



Cooking for Kids: Culinary Training for School Nutrition Professionals Positively Affects School Nutrition Professionals' Culinary Practices and Beliefs



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Abstract

Objective

The purpose of this project was to evaluate the mid-term outcomes of *Cooking for Kids* regional skill development workshops on the beliefs related to school meals and food preparation and marketing practices of participating school nutrition professionals (SNPs).

Target Audience

Oklahoma SNPs working in school districts that participate in federally funded Child Nutrition Programs (CNP).

Theory, Prior Research, Rationale

The Community Readiness Model was used for program development and evaluation of the program. Social Cognitive Theory constructs were implemented to improve knowledge, skills efficacy, and beliefs related to SNPs' role in student health outcomes. Past research supports the use of both theories for successful health promotion interventions.

Description

Cooking for Kids Regional Training was offered during June and July, 2015, at 6 sites in Oklahoma. Program structure included classroom lecture and instructional videos along with hands-on application in the on-site kitchen.

Evaluation

Participants completed a questionnaire regarding nutrition attitudes/beliefs and culinary practices on day 1 of training and 6 months post-training. There was an increase in use of mise en place and use of *Smarter Lunchrooms* practices. SNPs reported a significant increase in the belief that the food they serve tastes good, belief that teachers, administration, and staff think the food tastes good and is healthy, and belief that parents think the food tastes good. SNPs also reported an increased belief that food they serve impacts health and academic performance of students.

Conclusions and Implications

A chef-based culinary training has potential to increase skills efficacy of SNPs and increase the value of school nutrition's role in student health by SNP and key stakeholders. Future training efforts should address menu planning and procurement with CNP decision makers.

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Introduction

The USDA, authorized by the Healthy Hunger-Free Kids Act (HHFKA) 2010, updated the CNP meal regulations to address the growing epidemics of childhood obesity and hunger. New nutrition standards went into effect July 2012 and included caloric, fat, and salt limits and increased opportunities for students to consume fruits, vegetables, and whole grains. Challenges for implementing the regulations included limited staff trained with time saving culinary skills and concern that students would not be accepting of the new foods and meal patterns. *Cooking for Kids* is a chef-based culinary skill training program for Oklahoma school nutrition professionals (SNPs) designed utilizing the Community Readiness Model and Social Cognitive Theory (SCT) to address these challenges. It is a partnership of the Oklahoma State University Department of Nutritional Sciences and School of Hotel and Restaurant Administration and the Oklahoma State Department of Education Child Nutrition Services. The program was piloted Summer 2014 and implemented statewide Summer 2015. Previous evaluation indicates *Cooking for Kids* significantly improved knowledge, but has yet to be evaluated for efficacy to impact behavior and beliefs related to the value of school meals.

Purpose & Objectives

The purpose of this project was to evaluate the mid-term outcomes of *Cooking for Kids* regional skill development workshops on SNPs' beliefs related to school meals and food preparation and marketing practices. Objectives were to measure the following changes reported by participating SNPs prior to attending the training and 6-months post-training:

- Use of scratch cooking, mise en place, menu planning, taste-testing, and *Smarter Lunchrooms* practices
- Attitudes, specifically the pride they have in the meals they prepare and serve to students
- Beliefs concerning personal and perceived thoughts of the students, parents, and teachers/administration regarding the taste and health of meals
- Beliefs regarding the effects of meals served on the health and academic performance of students
- Beliefs pertaining to availability of resources (i.e. time, equipment, skills)

Table 1. Frequency of mise en place and *Smarter Lunchrooms* practices.

Pre/Post mise en place	Do not know about it	Never use	Use it sometimes (1-2 days/wk)	Use it most of the time (3-4 days/wk)	Use it always (5 days/wk)	Total	χ^2 value (p-value) ^a
Pre N (%)	118 (68.2%)	8 (4.6%)	6 (3.5%)	19 (11.0%)	22 (12.7%)	173 (100.0%)	101.094 (0.00)
Post N (%)	0 (0.0%)	9 (12.0%)	17 (22.7%)	23 (30.7%)	26 (34.7%)	75 (100.0%)	

Pre/Post <i>Smarter Lunchrooms</i>	Do not know about it	Never use	Use it sometimes (1-2 days/wk)	Use it most of the time (3-4 days/wk)	Use it always (5 days/wk)	Total	χ^2 value (p-value) ^a
Pre N (%)	99 (53.5%)	5 (2.7%)	14 (7.6%)	31 (16.8%)	36 (19.5%)	185 (100.0%)	45.859 ^b (0.00)
Post N (%)	9 (12.2%)	5 (6.8%)	17 (23.0%)	29 (39.2%)	14 (18.9%)	74 (100.0%)	

^aSignificance level set at $p < 0.05$.

^b1 cell (10.0%) had an expected count less than 5.

Table 3. SNPs' beliefs regarding taste of meals served.

Question Content	Pre/Post	N	Mean ^a (SD)	p-value ^b
Believe the food served tastes good	Pre	191	3.21 (0.541)	0.049
	Post	76	3.37 (0.608)	

^aResponse code: 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly agree.

^bSignificance level set at $p < 0.05$.

Table 4. SNPs' perceived thoughts of teachers, administrators, and staff and of parents.

Question Content	Pre/Post	N	Mean ^a (SD)	p-value ^b
Teachers, administrators, and staff think the food served tastes good	Pre	188	2.96 (0.619)	0.005
	Post	76	3.18 (0.509)	
Teachers, administrators, and staff think the food served is healthy (low in fat, salt, and sugar and high in fiber)	Pre	189	3.05 (0.429)	0.040
	Post	75	3.19 (0.512)	
Parents of students think the food served tastes good	Pre	190	2.92 (0.492)	0.046
	Post	76	3.05 (0.459)	

^aResponse code: 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly agree.

^bSignificance level set at $p < 0.05$.

Table 5. SNP beliefs regarding effects foods served has on health and academic performance.

Question Content	Pre/Post	N	Mean ^a (SD)	p-value ^b
What kids eat at school makes a difference in their health	Pre	187	3.01 (0.680)	0.001
	Post	76	3.30 (0.566)	
What kids eat at school makes a difference in how well they learn at school	Pre	188	3.24 (0.539)	0.001
	Post	76	3.47 (0.503)	
What kids eat at school makes a difference in their behavior while at school	Pre	189	3.07 (0.588)	0.001
	Post	76	3.36 (0.626)	

^aResponse code: 1 = Strongly Disagree; 2 = Disagree; 3 = Agree; 4 = Strongly agree.

^bSignificance level set at $p < 0.05$.

Methods

Participants

Oklahoma SNPs (i.e. head cooks, kitchen managers, and child nutrition directors or supervisors) working in school districts that participate in federally funded Child Nutrition Programs.

Intervention

The 2015 *Cooking for Kids* Regional Training was offered during June and July at 6 different sites in Oklahoma. Training consisted of two, 2-day trainings (Level 1 and 2). Level 1 concepts included nutrition, food safety, knife skills, kitchen skills, vegetable cookery, whole grain cookery, and recipe and menu development with hands-on application in the on-site kitchen. Level 2 concepts included taste training, professionalism (of self, food, menu, and lunchroom), marketing, flavor training, use of standardized recipes, and mise en place (i.e. time management).

Data Collection Tool

On day 1 of Level 1 training, participants completed a survey that included demographic information and items related to school nutrition attitudes/beliefs and culinary practices. The same survey was administered 6-months post via email to participants who completed both levels. The study protocol was reviewed and processed as exempt by the Oklahoma State University Institutional Review Board.

Statistical Analysis

Pearson's chi-square was used to assess statistical differences between pre- and post-training responses for the scratch cooking, mise en place, *Smarter Lunchrooms*, and taste-testing practices, as well as availability of resources questions. T-test was used to assess differences in responses for the menu planning items, pride question, and remaining 11 belief items.

Results

- 192 of 291 (66%) SNPs that attended day 1 of level 1 completed pre-questionnaires, and 82 of the 135 (60.7%) emailed post-questionnaires were completed.
- Respondents represented all four regions of Oklahoma with the northeastern region having the largest representation (58.8% pre and 34.2% post). At pre-training, the largest proportion of respondents were cooks (35.6%) compared to 36.8% reporting Child Nutrition Directors/Supervisors at post-training ($p = 0.023$). Average total years worked by pre-training respondents was 10.70 years (range 6 months – 35 years) compared to 12.11 years (range 1 – 35) post-training ($p = 0.228$). At both time periods, the majority of SNPs reported serving food for more than one grade level, and the majority of meals were prepared at the same site as served.
- Significant improvements were found in mise en place and *Smarter Lunchrooms* practices as well as SNPs belief that food served tastes good and makes a difference in student health outcomes. SNPs belief that school staff think the food served tastes good and is healthy, and belief that parents think food served tastes good also increased. (Tables 1-5)
- Findings related to use of scratch cooking methods and SNPs belief that staff have the skills needed for scratch cooking were inconclusive.
- No significant differences were found in menu planning or taste-testing practices, SNPs pride in meals served, or SNPs belief that food served is healthy. Similarly, there were no significant differences in SNPs belief that students think food served tastes good or is healthy, belief that parents think food served is healthy, or belief that SNPs staff have the needed time or equipment for more scratch cooking.

Discussion, Conclusion, and Implications

SNPs reported incorporating time management skills and marketing strategies into their work practice, thus addressing some of the challenges in meeting the updated CNP nutrition regulations. Findings from this study concur with and contribute to the limited research evaluating the efficacy of chef-based culinary trainings for SNPs. Thus, strengthening the proposition that chefs play an important role in equipping SNPs with the knowledge and skills needed to efficiently prepare healthier meals using less processed foods. Further, after participating in the *Cooking for Kids* training, SNPs held stronger beliefs that school meals tasted good and contributed to the students' academic and health outcomes. They also believed that school faculty, staff, and parents had similar changes in perceptions. These corresponding changes in behavior and beliefs are consistent with SCT's reciprocity construct. To further evaluate program outcomes, future efforts should consider use of a retrospective pre/post-test tool. Future training efforts should address menu planning and procurement with CNP decision makers.