

Perspectives and Future Directions Concerning Fresh, Whole Foods in Montana School Nutrition Programs

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ABSTRACT

Purpose/Objectives

To meet new USDA school meal standards, school nutrition programs may need to transition from a “heat and serve” meal preparation approach to increased scratch cooking and use of fresh, whole foods. This study aims to assess the attitudes, motivations, and barriers for Montana school nutrition professionals and key stakeholders regarding the use of whole, fresh food in school nutrition programs.

Methods

The researchers conducted a survey of Montana school nutrition program staff (n=103) and semi-structured interviews with key stakeholders (n=12) including current and former school nutrition program staff (n=9), AmeriCorps FoodCorps service members (n=2), and a state level Farm to Cafeteria director (n=1). Survey responses were analyzed for statistically significant differences in responses between school nutrition programs based on size. Interviews were transcribed and coded to identify prevalent themes.

Results:

Study participants identified numerous benefits to utilizing fresh, whole foods including increased ability to meet USDA standards. A number of barriers and challenges were also identified including lack of staff training, time limitations, food cost, and inadequate equipment.

Applications to Child Nutrition Professionals

Training and professional development specific to the needs of the school nutrition program may address some barriers to utilizing fresh, whole foods and increasing adherence to National School Lunch Program and School Breakfast Program standards. However, changes in institution, community, and federal policies are necessary to facilitate broad adoption of scratch cooking and use of fresh, whole foods in school nutrition programs.

Keywords: whole foods; NSLP standards; school nutrition programs; food service perspective

INTRODUCTION

In 2012, the National School Lunch Program (NSLP) provided affordable meals for 31.6 million children in the United States each day (U.S. Department of Agriculture, Economic Research Service [USDA-ERS], 2013a). In the same year, 3.7 million students were served daily by the School Breakfast Program (SBP) (USDA-ERS, 2013b). The new NSLP and SBP standards, which are mandated by the Healthy, Hunger Free Kids Act (2010), require an increased quantity of fruits and vegetables at both breakfast and lunch meals. They also specify servings of subgroups of vegetables, including dark green, red/orange, and legumes. Additionally, stricter limitations are added for fat, sodium, and calories. The USDA standards note that utilizing more

fresh, whole foods in place of prepared items in meal preparation could help achieve these meal standards (U.S. Department of Agriculture, Food and Nutrition Service [USDA-FNS], 2012).

Prepackaged and processed foods utilized in the traditional “heat and serve” approach to meals, where nutrition program staff reheat prepared foods, may contribute large amounts of sodium and saturated fats to school meals (Gordon, Crepinsek, Briefel, Clark, & Fox, 2009). Returning to scratch cooking and utilizing more fresh, whole foods in school meal service may help schools meet new NSLP and SBP standards, especially for sodium and calorie restrictions (USDA-FNS, 2012).

Research completed under the former school meal standards identified a number of barriers to offering healthier meals and meeting USDA standards, as perceived by school nutrition professionals. Cited barriers include: students’ lack of acceptance of healthy foods (Cho & Nadow, 2004; Lytle, Ward, Nader, Pedersen, & Williston, 2003; Slawson et al., 2013; Stang, Story, Kalina, & Snyder, 1997; Volpe et al., 2013); extra cost, labor, and time associated with modifying menus, recipes, and preparation of healthier food (Cho & Nadow, 2004; Lytle et al., 2003; Stang et al., 1997; Volpe et al., 2013); and lack of healthier options available through current vendors (Lytle et al., 2003; Volpe et al., 2013). Additional challenges identified include insufficient and outdated equipment (Economos et al., 2009; The PEW Charitable Trust & the Robert Wood Johnson Foundation, 2013), lack of support from administration or parents (Lytle et al., 2003; Slawson et al., 2013), and lack of necessary skills and training for staff (Cho & Nadow, 2004; Economos et al., 2009; Lytle et al., 2003; Stang et al., 1997).

Though the literature provides a broad review of potential barriers to utilizing healthier foods, a number of gaps in the research remain. First, further assessment of motivations for using fresh, whole foods in school nutrition programs can better inform effective interventions. Second, additional research regarding barriers specific to size of the school nutrition program is warranted. Third, few intervention evaluations have addressed the best practices to assist school nutrition professionals in overcoming challenges to implementing meals with more fresh, whole foods. Finally, it is an important time to evaluate the ability of school nutrition programs to meet the new NSLP and SBP standards and to identify how the use of fresh, whole foods can assist school nutrition programs in doing so.

A thorough understanding of training needs and best training practices for school nutrition program professionals is vital to successful implementation of the new requirements. The change in meal preparation practices required by the new standards will increase the need for skilled labor and may contribute to increased labor costs (USDA-FNS, 2012). This research aimed to gain insight into these issues by assessing attitudes, motivations, and barriers for Montana school nutrition professionals and key stakeholders regarding the use of fresh, whole food in Montana school kitchens after implementation of the new NSLP and SBP standards.

METHODOLOGY

The current study utilized survey and semi-structured interview methods to assess school nutrition program managers, staff, and key stakeholder perspectives regarding the use of fresh, whole foods in the school nutrition program. The researchers defined stakeholders as individuals

with direct experience in school nutrition programs or those in positions that influence or are influenced by school nutrition program practice and policy. The authors utilized the survey tool to gain a general picture of perspectives, while the semi-structured interviews allowed collection of in-depth information. Fresh, whole foods were defined for participants as foods that have no added ingredients or preservatives, including fresh, whole fruits and vegetables that have not been cooked, frozen, or canned and meats that have not been cooked (but may be frozen).

Subjects

Montana School Nutrition Program staff survey. Potential survey subjects were identified from a complete list of Montana school food service authorities obtained from the Montana Office of Public Instruction. All nutrition program managers or head cooks identified on the list (n= 254) were sent an email with explanation of the project and a link to the online survey. Non-respondents were sent two subsequent emails over the course of the next month with requests for participation. As an incentive, participants who completed the survey were entered into a random drawing to win a set of kitchen knives for their school nutrition program.

Key informant interviews. Interview subjects were identified by Montana Team Nutrition and Office of Public Instruction employees as stakeholders based on the subject's use and knowledge of fresh, whole foods in school nutrition programs. Stakeholders were sampled according to their position in school nutrition programs, including school nutrition program professionals, individuals whose positions directly support food service, or individuals whose positions influence policy in nutrition programs. A total of 19 potential subjects were initially contacted by email requesting an interview. One follow up email was sent to non-respondents approximately two weeks after the initial email.

Instruments

Montana School Nutrition Program staff survey. Survey questions were adapted from the Survey of K-12 Food Service Providers in Michigan and the K-12 Food Service Directors Needs Assessment (Joshi & Azuma, 2009) with additional input from Montana Team Nutrition staff. Survey questions assessed both current practices and future nutrition program needs involving the use of fresh, whole foods including barriers, additional equipment needs, and training needs.

Key informant interview questions. Interview questions were developed by the researchers based upon review of literature and input from school nutrition program managers. To ensure face, construct, and content validity, both survey and interview questions were reviewed by a panel of five professionals comprised of nutrition researchers, Montana Team Nutrition staff, and Montana school nutrition program managers. Adjustments were made based on panel feedback. Table 1 identifies the final semi-structured interview questions. Participants were asked to identify barriers to using fresh, whole foods, ways to overcome barriers, motivations and benefits to using fresh, whole foods, training approaches, and equipment and training needs.

Procedure

Survey participants completed the online survey from their computers at their convenience. Prior to beginning the survey, participants were asked to review an informed consent statement. Completion of the survey was considered consent to participate in the study.

The lead author scheduled times and dates for telephone interviews with interview subjects via email. Interview participants were asked to sign consent forms prior to the scheduled interview. The lead author telephoned interview participants at the scheduled time and obtained verbal consent to audio record the interviews. Survey instruments, interview questions, and subject protocol were reviewed and approved by the Montana State University Institutional Review Board.

Table 1.

Key Informant Interview Questions about Fresh, Whole Foods

Topic	Question and Select Probes
Use of fresh, whole foods	How do you or the foodservice that you work with utilize fresh, whole foods in your meal preparation? Probe: Incorporated into recipes? Served as side dishes? Have you or the foodservice that you work with increased your use of fresh, whole foods in recent years? Probe: How? (new recipes, new vendors, new menus, etc.)?
Motivations	What are your or the food service that you work with motivations for utilizing fresh, whole foods?
Skills and training	What additional skills or training did you or the food service staff that you work with need to prepare fresh, whole foods? Probe: How was this training accomplished? Is there additional training still required? How is training implemented?
USDA meal standards	What new foods or menu items have you added to help meet new USDA school lunch guidelines? Probe: Was extra staff training required for production of these items?
Professional development	Where do you or the foodservice managers that you work with get your professional development and additional training?
Equipment	What equipment has been useful in preparing fresh, whole foods for you or the foodservice that you work with? Did you or the foodservice that you work with require new equipment to meet new USDA school lunch requirements? Probe: What equipment has been most beneficial? Has the way you use equipment changed?
Barriers	What other barriers did you or the foodservice that you work with have to overcome to incorporate fresh, whole foods?
Benefits	What benefits have you or the foodservice that you work with seen in utilizing more fresh, whole foods?

Data Analysis

Survey data was analyzed using Statistical Package for Social Sciences (version 22.0, 2013 SPSS Inc. Chicago, IL). Descriptive statistics summarized survey responses. Analysis of Variance

(ANOVA) was used to determine significant differences between the numbers of items selected for barriers, training needs, and equipment needs among participants from different size nutrition programs, as determined by the reported average number of lunches served each day. Statistical significance was set at a two-sided alpha level of $p < 0.05$.

To ensure anonymity of interview participants, each interview was de-identified by replacing the participant's name with a code number. Interview recordings were transcribed verbatim using Microsoft Word and Excel (Microsoft Corporation, 2008). Interview data were separated into meaning units, or distinct fragments that represent a single idea. The two lead authors independently coded the data, working from an inductive approach (Creswell, 2014). The authors discussed and resolved any discrepancies in coding. Approximately 33% of coded data required resolving for reasons including discrepancies in the organization of categories and differing levels of specificity. For example, the differing codes of "training needs" and "skills" were collapsed into a general theme of "training" with appropriate subthemes, including "skills."

RESULTS AND DISCUSSION

Survey Findings

A total of 103 subjects completed the survey for a response rate of 41%. The average number of reported lunches served per day ranged from 1 to 4,000 with a mean of 316 lunches. While two respondents did not provide data on number of lunches served, six respondents reported serving 10 or fewer lunches per day, 28 reported serving between 11 and 100, 26 served between 101 and 200, 20 served 200 to 399, 11 served 400 to 599, 4 served 600 to 799, 3 served 800 to 999, and 5 respondents reported serving more than 1000 lunches per day. The high number of responses in the lower range is indicative of the high percentage of very small school nutrition programs in Montana.

The most frequently cited barriers to utilizing more fresh, whole food included food cost (n=66), inconsistent availability (n=46), and not enough preparation time (n=40) (Table 2). Nineteen respondents reported no barriers to utilizing fresh, whole foods. When asked "What equipment are you currently utilizing to prepare and serve fresh, whole foods?" the most frequently reported response was cutting boards (n=100) followed by salad bar (n=75), convection oven (n=74), peeler (n=65), and high quality knives (n=63). Respondents expressed the greatest interest in utilizing cherries (n=42), green beans (n=27), and winter squash/pumpkins (n=26).

While 22 respondents said that they would require no new equipment to prepare and serve more fresh, whole foods, 37 identified high quality knives, 26 steamer, 22 food processor, and 22 salad spinner. The most frequently cited training needs were use of herbs and spices (n=48), efficient planning and preparation (n=36), and creating and standardizing recipes (n=33).

Table 2.

Responses of Montana School Nutrition Staff Regarding Fresh, Whole Foods (N=103)

Question Topic	Response	n
Barriers that prevent using more fresh, whole foods	Cost of food	66
	Inconsistent availability	46
	Not enough preparation time	40
	Limited storage/refrigerator space	35

	Lack of necessary equipment	20
	There are no barriers for me to utilize fresh, whole foods	19
	Insufficient staffing levels	16
	Lack of recipes	13
Equipment currently utilized to prepare and serve fresh, whole foods	Cutting boards	100
	Salad bar	75
	Convection oven	74
	Peeler	65
	High quality knives	63
	Slicer	43
	Food processor	40
	Wedge	32
	Tilt skillet	29
	Blender	27
	Steamer	20
Fresh, whole foods to use in the future (not currently used)	Salad spinner	17
	Steam jacketed kettle	16
	Cherries	42
	Green beans	27
	Winter squash/Pumpkins	26
	Sweet corn	25
	Kale	22
	Mushrooms	22
	Berries	22
	Summer squash	21
	Sweet potatoes	15
Additional equipment needed to prepare and serve more fresh, whole foods	Pears	14
	Lentils/Dried beans	13
	Melons	12
	Meat and Poultry	11
	Fish	11
	Not interested in any additional foods	11
	High quality knives	37
	Steamer	26
	No new equipment necessary	22
	Food processor	22
	Salad spinner	22
Wedge	21	
Slicer	18	
Blender	17	
Peeler	17	
Tilt skillet	14	
Steam jacket kettle	13	
Other (Ex. Cooler/storage space, more labor)	13	
Salad bar	12	

Additional skills training required by staff to incorporate more fresh, whole foods	Use of herbs and spices	48
	Efficient planning and preparation	36
	Creating/Standardizing recipes	33
	Using local foods	33
	Reducing food waste	33
	Batch cooking	23
	Knife skills	23
	Reducing sodium in preparation	22
	Low fat/low sodium vegetable preparation	22
	Appropriate storage and handling of fresh produce	20
	No additional skills training required	15
	Food safety	13

Table 3.
Comparison of Barriers, Training Needs, and Equipment Needs Based on School Lunch Program Size (N=103)

	Small School Lunch Program ¹ (n=34) <i>M±SD</i>	Medium School Lunch Program ¹ (n=33) <i>M±SD</i>	Large School Lunch Program ¹ (n=34) <i>M±SD</i>
Barriers	2.2 ± 1.7 ^a	2.5 ± 1.6	3.4 ± 1.9 ^b
Training needs	3.0 ± 2.7	3.1 ± 2.7	4.1 ± 3.3
Equipment needs	2.1 ± 1.9	2.7 ± 2.9	3.0 ± 2.2

¹School size was determined by reported average number of lunches served each day. Small schools were defined as 1–100 lunches served, medium schools as 101-245, large schools as 246-4,000.

^{ab}Means with different superscripts across rows are significantly different ($p < 0.05$) based on $p < .05$ level using Tukey Post Hoc Test for one way ANOVA.

Interview Findings

One on one semi-structured interviews were conducted with 12 key informants by the lead author. These participants included current and former school nutrition program managers (n=9), AmeriCorps FoodCorps service members (n=2), and a state level Farm to Cafeteria program coordinator (n=1). Seven of the 19 individuals initially contacted did not respond to interview requests. In total, 421 meaning units were identified across 12 interviews.

Seven primary themes emerged from analysis of the transcribed interview data: whole foods, training, local foods, equipment, procurement, NSLP standards, and successful implementation.

Within the themes of whole foods, training, and local foods, several distinct subthemes emerged. Meaning units within the themes of equipment, procurement, NSLP standards, and successful implementation were more homogenous in subject matter and subthemes did not emerge within these themes. Table 4 details the themes and subthemes (where applicable). The table also notes the number of participants mentioning the theme/subtheme, number of meaning units in which the theme/subtheme appeared, and examples of each theme/subtheme.

Table 4.
Emergent Major Themes and Subthemes of Key Informant Interviews Related to Fresh, Whole Foods in School Meals (N=12)

Theme	Subtheme	P^a	MU^b	Example MU
Whole foods	Motivation	8	33	<i>They're easy to serve. There's a little more labor involved in the prep work, but fresh produce is a lot easier.</i>
	Integration	12	51	<i>So, we're including a lot of fresh and local whenever possible, even in our existing USDA recipes.</i>
	Barriers	9	16	<i>I think another big reason that schools use us is that they are - they don't have time to do all the chopping on their own. The time or the equipment.</i>
	Benefits	9	19	<i>So, I think actually just trying to eliminate processed food actually really helps your budget.</i>
	Child perspective	8	28	<i>By offering choices at the salad bar and some more choices at the elementary level - they're really starting to see those fresh fruits and vegetables and by having the choices they're really able to choose what they want.</i>
Training	Skills	12	50	<i>One is things like knife skills and the ability to just quickly chop and process, clean items. I think organizing your day and organizing your time and just time management is a skill that's completely undervalued. I would say even more training on budgeting, and learning how to incorporate fresh fruit and vegetables more efficiently without going over budget.</i>
	Professional development	9	18	<i>There's a couple of trainings that happen every year with OPI [Office of Public Instruction] that are decent, but there's not like a core set of professional development that we participate in, so it's mainly paying attention to what your neighbors are doing, finding out what works, what's good, talking to kids, seeing what works, and then trying to implement that.</i>
	Approaches	10	21	<i>I think to work with a chef or an extension agent would be great. They can only - they hear so much stuff from me, that I think it's a little bit more exciting when it comes from somebody else.</i>
	Challenges	3	4	<i>Training is just hard that way when you get a</i>

				<i>lot of people together. Some people seem to benefit and others don't.</i>
Local foods	Motivation	5	11	<i>There's starting to be an increased buzz around farm to school and all the benefits that it holds.</i>
	Procurement	6	19	<i>We've increased our local sourcing...for the fresh fruits and vegetable program, I was able to get local produce in through that way.</i>
	Integration	2	6	<i>Another would be just regular integration into the school lunch program and that has been really successful with Montana food products that are available year round... things like lentils, ground beef that is raw.</i>
Equipment		12	43	<i>I would say the one other huge piece of equipment that is super helpful is our peeler. I did have to buy commercial refrigerator. I think the most important thing we purchased last year was a heavy duty food processor that can shred or puree.</i>
Procurement		10	21	<i>Yeah, the one that always comes up is distribution. And that is just part of living in Montana.</i>
National School Lunch Program (NSLP) standards		9	24	<i>I think, you know, switching to scratch helped us meet those guidelines. We try to incorporate more kale and more lentils, squash, you know, which all then help us meet the red, green needs and the legumes.</i>
Successful implementation		10	57	<i>In general, the whole, basic ingredients are affordable, and, as long as you're managing inventory well, I don't find it to be an issue. Definitely if you're buying in season, that's good. It will be a little bit cheaper. So sometimes it's just about having the mind set and thinking creatively and thinking about how we can get this done instead of why we can't do it.</i>

^a P = Number of participant interviews in which theme was present

^b MU = Number of meaning units in which theme was present

Whole Foods

Motivation. According to interview participants, the primary motivation for using fresh, whole foods was to provide healthier, more appealing meals for students. Respondents believed that using fresh, whole foods was healthier because the food was fresher and cooks had more control over ingredients. Additionally, multiple respondents noted pressure or encouragement from administration and parents as motivation for using fresh, whole foods.

Integration. Several participants integrated fresh, whole foods into schools through the Fresh Fruit and Vegetable Snack Program (USDA-FNS, 2013). Respondents also frequently noted using the salad bar to feature fresh foods and integrating fresh vegetables into side dishes.

Barriers. Barriers to utilizing whole foods included cost, limited skilled staff, and lack of storage space. One participant who works with several school districts described a disconnect between clerks who handle the budget and nutrition program managers, which limited the nutrition program manager's ability to make changes to ordering or production practices. In addition, two managers from smaller programs noted that they did not meet the minimum required order from some distribution companies, thus reducing their sourcing options.

Benefits. A wide variety of benefits to using whole foods were cited by 9 of the 12 participants. Improved taste, visual appeal, and variety in meals were the most frequently noted benefits, followed by increased meal participation, decreased food waste, and positive staff feedback.

Child perspective. Of the 12 participants, 8 discussed the use of fresh, whole foods from the child perspective. Participants noted that in using fresh, whole foods on the salad bar, children were able to make their own choices and were more likely to eat the foods that they picked. Students were more accepting of new fruits and vegetables when they were in a form that they could recognize.

Training

Skills. Specific culinary skill needs noted by participants included knife skills, safe and efficient handling of fresh produce, and following a standardized recipe. Beyond culinary skills, inventory and budget management needs were commonly cited as well as time management and efficient planning. Several participants mentioned the need to educate staff on the benefits of using fresh, whole food in order to increase their willingness to integrate fresh, whole foods into the school nutrition program.

Professional development. Some respondents actively participated in professional development offerings while others stated that they had received no additional professional development. Managers interviewed who participated in continuing education opportunities did so at state conferences (Montana School Nutrition Association) and online (National Food Service Management Institute).

Approaches. Most respondents did not have specific designated training times, but rather trained as needed and "learned as we go." Several managers used experienced and better skilled staff as leaders and peer teachers in the kitchen. Other managers expressed a desire to bring in an outside teacher, a chef or extension agent, to teach or work alongside the staff to enhance skills and be a "positive example."

Challenges. The most frequently cited challenge to implementing training was limited time in the workday. One respondent commented that there were only two staff members in the kitchen, making it impossible for anyone to take a day away for training. A respondent from a

larger district cited the staff's restrictive contract that did not allow for extra time outside of required staff workdays.

Local Foods

Motivation. Supporting local farmers and putting money back into the local economy were the most frequently mentioned motivation for utilizing local foods, followed by increased freshness, quality, and taste.

Procurement. Several participants noted that time and effort to develop relationships with farmers as a significant barrier to local procurement, although having an AmeriCorps FoodCorps service member decreased this barrier. Multiple participants expressed a desire to procure more local products, but felt inhibited by their remote location and limited access to distribution channels. Also frequently mentioned was the limited growing season in Montana.

Integration. Participants integrated local foods in to school nutrition program through the Fresh Fruit and Vegetable Snack program (USDA-FNS, 2013) as well as modifying recipes to utilize locally available products. One participant was able to integrate more local products into meals by focusing on local products that are available all year round, like beef and lentils.

Equipment

Nearly all respondents expressed a desire for additional or updated equipment. Many expressed a sense of “making do” with their current equipment. The equipment most frequently noted as especially useful in processing fresh, whole foods included food processors, industrial chopper/dicer, slicers, peelers, and commercial freezers and refrigerators.

Procurement

Procurement sources ranged from large scale distributors to local farmers, and in two cases, school and nutrition program staff gardens. Several respondents noted their remote location as a limiting factor to fresh food access. One respondent recruited any member of the town traveling to a larger city to pick up fresh produce for the school.

National School Lunch Program Standards

Several participants noted that utilizing more fresh, whole food and scratch cooking helped them meet USDA School Meal standards (USDA-FNS, 2012). Respondents reported that utilizing salad bars to feature a variety of fruits, vegetables, and legumes helped meet requirements for the number of servings and provided abundant food for fewer calories which assisted in meeting calorie restrictions. One respondent used lentils in place of ground beef to not only assist in meeting legume serving requirements, but also help decrease fat and saturated fat content of meals.

Successful Implementation

A prevalent theme associated with successful implementation was managing staff members appropriately. One manager noted shifting staff responsibilities to maximize staff skills and decrease the effect of staff members who were unwilling to change to more scratch cooking. In overcoming cost, multiple participants underscored the importance of creative thinking and

innovative solutions. “But, it’s kind of a balancing act,” commented one participant, “like getting the fresh fruits and vegetables but also making sure you meet the costs with the canned.”

CONCLUSIONS AND APPLICATION

Findings from both the survey and interviews build on previous research and point to opportunity to increase the use of fresh, whole foods in school nutrition programs through improved and targeted training and appropriate policy changes. Though previous research indicates limited staff skills and training as barriers to producing healthier meals or using local products (Cho & Nadow, 2004; Economos et al., 2009; Lytle et al., 2003; Stang et al., 1997), few studies address specific training needed to effectively utilize fresh, whole foods. Our findings support previous work indicating the need and desire for training in recipe and menu standardization, food safety, and using local food (Smith, Wleklinski, Roth, & Tragoudas, 2013; Stang et al., 1997; Sullivan, Harper, & West, 2002). Additionally, the findings of the current study identify the specific skills and training needed to best utilize fresh, whole food and meet NSLP and SBP standards.

No previous research assesses the differing needs of various sizes of school nutrition programs, beyond the one previous study evaluating the influence of school size on interest in utilizing local foods (Smith et al., 2013). The wide range of program participant numbers reported by survey respondents emphasizes the widely varying challenges of Montana schools. Appropriate training should be customized to nutrition program size and serving styles. Schools that do not have fully equipped kitchens may benefit from introducing fresh, whole foods through the Fresh Fruit and Vegetable Snack program, whereas schools with full kitchens could benefit from culinary trainings to incorporate fresh, whole foods into meals (USDA-FNS, 2013).

School nutrition program managers must also have opportunities to learn budgeting and staff management techniques to facilitate the use of fresh, whole foods. The researchers’ findings corroborate previous work pointing to the need for enhanced managerial skills to promote teamwork and staff motivation (Sullivan et al., 2002). Strong leadership and management abilities are vital to encouraging staff support of food service changes. Continuing education and professional development opportunities should be made available to all levels of school nutrition program staff in a manner that accommodates limited travel time and geographic barriers. Consistent online training may be one option to reach rural nutrition program staff (Rasor-Greenhalgh, Taylor, & Roberts, 1995). Another effective option may be to embed trainers within the school nutrition program to allow them to work alongside staff for an extended period of time (Cohen et al., 2012; Perlman et al., 2012).

Internal school and district level policies may require changes to better support continued training. Providing adequate time and compensation in contracts to allow for continuing education will be necessary to allow nutrition program staff to meet new proposed professional standards for all school nutrition employees (USDA-FNS, 2014). Facilitating communication between budget planners and meal planners is vital to promoting flexibility in ordering and increasing the use of fresh, whole foods. Contrary to previous studies indicating lack of administrative and parental support as a barrier to serving healthier meals (Lytle et al., 2003; Slawson et al., 2013), the current research points to pressure from administrators and parents as

motivation to produce healthier meals. This may indicate changing priorities for both institutions and parents and an increased preference for healthful school lunches.

At a community level, promoting inter-organizational communication and connections between school districts, growers' cooperatives, and local food organizations may help facilitate increased access to fresh, whole foods. While previous research has shown limited distribution and availability to be a barrier in utilizing local foods (Izumi, Rostant, Moss, & Hamm, 2006; Pinard et al., 2013), the current findings indicate that these issues also limit access to fresh, whole foods in general. In Montana in particular, developing appropriate infrastructure to support distribution of fresh, whole foods to remote areas will be key to promoting increased use of whole foods statewide. Individuals and organizations, like FoodCorps, dedicated to enabling such connections may increase the use of fresh, whole foods and promote healthier meals overall (FoodCorps, Inc., 2013).

Changes at a national policy level may also be necessary to support a transition to scratch cooking and the use of fresh, whole foods. The current research confirms previous studies citing insufficient equipment as a barrier to healthier food preparation (Economos et al., 2009; The Kids Safe and Healthful Food Project, 2013; Wagner, Senauer, & Runge, 2007). Allotting funds specifically for updated equipment would take significant pressure off nutrition program managers. Funding is also necessary to enable school districts to meet the proposed training standards (Wagner et al., 2007). Additional monies to pay staff for time and travel to training would ease the burden of the new USDA professional standard requirements. With recent backlash against the new standards and required changes in school nutrition programs, it is important that school nutrition programs are maximally supported for successful implementation (Lubrano, 2014).

While this research provides valuable insights into Montana school nutrition programs, there are some limitations. The validity of the survey may be threatened by selection bias. That is to say participation was optional and those who chose to participate may have had a more vested interest in using whole, fresh foods than non-respondents. The survey did not directly assess respondents' interest or desire to increase their use of fresh, whole foods or their current food service model. This information may have clarified the limitations and barriers cited by respondents. Additionally, the results may not generalize to a national population, particularly due to the limited sample size of the study and the remote nature of many Montana schools.

Areas for future research include assessment of current available training for school nutrition program professionals and further evaluation of best training practices. The ability of schools and districts to meet the USDA's proposed professional standards for school nutrition employees should be evaluated before and after implementation deadlines. The impacts of those standards should also be explored to determine effectiveness, costs, student acceptance, and nutritional implications.

Study participants noted numerous benefits to utilizing fresh, whole foods in school nutrition programs and also identified significant barriers. While training and professional development aimed at increasing culinary skills and promoting productive management practices may address some of these barriers, change in institution, community, and federal policy are necessary to

facilitate broad adoption of scratch cooking and use of fresh, whole foods in school nutrition programs. It is vital that school nutrition program staff are provided resources and knowledge to effectively integrate fresh, whole foods to not only meet NSLP and SBP standards, but also produce appetizing and enticing school meals.

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