social with each other or to have a new experience or to feel like somebody cares, then it's a good thing in a kid's day.*

Activity 2: *Dynamic and Interactive Activities*

Stakeholders from each group reported several examples of activities that were considered dynamic and promoted interaction with students, which encouraged student engagement. Several participants reported hosting chef demonstration days. For this activity, students interacted with the chef while their food was cooked right in front of them. Participants said it was an opportunity for the students to learn about how the item was prepared. One participant explained this concept further:

> *Our chef goes out from our office here and actually does a cooking demo for the kids on an item and they can choose that as their entrée that day. All the other entrees are available on that day, the regular menu items, the engagement is the student standing and watching the chef make the food, they do it on a couple of burners right in front. Assemble the ingredients right in front of them.*

Corn husking and corn-related activities in elementary schools were reported as another activity students enjoyed. School nutrition professionals said,

Students husk the corn. They receive information about how the corn came from a farm, how it grew, and different facts about the corn, including its nutritional value. Sometimes, as students get off the bus, even before they enter the building, they do that if they like to husk the corn. Then they put it in some big tubs that go back to the kitchen. They love doing it.

Several stakeholders reported that the farm to school activities help students learn where food comes from. Activities can happen in the classroom through nutrition lessons and field trips to farms, in the school garden, or the cafeteria, by serving locally grown food for breakfast or lunch. Participants reported organizing harvest parties and activities that allowed students to cook and try what they've grown. An SN professional mentioned that they, "try to hit on both areas, involving students in growing and cooking the food. These opportunities and exposures to fresh fruits and vegetables help foster student interest in selecting and consuming fresh produce, thus reducing plate waste."

Voting was reported as an excellent way to involve large groups of students. They advised creating a system that asks, "Which of these four options would you like to see next on the menu?" Based upon what the children vote for, that becomes the next thing released on the menu.

Activity 3: *Incentives*

Tangible and intangible incentives are given out to students to increase their participation in school meals. Tangible incentives include red tickets for doing good deeds in their classrooms or out on the playground. One participant said, "Every morning, students get to pull out a name from a bucket. The student gets an opportunity to choose different prizes, e.g., eating with the teacher, going to lunch early, or being a lunchroom helper." Another example was having trivia contests uploaded to Facebook and Twitter which were kept scrolling on the school menu digital screen in the school cafeterias. When students participated, they were entered into the contest to win prizes. Action-oriented activity categories and the number of stakeholders who reported activities can be found in Table 16.

Table 16

Action-oriented Activity Category Reported by Stakeholder Group

Activity Theme	SN Professionals (n=9) n(%)	Allied Organizations (n=7) n(%)	FS Management Companies (n=3) n(%)	SF Industry Vendors (n=5) n(%)	Total Participants (N=24) N(%)
Competitions	4(44)	5(71)	1(33)	1(20)	11(46)
Dynamic activities	7(78)	1(14)	2(67)	3(60)	13(54)
Incentives	2(22)	1(14)	2(67)	1(20)	6(25)

Impact of the Strategies to Encourage Involvement in School Meal Programs

The participants were asked what impact the strategies and activities had on the students' healthy eating behavior, participation in school meal programs, and their perception and satisfaction of school meals. The interview guide was not designed to gather the impact of each strategy or activity reported. For some stakeholders, the question was not applicable; however, this section summarizes the interviews' findings.

Impact on Healthy Eating

The impact of strategies and activities utilized to increase student engagement in school meal programs was reported by several stakeholders to promote increased consumption of healthier foods such as fruits, vegetables, whole grains, and low-fat dairy products. One participant said they noticed students were, "demanding more varieties of fruits and vegetables" due to programs that were put in place. It was further explained, "So as I visit schools across the country, I see a lot more not only varieties of fruit and vegetables but fresh fruits and vegetables and salads and salad combinations and things like that."

A school food industry vendor reported an increase in eating healthy foods utilizing a strategy that involved digital games played in the cafeteria. Students had competitions for eating fruits or vegetables and watching scores on the digital board. It was observed that even after the contest was over, sometime later, the students continued to consume fruit or vegetables.

An SN professional who worked in a medium-sized school district reported their use of a cooking cart has a tremendous impact on encouraging children to eat healthily. When students participate in activities involved with the cooking cart, they get a recipe to take home to share with their family. This participant shared how a farmer's market with fresh local produce and the impact of healthy eating transfers from student to the family:

> *With our farmers market, we instituted The Wholesome Way, where we double up our food stamp dollars. I reached out to some people I know, and organizations I've done some work for, and they donated some money to us, and we bought a food stamp machine, and so our food stamp parents can come and if they give us $10 towards food stamps we give them $20 worth of fruit and vegetables. It doubles up. It's kind of like the Veggie Prescription program that is out there where the Drs prescribe fruits and vegetables; this is programs along the same line, but we double up any local produce buys at the farmers market for them. It directly affects the kids because most of our parents that have food stamps have kids at home, so then we feel like the kids are getting more fruits and vegetables at home.*

Other stakeholders reported an increase in participation in the breakfast and lunch programs, translating to healthier eating overall. They explained that since participation in the NSLP means reimbursable meals were being consumed, students received fruit and vegetables with their meals and, therefore, healthier meals.

Impact on Participation in School Meals

Participants reported they observed an increase in participation after implementing student engagement strategies and activities. For example, participants described increased breakfast participation when implementing strategies such as moving breakfast into the classroom or having it in the hallway and other focused strategies. Increased participation was observed when students were offered more menu options to choose from, mostly if students were offered what they had requested. An SN professional reported, "When new items were promoted, offered with a taste test, or if it was guest chef-prepared, participation went up 8%10%." Another reported that if strategies were implemented, there was an increase in participation by 5%10%. That sentiment was echoed by a participant who stated, "big improvements with participation correlated when we engage."

One foodservice management company reported improvements in participation by engaging with families from the very beginning. Be involved with back-to-school events to be available for questions and getting to know families. They reported that by identifying and engaging eligible families to apply for free and reduced meals and streamlining the application process, more students could participate. The family engagement was reported as essential for supporting the student to engage.

A school food industry vendor reported an increase in participation when parents could see menus on a digital device that showed "nutrient information, they could understand how much the food costs, they got a better perception in terms of nutritious and tasty, in terms of recommending to friends, aware that there are school requirements, they are more likely to know those things...we called this one, intent to participate, based on what you saw, how likely you would eat meals the next week."

Impact on Perception and Satisfaction of School Meals

Allied organizations reported that programs and information they offer could impact students' perception and satisfaction of school meals. One participant reported that in addition to molding healthy behaviors, their resources could accomplish even more:

> *Change the student's attitudes and knowledge around fruits and vegetables, around food systems, around healthy eating. We have summarized information around those impacts both on students and on families, which I think is important to take into consideration that these initiatives have the opportunity not just to influence students' knowledge and behaviors but also influence what's happening in the home. We know that that really promotes long-term change in behaviors and long-term habits when we can influence both of those environments at the same time.*

Another allied organization reported the students' perception and satisfaction with school meals:

> *I think both of those areas have improved I think with this program. There is more engagement from students, more interest in eating school lunch; there's also the ability for schools to serve, and better understand what kids like. They can do a taste test where*

they compared boiled broccoli to sautéed broccoli to roasted broccoli so they can learn, ok, the kids like the roasted broccoli the best, so that's how we're going to serve it. It's kind of a circular impact, so then schools can serve more of what students like, students are going to like the meal program better than the participation goes up because they are participating more than school districts have more money to do more taste tests. It's kind of this circular thing.

One participant reported that offering students 810 choices of fruits and vegetables and more entrée choices helps with their perception of school meals because they aren't forced to choose anything; they can choose what they want. They get satisfaction because of more choices. The students are stakeholders and are asked what they want. When they become stakeholders, their perception changes when they are a part of decision making; they see the differences that are happening and feel like they have a voice.

School food industry vendors reported satisfaction has improved, in part because of available nutrition information. They reported nutrition education is essential. Providing information for parents to clarify what is in the food helps them decide to purchase meals or snacks for their children.

School nutrition professionals reported that when students and parents are offered taste tests, it allows them to see what is going on in the school meal program. Communicating to them about the menu items improves the perception of school meals. It's essential to educate the students and parents in the preparation methods, to get them past previous perceptions of school meals, frozen and less home prepared. One SN professional reported that holding focus groups helped change perceptions of school meals.

Evaluation of the Impact of Strategies and Activities to Encourage Student Involvement in School Meal Programs

Participants were asked how their organization evaluated the impact of the strategies and activities they implement to encourage involvement in school meal programs and healthy eating. The details of describing each activity or strategy's evaluation were not captured in this interview; however, a summary of evaluations performed by the SNP stakeholders was described. The primary forms of evaluation included participation in school meals and informal and formal feedback from students and parents. In addition, some stakeholder groups reported using focus groups, interviews, tracking social media analytics, and resource downloads as ways to evaluate a program.

Participation in the school meal programs was reported as an evaluation method by SN professionals, foodservice management companies, and school food industry vendors. School nutrition professionals said checking participation numbers routinely, especially after conducting taste testing for menu items, was necessary. Foodservice management companies reported that participation was the key metric that informed them of their program evaluation. They explained that measuring an increase in participation was crucial because the customer-base does not vary within a school or district. One participant shared, "If we are doing something and it's driving participation, then obviously, we're doing the right thing. If we're serving the same menu, month

after month, and we're not having an increase in participation, then we're doing something wrong." Another foodservice management company participant explained participation below:

> *Honestly, it is something that we talk about a lot. We're constantly looking at participation and sales as a direct indication. So, the number of kids coming in the door and the number of meals that we're selling is a very direct and very immediate indicator of whether you are doing the right thing.*

School food industry vendors also reported tracking participation, but their method was through technology, such as menu apps and revenue of purchased menu items.

Checking for waste was an evaluation method reported by both SN professionals and foodservice management companies. School nutrition professionals said that checking food waste was not formally reviewed, but instead, they did a visual check on the waste canisters due to lack of time or staffing that was needed for a formal waste study. One participant stated the only time they could do a formal study was when they had interns to do the extra work. In contrast, plate waste was measured, evaluated, and tracked monthly by two of the three foodservice management companies. The reduction of plate waste was identified as a significant priority. The companies reported having precise targets for waste reduction in the kitchen and cafeterias they manage.

All stakeholder groups reported obtaining feedback was a common form of evaluation. Two stakeholder groups reported informal feedback. Most of the SN professionals stated that they receive informal feedback from students when they visit them during lunch periods, or in other locations, to hear their thoughts on menu items or what they would like to see. One participant reported "minimizing calls to the office from parents" was also a method of evaluation. Two of the school food industry vendors reported they valued the informal feedback they receive. One participant reported that their large company serving over 50 school districts relies on "word of mouth" referrals to evaluate their programming, as explained below:

> *We have testimonials that we get from our customers; we really like those because that draws a lot of attention to the fact a colleague or a peer has taken the time to recommend a resource because they saw that when the kids saw bright fruits and vegetables that they were more willing to try them. Or when they planted the vegetables and fruit themselves and took care of them, they were more willing to eat them. We hear that kind of activity happening all the time via the use of our resources. But we don't have any data. We'd love to have some data that we could include in our marketing resources, but we aren't the data collectors.*

Another participant shared that they wish they had numbers to help them promote their business's effectiveness:

> *I don't have anything quantitative; it's all been qualitative through feedback. Again, I think that it would be a smart thing for me to think of how to do it quantitatively because it would probably improve my sales quite a bit. If I could say, "if you get this, you will improve by X amount."*

All stakeholder groups utilized formal feedback. Surveys were developed to obtain input from students, either through paper or online forms such as Survey Monkey. Additionally, parents were also solicited for feedback. An allied organization reported they rely on student feedback but also relied heavily on input from parents and other stakeholders, such as national, state, and local level partners, school foodservice directors and staff, school personnel (i.e., superintendents, principals, teachers, teacher unions), and advisory boards. Student survey data was collected by two of the three foodservice management companies. The surveys were used to gain insight from students into what is effective and what needs improvement. A participant reported, "I think it comes down to the menu mix. If we're doing what we should be doing well and following our standards, we know that student satisfaction is there. We evaluate participation monthly. We have menu committees across the country; if participation is struggling in a school, we want to dig deeper to find out why."

Two out of five participants in the school food industry vendor group reported utilizing surveys regularly with parents and students. One participant explained the process in this excerpt:

> *The student survey is accessed through the menu app and that students are encouraged to rate menu items like they are on YELP. The app utilizes a 5-star rating scale, like other popular apps, and students are comfortable giving their feedback. They share that their company has a Research and Development consulting wing that helps them develop surveys on everything from taste testing to how many times a student is eating breakfast or lunch. The survey has been very effective because students can pull that out of their pocket and take a survey. School districts today are required to survey revolving around wellness, so it's at their [students] fingertips, they can use that and grab that.*

Allied organizations reported other methods to evaluate the effectiveness of their SNPs. These included conducting focus groups/interviews, a survey using a hedonic scale tracking analytics on their social media/apps/websites/blogs, and tracking the number of resources downloaded from their websites. One participant reported the following:

> *We have a communications department that tracks resource downloads or how many times the website is hit. It's easy for us to see parent engagement, not only from hits on the website but also when parents can become affiliated with our network so they can log in, they can affiliate themselves with the school so we can track it that way as well.*

Participants reported using several metrics to evaluate social media marketing success. Search engine optimization and Google Analytics were specifically named as tools tracking social media success. These tools allow organizations to check to see exactly how many people visit a website, how many people react to social media posts, or the posts that got the most likes or retweets. Organizations use this information to evaluate their messages, and if something does not work, they do not use that again. While there were exceptions, the larger the organization, the more sophisticated the evaluation of social media marketing. For example, a national allied organization participant utilized metrics to increase student participation in concrete ways. As one participant explained below:

> *If they [students] are at level one, meaning they've downloaded a poster and put it up in their school, we keep those numbers. And I'll say, to myself, as the lead for this program every month, they give me a report, so I know how many new kids have enrolled in the program this month. How many kids are at level 1, how many kids are at level 2? We're always looking at, oh gosh, we have 23,000 kids at level 1, how can we get them to level 2? And then we'll strategize out, is it through social media, do we do another mini-challenge to get them excited.*

Some larger national organizations described their communications department as a "newsroom," where social media monitoring occurs. People are hired to track online conversations and to follow trends. Participants shared how they monitor social-media engagement:

> *There is a group of people that's what they do 8 hours a day and then again overnight follow online trends and to listen to what students are saying, listening to what health educators are saying, listening to what influencers are saying or nay-sayers, our partners and really trying to keep an ear out on the internet on top of that as well.*

Smaller organizations and schools also evaluate their social media marketing successes but may not be as sophisticated or have time and staffing constraints that limit the scope of their evaluation processes. Several reported they track likes, followers, and shares less formally. The metrics used to evaluate its success include watching the platform for growth, positive feedback, who's liking posts, who's commenting, and anecdotal stories from people who mention that they saw it. A school foodservice management professional expressed concern that school nutrition professionals need to better handle and manage websites and social media. They need to improve their tracking of the number of hits they get on social media platforms. They went on to explain:

> *We do manage that for all the school districts, so we know how much traffic is coming in. We can tell how many people are using our app as well. It's getting more sophisticated to the point where you can even sometimes see how much time not only did they visit it, but how much time did they spend on it? Did they navigate to other places from there? And other things like that. So, we're starting to dig deeper into those metrics, and I think that's because overall if we just look at the world of content and media and marketing, people are beginning to truly realize it's an art. It is really an art, and it's a challenge of trying to capture the attention of people because if you don't have it in the first couple of seconds, you're done. They won't pay attention. So, we need to get better at this; we're doing some, but we need to do better.*

A participant from a school foodservice management company reported measuring their impact by how much press they get on television and in newspapers, explaining that:

> *We're not here to keep these things a secret. And it's not focused on our company either; it's focused on the school district, what's happening at the school. The school is the center, the starring role in the PR because they can use all the positive PR they can get, because you know they're going to get negative PR along the way with other things that*

happen in school districts. We measure success by what kind of story they got; we got, we all got.

Promoting Sharing of Information Regarding Nutrition, Healthy Eating, and the School Meal Programs

Sharing of Information Between School Nutrition Program Staff and Students

Organizations promote sharing of information and communication between SNP staff and students utilizing multiple approaches. These approaches included providing direct professional development and training, sharing resources, modeling, coaching, collaborating, and encouraging empowerment among school nutrition employees. Participants were aware that SN employees could only educate children about health and nutrition if they possessed this knowledge themselves and were committed to the mission of educating and communicating with children about their health. Therefore, many participants considered SN employees their largest stakeholders. The need to train SN employees in the importance of creating healthy schools was the central theme. Their organizations help SN employees to realize that nutrition is an integral part of a child's social, emotional, and physical development and to view themselves as part of the overall mission of the team as stated below:

When I'm doing training for SN employees, many of them are working in schools, and they don't even know why they do what they do, besides a paycheck. Usually, when I do training, I bring them to the point of realizing that they can and are making a difference in children's health, and I try to get them to look at their work, not their jobs, but their work as being very important for the health of our future. So, I bring that mission statement to life. All of the participants were interviewed to provide some type of support to everything from educational and technical training to coaching, modeling, and resources.

A participant from a school foodservice management company shared the following:

I really hope that the foodservice directors understand how many resources we give them from the national level. We help them think through some of the commodities. We give them marketing kits; we give them promotion kits. They just have to do it. They don't have to create it because, at the national level, we do it for them, and then we push it down. But when you're in a self-operated business, you really have to do it on your own.

While there were many resources available, there was some flexibility in how these resources were utilized. This allowed each school community to adapt and tailor programs and messages to their unique student populations. This participant explained below:

One of the things they appreciate about this program is the empowerment and autonomy to create an educational program within their lunch program that works for them as opposed to being dictated, 'do this, do rainbow days…' As long as they meet specific criteria, they can figure out how the construction of their cafeteria can best suit an event, and what type of thing it is, and how many times they want to do it and that kind of thing.

With fresh produce programs administered by many SNPs, there is an excellent opportunity to interact between students and school food professionals regarding those tasting events and learning about different produce items. When such programs feature chef competitions for students, communication between SNP staff and students increases. Additionally, because incentives are given out, students become more enthusiastic about the program. Posters and marketing materials that schools use also increase engagement between foodservice professionals and students.

Sharing of Information Between Students

Peer marketing is enormous when students are involved. Involving the students in decision-making and advisory committees is encouraged, as it increases enthusiasm, enhances willingness to participate in school meal programs, and leads to smoother nutrition education. When SNPs involve many students as school meal champions or ambassadors, they become constituents and stakeholders. They can make or break the business. Therefore, getting them involved, finding out what their needs are, their wants, and putting it into the perspective of being able to do it within the constraints of the federal regulations, the budget, and everything that controls how you do what you do is essential. A great marketing ploy is "an informed consumer is the best customer." When you make an informed decision, you make a better decision.

Participants reported ways to involve more students. An SN program professional reported they involved students by taking pictures of student ambassadors and posting on social media with messages to advertise the program. The program also did informative posters and food trucks to increase excitement. In other programs, competitions were organized. These activities focused on peer-to-peer influence, gamification, and getting kids excited. Campaigns, where kids were asked to create content that goes into digital signage, was another strategy. An SN industry vendor explained how students could share information inside of meal apps in the following excerpt:

> *The phone menu apps can be used as a student-to-student communication tool because some students will be looking at the menu app and tell other students about foods or menu choices. Students also communicate amongst themselves on Featured Entrée and Chef Entrée days; they tell people they liked it, so we're speaking through the food a little bit on that aspect.*

Participants reported students could become ambassadors for their school breakfast and lunch programs, and after school. Some schools run 'be-a-hero' promotions based on social marketing models; they try to encourage students to model exemplary behaviors, such as eating a nourishing meal, making good choices, or fostering peer-to-peer promotion and influence.

An SN allied organization stakeholder reported one of the main objectives in the latest round of funding was peer-to-peer marketing. They stated:

> *Many schools had groups of students create posters with educational facts about a certain produce item or were the ones passing out samples. Sometimes, when the school had the capacity, students could prepare the dish themselves or the produce item themselves before tasting it. All these interactions lead to peer-to-peer exchange around healthy eating. When you have a tasting event, you're naturally going to have some students that are more hesitant to try something new, but then they see their friends trying that, and their friend says, 'oh yeah, that was pretty good.' And they're like, 'oh, ok, well, maybe I'll give it a try.' That's also just a natural thing that happens with those events.*

Another stakeholder spoke highly of school gardening, which fostered peer-to-peer sharing of information:

> *I would say the gardening efforts, through the tower gardens and the raised beds. We see a lot of peer-to-peer education with that. And also, because we do the relationship between the primary students and the middle school students, as I said the middle schoolers, we teach them to be the garden experts. That they're teaching the younger students how to do things, and they get excited because they're proud of what they've done. You go in there and ask them what they've done; they walk you through the whole process. Starting the seeds and transplanting the seedlings, taking care of them, and teaching each other how to do that. Sometimes if you have a student from an agriculture background, if their family runs a farm, or if they do gardening at home, they're excited to come forward and teach each other. Just a couple of weeks ago, we were installing the irrigation lines at the middle school, and this 6th-grade boy just got so excited because he knew how to do irrigation. Our maintenance director pretty much just stepped back and let this student teach the others how to install irrigation. He talked about how he wants to be a plumber; he really loves it. So, seeing them teaching one another through the garden setting, I think, is really the biggest thing.*

Another avenue of sharing of information between students or peers was a student-run newspaper that students design and manage as a class assignment for one of their classes. Students cover stories about wellness initiatives or tower garden activity; therefore, they are always communicating with their fellow students through that newspaper.

LIMITATIONS

This study was designed as Phase I an environmental scan that would lead to more in-depth research conducted during site visits. Due to the COVID-19 pandemic, Phase II was canceled. Some strategies captured in this research might not be relevant for programs presently operating during the pandemic. They may not even be relevant in the future, even when schools are back after the pandemic.

The recruitment of participants was limited by their willingness and ability to participate, in some cases preventing an even distribution of stakeholders per group. In some situations, the researcher was unable to connect with representatives of stakeholder groups. The data collection method limited the amount of "hard data" collected, such as participation numbers and evaluation data. The depth of responses to questions was not obtained in a semi-structured interview with a time limit to prevent participant burden. There were gaps in responses; however, it was not planned to follow up contact with the stakeholders to gather additional data. The interview guide's design did not ask participants about their training and resource needs, which would have been gleaned from the next phase of the study; therefore, training and resource needs are incomplete.

CONCLUSIONS AND RECOMMENTATIONS

Phase I was instrumental in garnering information from SNP stakeholders about the strategies and activities for increasing participation, promoting healthy nutrition in schools, and how promotion occurred with students from the SNP and peer-to-peer sharing of information. Based on the transcript analysis, three main themes emerged regarding strategies to encourage school meal program involvement.

The theme *Adapt to Meet Student Needs and Preferences* developed from the data. Stakeholders from all groups reported strategies encompassing menu development were noteworthy. Eighteen (75%) stakeholders reported menus that featured local foods increased participation. Fourteen (58%) of the participants said creating the menu on foods the students liked led to more students eating school meals. Another strategy reported by 13 (54%) of stakeholders was to pay close attention to how the food tasted. Participants reported finding foods that students love because they are tasty and healthy was the mission. Successful programs listen to the students about what they like to eat, mirror restaurant trends, and provide children with a wide variety of menu choices.

In addition to keeping up with food trends, the cafeteria environment was reported to influence student involvement. Over half (n=13; 54%) of SNP stakeholders said good customer service, which included friendly, helpful staff that promoted a positive dining experience, was necessary. The appearance of the cafeteria was reported by 12 (50%) of the SNP stakeholders. The participants reported that the cafeteria's appearance included bright, colorful signage, how up-to-date and modern it appeared, and even how the food was displayed. Several research studies have investigated the cafeteria environment playing a promising role in increasing student participation and involvement in SNP programs (Greene et al., 2017; Hamdi et al., 2020; Hanks et al., 2016).

Participants reported serving areas that are strategically placed in accessible locations to promote student engagement. Several stakeholders (50%) relayed that serving foods in nontraditional ways encouraged more involvement. Having food available in accessible sites was reported by half of the stakeholders. Offering food outside of the cafeteria was the most common nontraditional meal service strategy. Grab-and-go food stations in the hallways, both staffed and unstaffed, were utilized to increase access and participation for breakfast and lunch. Participants reported that students appreciate being able to avoid the cafeteria lines and make quick choices about what to eat when they were on the go. Other examples included using food trucks and carts to reach students who are busy transferring between classes and buildings.

Marketing was a second theme that emerged from the data. Eighteen (75%) of the stakeholders stated the importance of marketing the SNP to students and parents. The marketing method varied between traditional marketing tools, digital media such as mobile apps, and social media. Half of the participants reported using interactive menus via phone apps. The menu apps offer nutrition information, allergen information, calories, fat grams, and other information for students to see what is in the menu item. This feature was utilized by parents as well. Several of the stakeholders reported using social media for marketing. The participants that use social media came mainly from the allied organizations (100%), foodservice management companies

(100%), and the school food industry vendors (80%). Very few (33%) of the SNP professionals reported using social media to market their programs. SNP professionals said they did not use social media because students do not want to be on a social media platform with the SNP or other adults in the school. Lack of time was another factor. The findings in this study are similar to previous research (Rowser & Castillo, 2013).

The third theme which emerged was *Stakeholder Engagement*. Nearly all participants (n=21; 88%) reported that nutrition education and awareness were a big part of stakeholder engagement. Participants from the allied organizations and the foodservice management companies reported that garden-based nutrition education integrated throughout the curriculum was effective for student involvement. Gardening and farm to school efforts were reported by over half (56%) of SNP professionals. This is in line with growth reported in the area of farm to school and school gardening, which showed a 42% increase in school gardens (Hayes et al., 2018b).

Seventeen participants (71%) reported that programs need to communicate with and involve all stakeholders consistently, intentionally, often, and effectively. It was essential to have vital leaders and staff who understand the importance of buy-in and engagement from students, parents, administrators, teachers, staff, and the community. Another method of gaining stakeholder engagement was reported as collaborating with outside stakeholders. Nearly 75% of participants (n=17; 71%) reported collaborating with allied organizations, community members, and other programs to help implement programs, mostly if staffing or funding was an issue. The majority (79%) of the participants reported involving a diverse combination of stakeholders, including school administration, staff, teachers, and community members. Another way to include stakeholders was to gather feedback from all stakeholders, not just the students.

Stakeholder engagement contains student engagement. Nearly all (92%) of the participants reported gathering feedback from students was essential for student engagement. They stated students like to be heard and listened to, which led to better participation. Participants (54%) reported having students involved with making decisions on menu choices or other nutrition education activities helped increase school meal program involvement. Several participants reported taste testing as being particularly effective. Research has demonstrated that students are more likely to eat something if they have been offered several opportunities to try it (Lakkakula et al., 2010; Wardle et al., 2003). Allowing students to become ambassadors or school meal champions was reported by 50% of the participants. The ambassadors would serve as positive role models for the SNP and help increase student engagement. The data suggested action-oriented activities, such as competitions and dynamic activities involving hands-on participation, encouraged SNP participation. Researchers have demonstrated interventions that include active engagement in games and competitions might help improve nutrition knowledge and healthy food choices (Hopper et al., 2009b; Song et al., 2016b).

The strategies to promote SNP-to-student sharing of information involved ensuring SNP workers were provided with continuing education. The SNP worker was considered the largest stakeholder to share information with students. These workers had the most interaction with the students daily. Activities such as food tasting events, cooking competitions, and serving food in

the cafeteria promoted interaction and sharing of information between the SNP worker and the students.

Peer-to-peer sharing of information occurred in several different ways, according to the participants. When students were involved in the decision-making process, being a part of advisory committees, or made ambassadors or school champions, they shared information with their peers. This is similar to research which concluded peer groups influence a child's attitude and behavior regarding food consumption (Lally et al., 2011; Parkin & McKeganey, 2000). The student's enthusiasm to try foods or participate more in the SNP influences other students. Peer-to-peer marketing and sharing of information were reported to occur through several student engagement activities, including students preparing foods for others to taste, game competitions, school gardening activities, and in some cases, through digital mobile apps.

The impact of the strategies and activities employed by SNP stakeholders included a perceived increase in the consumption of fruits and vegetables and other healthier foods and growth in participation both at breakfast and lunch. Participants reported they observed increases in students consuming healthier foods after participating in activities such as taste tests, digital contests, and cooking lessons. The design of the interview guide did not capture quantitative results.

The information obtained from Phase I provided the researcher with more knowledge of the student engagement strategies SNP stakeholders employ to improve student involvement in school meal programs. This knowledge is valuable for the development of Phase II. However, due to the current COVID-19 pandemic, Phase II was canceled considering SNP changes focused on serving the school population in any manner possible to comply with social distance safety standards and physical school closings.

Future Research

Phase II of the *Environmental Scan and Formative Research of Student Engagement Practices in Support of School Meal Programs* should occur post-pandemic. The Phase II protocol was designed to involve ten site visits to school districts that were recommended because of student engagement activities that are implemented. During the site visits, interviews and focus groups with stakeholders, including the SN directors, SN staff, school administration, parents, community members, and students, were planned. However, based on information collected in Phase I interviews, to better understand training and resource needs, Phase II methodology should take a mixed-method approach, obtaining qualitative data and conducting a survey to obtain a larger sample size. The SNP landscape might look very different post-pandemic, and new challenges may arise for SNPs; therefore, the clear focus and methodology for Phase II will require additional future research.

Although Phase I was not intended to produce training and resources recommendations, participants reported some challenges in implementing student engagement activities during the interview. The main challenges were staffing, stakeholder support and assistance, finances and budgets, having enough time for the activities, and using technology. This information may guide future research endeavors.

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