

Montana Cook Fresh Workshop Pilot: A K-12 School Nutrition Professional Training to Incorporate Whole Foods in School Meals

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ABSTRACT

Purpose/Objectives

To meet new school meal guidelines, create meals that appeal to students, and promote positive food choices and health status among students, school nutrition programs are increasingly moving towards scratch cooking. This pilot research aimed to evaluate the outcomes of the Montana Cook Fresh Workshop, a culinary skills class for K-12 school nutrition professionals to promote the use of whole foods in school nutrition programs. Outcomes of the workshop were evaluated based on participant satisfaction and participants' whole, fresh foods (a) cooking knowledge, (b) confidence, (c) attitude, and (d) intention to use.

Methods

Participant satisfaction was evaluated with a Likert scale questionnaire and series of open-ended questions. Researchers used a pre-test/post-test design to assess participants' knowledge, confidence, attitudes, and intentions regarding whole, fresh food. Descriptive statistics were calculated; t-tests and ANOVA were used to analyze data.

Results

Four workshops were offered with a total of 53 participants completing the evaluations. For each statement assessing participant satisfaction, 96-100 % of participants selected "agree" or "strongly agree," indicating high levels of participant satisfaction. From pre to post test, participants' knowledge, confidence, and intentions to use whole, fresh food increased significantly.

Applications to Child Nutrition

The success and appeal of the Montana Cook Fresh Workshop supports the use of hands-on classes to address the changing training needs of school nutrition professionals. School nutrition practitioners nationwide can adapt the Montana Cook Fresh model to create effective, research-based training to facilitate the use of whole, fresh foods. With the ability to use more whole foods, K-12 school nutrition programs have the opportunity to offer more appealing meals that meet USDA guidelines and promote healthy food choices.

Keywords: school nutrition programs; culinary skills; school meals; whole foods; training

INTRODUCTION

With the recent implementation of new National School Lunch Program (NSLP) and School Breakfast Program (SBP) meal requirements, increased attention has focused on the skills and training that school nutrition professionals require to successfully meet these guidelines (United

States Department of Agriculture (USDA), Food and Nutrition Service (FNS), 2012). These new meal requirements aim to reduce calories, saturated fat, and sodium, nutrients associated with higher body mass indices (BMI) in children, and increase intake of foods associated with healthy weight status, including fruits, vegetables, and whole grains (Grimes, Wright, Liu, Nowson, & Loria, 2013; Ogata & Hayes, 2014; Vernarelli, Mitchell, Hartman, & Rolls, 2011). With 30.4 million students participating in NSLP each day and school lunch providing one third of daily calorie requirements, the nutrient content of school meals may have significant impact on overall nutritional status (Briggs, 2010; USDA- FNS, 2012; USDA- FNS, 2015a).

Returning to scratch cooking and utilizing more whole, fresh foods may help schools meet new meal guidelines, especially for sodium and calorie restrictions (Collins, 2012; Nicklas et al., 1992; Taylor, Tibbett, Patel, & Bishop, 2014). However, more skilled labor will be needed in school nutrition program kitchens to transition to scratch cooking (USDA- FNS, 2012). Along with the new school lunch standards, The Healthy, Hunger-Free Kids Act also requires the development of professional standards for school nutrition programs which specify hiring and training standards for all school nutrition program positions (USDA- FNS, 2015b; Healthy, Hunger-Free Kids Act, 2010).

Training of school nutrition program staff has been identified as an important component in several notable Coordinated School Health Programs (Gillis et al., 2009; McCullum-Gomez, Barroso, Hoelscher, Ward, & Kelder, 2006; Steckler et al., 2003; Taylor, Tibbett, Patel, & Bishop, 2014). However, the authors are aware of few reports targeting interventions and evaluations directly at school nutrition program staff training (Breault & Gould, 1998; Oakley, 2011). In a thorough literature review, the authors identified only two interventions that utilize staff education to target nutrient content in school meals (Cohen et al., 2012; Roth-Yousey, Barno, Caskey, Asche, & Reicks, 2009; Stephens & Byker Shanks, 2015). While the Institute of Child Nutrition (ICN), formerly the National Food Service Management Institute (NFSMI), has offered training around nutrient standards, details and rigorous evaluations of these trainings are not widely available in the peer-reviewed literature. Thus, significant gaps in the body of literature remain. Few interventions detail specific approaches to training or assess efficacy. Additionally, there are few reliable and valid instruments to assess culinary training for school nutrition professionals.

The Montana Cook Fresh Workshop pilot (MCFW) was targeted at providing Montana K-12 school nutrition professionals with skills to use whole, fresh foods in school nutrition programs. The primary research objective was to evaluate the influence of the MCFW pilot intervention on participants' (a) culinary knowledge, (b) confidence in using whole, fresh foods, (c) attitudes regarding the use of whole, fresh foods, and (d) intention to use whole, fresh foods in school nutrition programs. Additionally, researchers aimed to assess participant's satisfaction with the intervention. Results of this pilot research are an integral step to improving the MCFW and developing appropriate and cost effective training for school nutrition professionals.

METHODOLOGY

Development of Intervention

The primary objective of MCFW, a pilot project of Montana Team Nutrition (Montana Office of Public Instruction, 2015b), was to provide school nutrition professionals with basic culinary

skills to increase scratch cooking and the use of whole, fresh foods in school nutrition programs. A team of three trained professionals, which included a trained chef, a school nutrition professional, and a Montana Team Nutrition staff member, taught each four-hour workshop. Specific skills to be addressed in the workshop were determined by formative surveys and interviews with Montana school nutrition professionals and stakeholders (Stephens, Byker Shanks, Roth, & Bark, 2015). The formative research indicated lack of basic culinary skills as a barrier to using whole, fresh food in the school nutrition program and prioritized certain skills that best facilitate scratch cooking. Based on this research, the pilot workshop focused on: knife skills, mise en place, herbs and spices, and equipment.

For each of the focus skills, the teaching team led a training session, and participants had the opportunity to practice skills with hands on activities. Particular emphasis was placed on hands on practice of knife skills. The workshop culminated in a group cooking experience in which participants utilized the learned skills to cook recipes including whole, fresh foods. In this group cooking experience, recipes were strategically selected to allow participants to practice and apply all taught skills, with a particular emphasis on foods that meet NSLP meal pattern requirements, including vegetable sub group requirements. Recipes included a kale and quinoa salad, baked sweet potato fries, and beef and lentil sloppy joes. The specific professional skills addressed in the class were culinary skills, use and care of equipment, and local foods – farm to school.

Participants

Pilot workshops were offered in four locations across the state of Montana and were open to all school nutrition program employees. Classes were publicized at school nutrition conferences and via relevant email listservs. School nutrition program managers and directors were notified via email or phone call about workshops. There was no cost to participants. Participants were offered a certificate of completion and continuing education credits.

Evaluation Instrument Development

As the constructs of the Theory of Planned Behavior (TPB) have been empirically shown to explain and predict food and nutrition related behaviors, the intervention evaluation is categorized around the TPB constructs of attitude, perceived control, and intention, with the measurements of knowledge and confidence relating to perceived control (Ajzen, 1991; Blanchard et al., 2009; Dunn, Mohr, Wilson, & Wittert, 2011; Emanuel, McCully, Gallagher, & Updegraff, 2012; Kothe, Mullan, & Butow, 2012; Rah, Hasler, Painter, & Chapman-Novakofski, 2004; Verbeke & Vackier, 2005; White, Terry, Troup, Rempel, & Norman, 2010; Zoellner, Estabrooks, Davy, Chen, & You, 2012).

All evaluation materials and participant protocols were reviewed and approved by the Montana State University Institutional Review Board. Workshop outcomes (knowledge, confidence, attitude, and intent) were assessed with pre and post evaluations. The pre workshop assessment included collection of baseline data about participant professional position, years in school nutrition programs, and size of school nutrition program based on average number of lunches served.

Knowledge, confidence, attitude, and intent questions about using whole, fresh foods were identical in pre and post evaluations. Knowledge assessment consisted of five multiple choice questions specific to information taught in the workshop and were adapted from the Food

Preparation Knowledge Questionnaire (Byrd-Bredbenner, 2004; Michaud, 2008). Assessment of confidence, attitude, and intent were conducted with a questionnaire consisting of 21 statements, with 5 statements assessing confidence, 8 assessing attitude, and 8 assessing intent. Statements were set on a 5-point Likert scale (“not at all confident” to “extremely confident,” “strongly agree” to “strongly disagree,” or “not very likely” to “very likely”) and were adapted from surveys utilized in culinary or food service education programs (Byrd-Bredbenner, 2004; Condrasky, Williams, Catalano, & Griffin, 2011; Roth-Yousey et al., 2009).

To assess participant satisfaction with the workshop, researchers used a training evaluation instrument developed by the Institute of Child Nutrition (Oakley, 2011). The 5-point Likert scale evaluation (“strongly agree” to “strongly disagree”) included 13 statements such as, “I can apply what I learned in this session in my job,” and “Attending the session increased my knowledge on the topic.” Participants were also asked open-ended questions about what they found most and least valuable about the workshops.

Following methods outlined and tested in previous evaluation research (Harmon & Marezki, 2006), researchers took steps to ensure evaluation validity and reliability. All evaluation materials were reviewed and revised by nutrition and school nutrition program content experts. The Likert scale statements regarding attitude were reverse coded in an effort to improve reliability. Researchers used factor analysis to ensure validity of the instrument. The authors used a threshold of 0.5 as a cutoff point for factor loadings and inclusion in the data (Hair, Anderson, Tatham, & Black, 1995). Cronbach’s alpha was calculated for each portion of the assessment to further evaluate reliability.

Data Analyses

Pre and post workshop survey data were analyzed using Statistical Package for Social Sciences (version 22.0, 2013 SPSS Inc. Chicago, IL). Descriptive statistics were calculated to summarize demographics and satisfaction of participants.

Knowledge scores were determined by calculating descriptive statistics for the number of correct responses to the five question knowledge assessment. Participant scores for overall confidence, attitude, and intent constructs were determined by finding the mean value of all question responses within that construct. To determine significant change in constructs from pre to post evaluation, means of each construct were compared using paired t-tests (Roth-Yousey et al., 2009).

In addition to evaluating pre and post changes in TPB constructs, researchers performed analyses to determine the impacts of the intervention based on participant sociodemographics. Sociodemographics analyzed included professional experience (based on years in school nutrition programs), size of school nutrition program (based on average number of lunches served daily), and professional position (high versus low authority). Additionally, researchers assessed intervention impact based on baseline assessment scores.

Two separate analysis of variance (ANOVA) tests were conducted to assess significant differences in TPB construct score changes when compared by participants’ years of school nutrition program experience and size of school nutrition program. The decision to separate

participants into three equal groups for each ANOVA was based on preceding school nutrition program research methods detailed elsewhere (Smith, Wleklinski, Roth, & Tragoudas, 2013).

Additionally, to determine differences in pre to post score construct changes by participants' professional position, participants were grouped into positions with more authority (director, manager, supervisor, head cook) and positions with less authority (cook, assistant cook). An independent t-test was used to compare mean pre to post score construct change by professional position grouping. Other nutrition program research using similar methodology shows that professional position may impact study outcomes (Yardımcı, Haklı, Çakiroğlu, & Özçelik, 2015).

Baseline knowledge about nutrition education and the use of whole, fresh foods may have impacted results. As such, participants were further categorized by three equal groups (low, medium, high) and were divided based on pre test scores within each construct (knowledge, confidence, attitude, and intent). Researchers were interested in exploring which baseline groups were most influenced by the intervention. For each construct, an ANOVA test was used to compare mean score change by baseline construct score grouping. For all statistical analysis, significance was set at a two-sided alpha level of $p < 0.05$.

RESULTS AND DISCUSSION

Participant Demographics

A total of 54 participants attended the workshops with 53 participants completing at least one part of the evaluation. Participants were drawn from a pool of 258 school food authorities operating school nutrition programs in 821 schools at the time of the study (Montana Office of Public Instruction, 2015a). Of participants, 50 were employed by a Montana school nutrition program, one was employed by a state Extension agency, and two did not disclose their employer and position. Twenty-six participants identified as a director, manager, supervisor, and/or head cook. Twenty-four identified as a cook or assistant cook.

Table 1. Montana Cook Fresh Workshop Participant Demographic Groups Based on Tertile Division (n=52)

Nutrition program size based on average daily lunches served ^c	Small ^a (n= 16)		Medium ^a (n=18)		Large ^a (n=17)	
	<i>M ± SD</i>	Range	<i>M ± SD</i>	Range	<i>M ± SD</i>	Range
	80.0 ± 31.3	2 to 125	207.2 ± 44.4	135 to 260	504.9 ± 327.0	263 to 1,500
Years of school nutrition program experience	Low ^b (n=17)		Medium ^b (n=18)		High ^b (n=17)	
	<i>M ± SD</i>	Range	<i>M ± SD</i>	Range	<i>M ± SD</i>	Range
	2.3 ± 1.2	.5 to 4	10.8 ± 3.0	5 to 14	22.8 ± 6.0	15 to 32

^aGroups equally divided by participant reported average number of lunches served

^bGroups equally divided by years of school nutrition program experience

^cSum of n for small, medium, and large groups does not equal 52 based on nonresponse of one participant to particular question.

Participants represented school nutrition programs of various sizes with the majority of participants working in small nutrition programs. One participant reported serving fewer than 10 lunches per day, 11 serving between 11 and 99 lunches, 24 serving between 100 and 299, 10

serving between 300 and 499, three serving between 500 and 999, and two serving between 1,000 and 1,500. Five participants had one year or less of experience. Thirteen reported two to five years, six reported six to 10 years, 17 reported 11 to 19 years, and 11 reported greater than 20 years of experience. Transformation of relevant demographic data into tertile groups for further analysis is detailed in Table 1.

Table 2. Principal Component Analysis of Statements Assessing Confidence, Attitudes, and Intentions Regarding the Use of Whole, Fresh Foods in School Nutrition Programs

Construct Assessed	Statement	Factor Loading
Confidence ^a	Using knife skills in the school kitchen.	.784
	Preparing fresh vegetables.	.856
	Preparing fresh fruit.	.576
	Preparing legumes and dried beans/peas.	.783
	Using herbs and spices (e.g. Basil, thyme, cumin).	.783
Attitude ^a	It is too expensive to increase the use of fresh, whole fruits, vegetables, and legumes in our school. ^b	.536
	Using fresh, whole foods is cost effective for our school.	.250 ^c
	If we served more fresh, whole fruits, vegetables, and legumes, it would result in more plate waste. ^b	.686
	Students would be accepting of meals made with more fresh, whole fruits, vegetables, and legumes.	.222 ^c
	Using fresh, whole fruits, vegetables, and legumes helps us serve menus that meet the U.S. Dietary Guidelines.	.573
	We can meet U.S. Dietary Guidelines without using fresh, whole fruits, vegetables, and legumes. ^b	.657
	Serving fresh, whole fruits, vegetables and legumes in school meals improves the health of students.	.532
	Our student's health is not changed by serving fresh, whole fruits, vegetables, and legumes in school meals. ^b	.772
	Intention ^a	Use fresh, whole fruits, vegetables or legumes in place of canned or frozen.
Use a new recipe that includes fresh, whole fruit or vegetables.		.714
Use a new recipe that includes fresh or dried legumes.		.588
Obtain training or seek out more knowledge about how to prepare fresh, whole fruits or vegetables.		.711
Obtain training or seek out more knowledge about how to prepare legumes.		.769
Purchase kitchen equipment to prepare fresh, whole fruits, vegetables, or legumes.		.788
Buy fresh, whole fruits or vegetables for school meals.		.788
Buy fresh or dried legumes for school meals.		.803

^aPossible Likert scores for Confidence, Attitude, and Intention constructs range 1 to 5, "not at all confident" to "extremely confident," "strongly agree" to "strongly disagree," or "not very likely" to "very likely."

^bStatements reverse coded to enhance reliability.

^cStatements omitted from analysis based on inclusion threshold of 0.5.

Workshop Evaluation

Based on the workshop evaluation, participants were very satisfied with the workshop. For each of the 13 statements, 96 to 100 % of participants selected “agree” or “strongly agree.” Participants found practicing knife skills and having instructors and peers to answer questions particularly valuable. For follow up support, participants requested more recipes, particularly with lentils and vegetable/herb combinations, and training opportunities.

Evaluation Instrument Validity

Based on factor analysis, two statements assessing “attitude” were omitted. All other statements met the 0.5 threshold criteria (Hair et al., 1995). Survey statements and factor loading outcomes are detailed in Table 2. Cronbach’s alphas for each construct are as follows: confidence (Cronbach $\alpha = .88$), attitude (Cronbach $\alpha = .71$), intention (Cronbach $\alpha = .88$). Cronbach’s alpha was not calculated for knowledge as the knowledge score was based on a single value determined by correct number of responses to the multiple choice knowledge assessment.

Evaluation of Change in Knowledge, Confidence, Attitudes, and Intention

From pre to post, participants’ knowledge ($p < .001$), confidence ($p < .001$), and intentions to use whole, fresh food ($p < .001$) changed significantly (See Table 3). Participants’ attitudes regarding whole, fresh food did not change significantly.

Table 3. Mean Pre and Post Test Scores for Knowledge, Confidence, Attitude, and Intention Constructs in the Montana Cook Fresh Workshop (n=49)*

Construct**	Pre-Test	Post-Test
	$M \pm SD$	$M \pm SD$
Knowledge	3.1 ± 1.3^a	4.5 ± 0.8^b
Confidence	3.5 ± 0.8^a	4.1 ± 0.5^b
Attitude	3.7 ± 0.6	3.8 ± 0.6
Intention	3.9 ± 0.7^a	4.2 ± 0.6^b

*Means with different superscripts across rows are significantly different ($p < 0.05$) based on paired t-tests, denoting changes in construct scores.

**Possible scores for Knowledge construct range from 1 to 5, based on correct number of responses to a 5 question multiple choice assessment. Possible Likert scores for Confidence, Attitude, and Intention constructs range 1 to 5, “not at all confident” to “extremely confident,” “strongly agree” to “strongly disagree,” or “not very likely” to “very likely.”

There was no significant difference found in mean change of pre to post construct scores when compared by number of years of school nutrition program experience or size of school nutrition program. When grouped by professional position, significant difference was found in the mean change in confidence scores ($p = .03$). Participants in positions of greater authority such as director, manager, supervisor, or head cook ($n = 26$) had a significantly higher level of change in confidence score (0.8 ± 0.7) than those in lower authority positions, like cook and assistant cook, ($n = 24$, 0.4 ± 0.5). There was not a significant difference in mean score change between the two groups in knowledge, attitude, or intentions.

Based upon low, medium, and high groups equally divided by pretest construct scores, significant differences were found in the change in knowledge and confidence construct scores amongst all three groups. Participants with the lowest pretest scores in knowledge and confidence increased scores the most, and participants with the highest baseline scores in these

constructs increased the least. In the constructs of attitude and intention, there was significant difference between the groups with the lowest pretest scores and the groups with the highest pretest scores.

Discussion

Results of this study parallel previous evaluations of educational interventions on staff knowledge, attitudes, and intentions. Similarly, to the MCFW results, participants in the Roth-Yousey whole grain education intervention showed improvements in knowledge and intention but saw a decrease in attitudes towards the use of whole grains (Roth-Yousey et al., 2009). In this comparable study, participants indicated in a follow up survey that their use of whole grains did increase, suggesting that increases in knowledge and intentions are sufficient to influence behavior change (Roth-Yousey et al., 2009). The tenets of TPB support these findings as the constructs of attitude and perceived control (self-efficacy) are predictors of intention, which is also the strongest predictor of behavior change (Ajzen, 1991).

As MCFW results indicate, the hands-on approach begins to meet school nutrition professional training needs. Inadequately skilled staff has been cited as a barrier to providing healthier meals and meeting USDA standards (Cho & Nadow, 2004; Economos et al., 2009; Lytle, Ward, Nader, Pedersen, & Williston, 2003; Stang, Story, Kalina, & Patricia Snyder, 1997). The MCFW parallels efforts of the USDA in partnership with the Institute of Child Nutrition to offer appropriate training programs with the Team Up for School Nutrition Success Training (Thornton, 2015). However, there is still a great need for training opportunities at the state and local level. High participant satisfaction from the MCFW points to the hands-on approach as broadly appealing. While this approach may be appealing and effective, it is also time and labor intensive with significant supply and personnel costs. As supported in previous literature, additional financial support to provide training opportunities will be vital to providing school nutrition professionals with these types of trainings (Stephens et al., 2015; Wagner, Senauer, & Runge, 2007).

Training and education needs to be tailored for the skill set and job duties of the school nutrition professional. In this research, participants in positions of authority had significantly greater score increases in the confidence construct. This may be because they saw opportunity to apply the new skills and recipes presented in the class. Participants with less authority and control may see less opportunity to institute changes in menus and cooking approaches in their workplace. Participants in positions of more authority may benefit from additional training to help promote buy-in and provide their staff with motivation to integrate the techniques learned in the workshop (Sullivan, Harper, & West, 2002).

For this training model, participants did not require a particular baseline level of knowledge, confidence, attitudes, or intentions regarding whole, fresh foods to benefit from the training intervention. Further, as demonstrated by the significantly greater change in scores from participants with lower pretest scores, basic culinary education may have an even greater impact on participants at a lower baseline. However, participants with a higher baseline may gain from more advanced training.

Limitations to this study exist. Selection bias threatens internal validity as participants voluntarily attended the workshop. Study results may not be generalizable to populations not +

interested in learning about how to use whole, fresh foods. The sample size, the fact that all participants work in or with Montana school nutrition programs, and the high proportion of very small schools represented may threaten external validity for generalizing results to other populations. Additionally, the method used to determine the size of school nutrition program may not accurately reflect the actual program size. Participants may have reported just the number of meals served or prepared at their site and not included the entire school nutrition program that they represented.

CONCLUSIONS AND APPLICATION

Additional research is needed to assess the long-term impacts of culinary education in school nutrition programs. Determining how participants implement culinary skills, share knowledge with coworkers, and modify meals to meet USDA guidelines post training will be important in future research. Further research is needed to determine the influence of training on the nutritional content of school meals.

Even with the demonstrated success of the MCFW pilot, several barriers may inhibit the long term sustainability of the project. First, there is significant labor, time, and cost associated with the preparation and execution of the workshop. Second, the logistics of the workshop, including finding an appropriate space and a time that is convenient for a large group of school nutrition professionals, is challenging. Finally, school nutrition professionals in remote locations, often those most in need of technical assistance, may be the least likely to be able to travel long distances to congregate locations for training.

However, with these barriers comes opportunity to make modifications to the approach to broaden the reach and strengthen the impacts of the program. With implementation of professional training standards, demand for effective and well evaluated training for school nutrition professionals will only continue to increase (USDA, FNS, 2012; USDA, FNS, 2015b; Healthy, Hunger-Free Kids Act, 2010). The framework for MCFW has strong potential to be modified and adapted to other school nutrition program settings. One potential future manifestation of the program would be to work with one school nutrition program at a time and bring the class directly into that program's kitchen. This would allow customization of skills and recipes taught as well as promoting team building among the staff, another cited need (Sullivan, Harper, & West, 2002). Practicing skills in the actual workplace and utilizing available equipment may also promote increased integration of new skills into the daily work, as seen in some longer term training interventions (Cohen et al., 2012; Perlman et al., 2012). With this approach, the size of the training team and time allotted could be further modified to best utilize available resources and cater most efficiently to the trainees.

School districts and school nutrition program directors and managers can utilize the lessons learned from the MCFW pilot study, specifically the appeal of hands on training, to create engaging and impactful training. The results of the MCFW pilot study indicate that enhancing basic culinary skills is a promising approach to building confidence and intention to use whole, fresh foods in school nutrition programs. Interventions based on the skills taught in the MCFW curriculum may better prepare school nutrition professionals to increase the use of whole, fresh foods and more effectively meet nutrition standards.

The evaluation procedure and materials may also be appropriately applied for future intervention evaluation. Researchers in the MCFW pilot project achieved high participant participation in the workshop evaluation as participants were provided with significant time to complete all components of the evaluation. Workshop organizers emphasized the importance of the evaluation process and prioritized completion and collection of the evaluation. The only suggested modification of the tools for future use would be to identify potential ways to shorten the evaluation instruments. While all of the information gathered was valuable to MCFW organizers, the full evaluation may be overly cumbersome in some intervention situations.

As the use of whole, fresh foods has significant potential to impact both nutrient content and appeal of school meals, it also may further the reach and influence of school nutrition programs. Meals that are more appealing to students may increase nutrition program participation, creating opportunity to support student nutrition knowledge and healthy food choices. As interest and demand for healthy, appetizing school meals increases, the need for well-trained school nutrition professionals will continue to accelerate. Providing school nutrition professionals with the skills needed to meet USDA standards and student expectations will continue to be an important focus. With increased attention, the school nutrition professional is finally being recognized as an important link to promoting the health and well-being of American children.

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REFERENCES

- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Process*, 50(2), 179–211.
- Blanchard, C. M., Fisher, J., Sparling, P. B., Shanks, T. H., Nehl, E., Rhodes, R. E., ... Baker, F. (2009). Understanding adherence to 5 servings of fruits and vegetables per day: A Theory of Planned Behavior perspective. *Journal of Nutrition Education & Behavior*, 41(1), 3–10. <http://doi.org/10.1016/j.jneb.2007.12.006>
- Breault, J. L., & Gould, R. (1998). Formative evaluation of a video and training manual on feeding children with special needs. *Journal of Nutrition Education*, 30(1), 58–61. [http://doi.org/10.1016/S0022-3182\(98\)70276-6](http://doi.org/10.1016/S0022-3182(98)70276-6)
- Briggs, M. (2010). Position of the American Dietetic Association, School Nutrition Association, and Society for Nutrition Education: Comprehensive school nutrition services. *Journal of the American Dietetic Association*, 110(11), 1738–1749. <http://doi.org/10.1016/j.jada.2010.08.035>
- Byrd-Bredbenner, C. (2004). Food preparation knowledge and attitudes of young adults: Implications for nutrition practice. *Topics in Clinical Nutrition*, 19(2), 154–163.

- Cho, H., & Nadow, M. Z. (2004). Understanding barriers to implementing quality lunch and nutrition education. *Journal of Community Health, 29*(5), 421–435. <http://doi.org/10.1023/B:JOHE.0000038656.32950.45>
- Cohen, J. F. W., Smit, L. A., Parker, E., Austin, S. B., Frazier, A. L., Economos, C. D., & Rimm, E. B. (2012). Long-term impact of a chef on school lunch consumption: Findings from a 2-year pilot study in Boston middle schools. *Journal of the Academy of Nutrition & Dietetics, 112*(6), 927–933. <http://doi.org/10.1016/j.jand.2012.01.015>
- Collins, B. (2012). Can schools save kids' palates? Cooking from scratch in schools--the greatest food service challenge of our time. *Childhood Obesity, 8*(4), 323–326. <http://doi.org/10.1089/chi.2012.0076>
- Condrasky, M. D., Williams, J. E., Catalano, P. M., & Griffin, S. F. (2011). Development of psychosocial scales for evaluating the impact of a culinary nutrition education program on cooking and healthful eating. *Journal of Nutrition Education & Behavior, 43*(6), 511–516. <http://doi.org/10.1016/j.jneb.2010.09.013>
- Dunn, K. I., Mohr, P., Wilson, C. J., & Wittert, G. A. (2011). Determinants of fast-food consumption. An application of the Theory of Planned Behaviour. *Appetite, 57*(2), 349–357. <http://doi.org/10.1016/j.appet.2011.06.004>
- Economos, C. D., Folta, S. C., Kuder, J., Clark, V., Goldberg, J., Collins, J., ... Claire, K. (2009). Retooling food service for early elementary school students in Somerville, Massachusetts: The Shape Up Somerville Experience. *Preventing Chronic Disease, 6*(3). Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2722405/>
- Emanuel, A. S., McCully, S. N., Gallagher, K. M., & Updegraff, J. A. (2012). Theory of Planned Behavior explains gender difference in fruit and vegetable consumption. *Appetite, 59*(3), 693–697. <http://doi.org/10.1016/j.appet.2012.08.007>
- Gillis, B., Mobley, C., Stadler, D. D., Hartstein, J., Virus, A., Volpe, S. L., ... McCormick, S. (2009). Rationale, design and methods of the HEALTHY study nutrition intervention component. *International Journal of Obesity, 33*, S29–S36. <http://doi.org/10.1038/ijo.2009.114>
- Grimes, C. A., Wright, J. D., Liu, K., Nowson, C. A., & Loria, C. M. (2013). Dietary sodium intake is associated with total fluid and sugar-sweetened beverage consumption in US children and adolescents aged 2–18 y: NHANES 2005–2008. *American Journal of Clinical Nutrition, 98*(1), 189–196. <http://doi.org/10.3945/ajcn.112.051508>
- Hair, J., Anderson, R., Tatham, R., & Black, W. (1995). *Multivariate data analysis* (4th ed). New Jersey: Prentice-Hall Inc.
- Harmon, A. H., & Maretzki, A. N. (2006). Assessing food system attitudes among youth: Development and evaluation of attitude measures. *Journal of Nutrition Education & Behavior, 38*(2), 91–95. <http://doi.org/10.1016/j.jneb.2005.11.029>

Healthy, Hunger-Free Kids Act of 2010. (2010). Pub. L. No. 111-296, §243, 124 Stat 3183-3266.

Kothe, E. J., Mullan, B. A., & Butow, P. (2012). Promoting fruit and vegetable consumption. Testing an intervention based on the Theory of Planned Behaviour. *Appetite*, 58(3), 997–1004. <http://doi.org/10.1016/j.appet.2012.02.012>

Lytle, L. A., Ward, J., Nader, P. R., Pedersen, S., & Williston, B. J. (2003). Maintenance of a health promotion program in elementary schools: Results from the Catch-on Study key informant interviews. *Health Education & Behavior*, 30(4), 503–518. <http://doi.org/10.1177/1090198103253655>

McCullum-Gomez, C., Barroso, C. S., Hoelscher, D. M., Ward, J. L., & Kelder, S. H. (2006). Factors influencing implementation of the Coordinated Approach to Child Health (CATCH) Eat Smart School Nutrition Program in Texas. *Journal of the American Dietetic Association*, 106(12), 2039–2044. <http://doi.org/10.1016/j.jada.2006.09.016>

Michaud, P. (2008). *Development and evaluation of instruments to measure the effectiveness of a culinary and nutrition education program*. (Master's thesis). Clemson University. Retrieved from <http://gradworks.umi.com/14/47/1447715.html>

Montana Office of Public Instruction. (2015a). Retrieved August 13, 2015, from <http://opi.mt.gov/>

Montana Office of Public Instruction. (2015b). School Nutrition: Montana Team Nutrition. Retrieved September 1, 2015, from http://opi.mt.gov/Programs/SchoolPrograms/School_Nutrition/MTTeam.html

Nicklas, T. A., Reed, D., Rupp, J., Snyder, P., Glovsky, E., Bigelow, C., & Obarzanek, E. (1992). Reducing total fat, saturated fatty acids, and sodium; The CATCH Eat Smart School Nutrition Program. *School Foodservice Research Review*, 9(2), 114–121.

Oakley, C. (2011). Delivery and evaluation of training for school nutrition administrators and managers on meeting special food and nutrition needs of students in the school setting. *Journal of Child Nutrition & Management*, 35(1). Retrieved from <https://schoolnutrition.org/JCNM>

Ogata, B. N., & Hayes, D. (2014). Position of the Academy of Nutrition and Dietetics: Nutrition guidance for healthy children ages 2 to 11 years. *Journal of the Academy of Nutrition & Dietetics*, 114(8), 1257–1276. <http://doi.org/10.1016/j.jand.2014.06.001>

Perlman, S.E., Nonas, C., Lindstrom, L.L., Choe-Castillo, J., McKie, H., & Alberti, P.M. (2012). A menu of health: Changes to New York City school food 2001 to 2011. *Journal of School Health*, 82(10), 484–491. <http://doi:10.1111/j.1746-1561.2012.00726.x>

Rah, J. H., Hasler, C. M., Painter, J. E., & Chapman-Novakofski, K. M. (2004). Applying the Theory of Planned Behavior to women's behavioral attitudes on and consumption of soy products. *Journal of Nutrition Education & Behavior*, 36(5), 238–244. [http://doi.org/10.1016/S1499-4046\(06\)60386-2](http://doi.org/10.1016/S1499-4046(06)60386-2)

Roth-Yousey, L., Barno, T., Caskey, M., Asche, K., & Reicks, M. (2009). Whole-grain continuing education for school foodservice personnel: Keeping kids from falling short. *Journal of Nutrition Education & Behavior*, 41(6), 429–435. <http://doi.org/10.1016/j.jneb.2008.07.002>

Smith, S., Wleklinski, D., Roth, S. L., & Tragoudas, U. (2013). Does school size affect interest for purchasing local foods in the midwest? 9(2), 15–156. <http://doi.org/10.1089/chi.2012.0055>

Stang, J. S., Story, M., Kalina, B., & Snyder, P. M. (1997). Meeting the U.S. Dietary Guidelines in school meals: Current practices, perceived barriers, and future training needs. *Journal of Nutrition Education*, 29(3), 152–158. [http://doi.org/10.1016/S0022-3182\(97\)70180-8](http://doi.org/10.1016/S0022-3182(97)70180-8)

Steckler, A., Ethelbah, B., Martin, C. J., Stewart, D., Pardilla, M., Gittelsohn, J., ... Vu, M. (2003). Pathways process evaluation results: A school-based prevention trial to promote healthful diet and physical activity in American Indian third, fourth, and fifth grade students. *Preventive Medicine*, 37, Supplement 1, S80–S90. <http://doi.org/10.1016/j.ypmed.2003.08.002>

Stephens, L., & Byker Shanks, C. (2015). K-12 school food service staff training interventions: A review of the literature. *Journal of School Health*, 85(12), 825-832. <http://doi.org/10.1111/josh.12338>

Stephens, L., Byker Shanks, C. J., Roth, A., & Bark, K. (2015). Perspectives and future directions concerning fresh, whole foods in Montana school nutrition programs. *Journal of Child Nutrition & Management*, 39(1). Retrieved from <https://schoolnutrition.org/JCNM/>

Sullivan, K., Harper, M., & West, C. (2002). Training needs of school foodservice site managers. *Journal of Child Nutrition & Management*, 26(1). Retrieved from <http://docs.schoolnutrition.org/newsroom/jcnm/02spring/sullivan/>

Taylor, S., Tibbett, T., Patel, D., & Bishop, E. (2014). Use of environmental change strategies to facilitate sodium reduction: A case study in a rural California school district. *Journal of Public Health Management & Practice*, 20, S38–S42. <http://doi.org/10.1097/PHH.0b013e31829d7726>

Thornton, J. (2015). USDA blog: Initial launch of the Team Up for School Nutrition Success Training Program. Retrieved January 22, 2015, from <http://blogs.usda.gov/2014/12/22/initial-launch-of-the-team-up-for-school-nutrition-success-training-program/>

U.S. Department of Agriculture, Food and Nutrition Services (FNS). (2012). *Nutrition standards in the National School Lunch and School Breakfast Program*, Pub. L. No. 7 CFR Parts 210 and 220.

U.S. Department of Agriculture, Food and Nutrition Services. (2015a). *National School Lunch Program: Participation and lunches served*. Retrieved June 10, 2015, from <http://www.fns.usda.gov/sites/default/files/pd/slsummar.pdf>.

U.S. Department of Agriculture, Food and Nutrition Service (FNS), (2015b). *Professional standards for state and local school nutrition programs personnel as required by the Healthy, Hunger-Free Kids Act of 2010*, Pub. L. No. 7 CFR parts 210 and 235.

Verbeke, W., & Vackier, I. (2005). Individual determinants of fish consumption: Application of the Theory of Planned Behaviour. *Appetite*, 44(1), 67–82. <http://doi.org/10.1016/j.appet.2004.08.006>

Vernarelli, J. A., Mitchell, D. C., Hartman, T. J., & Rolls, B. J. (2011). Dietary energy density is associated with body weight status and vegetable intake in U.S. children. *Journal of Nutrition*, 141(12), 2204–2210. <http://doi.org/10.3945/jn.111.146092>

Wagner, B., Senauer, B., & Runge, C. F. (2007). An empirical analysis of and policy recommendations to improve the nutritional quality of school meals. *Applied Economic Perspectives & Policy*, 29(4), 672–688. <http://doi.org/10.1111/j.1467-9353.2007.00380.x>

White, K. M., Terry, D. J., Troup, C., Rempel, L. A., & Norman, P. (2010). Predicting the consumption of foods low in saturated fats among people diagnosed with type 2 diabetes and cardiovascular disease. The role of planning in the Theory of Planned Behaviour. *Appetite*, 55(2), 348–354. <http://doi.org/10.1016/j.appet.2010.07.011>

Yardımcı, H., Haklı, G., Çakiroğlu, F. P., & Özçelik, A. Ö. (2015). Hygiene knowledge of food staff in catering industry. *SAGE Open*, 5(2), 2158244015580376.

Zoellner, J., Estabrooks, P. A., Davy, B. M., Chen, Y. C., & You, W. (2012). Exploring the Theory of Planned Behavior to explain sugar-sweetened beverage consumption. *Journal of Nutrition Education & Behavior*, 44(2), 172–177. <http://doi.org/10.1016/j.jneb.2011.06.010>

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