

DISSERTATION

DISSEMINATION AND IMPLEMENTATION OF THE  
*COOKING WITH KIDS* TASTING CURRICULUM

Submitted by

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## ABSTRACT

### DISSEMINATION AND IMPLEMENTATION OF THE *COOKING WITH KIDS* TASTING CURRICULUM

Numerous school health education programs, including nutrition education curricula have been developed. To improve dissemination and implementation of nutrition education curricula in schools, research is needed to identify and measure factors that facilitate and hinder the dissemination and implementation processes. Therefore, this study was conducted to identify strategies and practices that aided dissemination, adoption, and implementation of the *Cooking with Kids (CWK)* tasting curriculum by paraprofessional Nutrition Educators (NE).

The study used a mixed methods time-series design. Formative assessment data were collected from two web-based surveys (n=313) and 27 interviews. The assessment results and constructs of Diffusion of Innovations and Social Cognitive Theory were used to develop a three-hour training introducing *CWK* to NE and their supervisors. Intervention data were collected from paraprofessional NE (n=49) and their supervisors (n=21) using a series of surveys, interviews, and implementation reports. Quantitative data analysis included descriptive analysis, factor analysis, analysis of variance, paired samples *t*-tests, correlations, and multiple regression. Qualitative data were analyzed for themes.

Formative assessment revealed active participation, lesson observation, and pilot-testing as essential features of effective paraprofessional NE training. From pre- to post-training, NE and supervisors reported improved knowledge about teaching the curriculum ( $t=5.12, p<0.01$  and  $t=8.31, p<0.01$ , respectively), confidence ( $t=3.93, p<0.01$  and  $t=3.62, p<0.01$ , respectively), motivation ( $t=3.71, p<0.01$  and  $t=2.63, p<0.05$ , respectively), and information ( $t=7.17, p<0.01$  and  $t=4.15, p<0.01$ , respectively) to teach the curriculum. Gains in NE knowledge, confidence, motivation, and communication skills were sustained eight months post-training. Gains in supervisor knowledge were sustained eight months post-training. Supervisor motivation to use *CWK* returned to pre-training levels, which were relatively high to begin with so there was limited room for improvement. Although supervisor confidence was higher at eight months post-training, it was not statistically different from pre-training levels. These results may be attributed to the fact that supervisors did not teach the tasting lessons.

High levels of curriculum adoption and implementation by NE were attributed to strong implementation expectations, experiential and observational learning training elements, and perceived curriculum compatibility with existing programming. Environmental factors such as time constraints, personnel turnover and scheduling conflicts proved challenging. Study results underscore the importance of combining theory and formative assessment for successful development and implementation of training and, in turn, curriculum implementation. In addition, results indicate that perceived simplicity, compatibility, and trialability are important attributes that should be maximized when introducing new curricula to potential adopters.

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# CHAPTER 1

## INTRODUCTION

### **Project Rationale**

Numerous school health education programs, including nutrition education curricula and interventions have been developed (Basch, 1984; Centers for Disease Control and Prevention, 2007; Contento et al., 1995). The impact of a program is a function of its effectiveness, dissemination, and maintenance over time (Basch, 1984; Kolbe, 1986; Parcel, 1995). To improve dissemination and implementation of these programs in schools, research is needed to identify and measure factors that facilitate and hinder the dissemination and implementation processes (Basch, 1984; Hoelscher et al., 2001). However, few studies have examined factors affecting dissemination of nutrition education curricula (Franks et al., 2007; McCullum-Gomez, Barroso, Hoelscher, Ward, & Kelder, 2006; Nanney et al., 2007).

Extension programs bring land-grant college and university expertise and resources to the local level through informal, non-credit programs ("United States Department of Agriculture, National Institute of Food and Agriculture," 2009). Extension nutrition educators work routinely in the community and provide a realistic perspective regarding strengths and challenges encountered when disseminating and implementing curricula (Serrano, Anderson, & Chapman-Novakofski, 2007). Although dissemination of

curricula often involves training those who will be responsible for its implementation (Layne et al., 2008), relatively little is published on the topic of training nutrition paraprofessionals who are widely used in Extension to implement nutrition education curricula (Contento et al., 1995; Norris & Baker, 1998; Olson, 1994).

One nutrition education curriculum, *Cooking with Kids (CWK)*, utilizes constructs of Social Cognitive Theory in cooking lessons and tasting lessons to encourage elementary schoolchildren's innate curiosity and enthusiasm for food through direct experience with fresh, affordable foods (Walters & Stacey, 2009). The curriculum focuses on addressing affective factors such as familiarity, taste, and social learning which is recommended for effectiveness (Centers for Disease Control and Prevention, 2008; Contento et al., 1995). Cooking lessons emphasize learning about and preparation of foods from around the world. Tasting lessons engage students in sensory exploration of fruits and vegetables, with minimal food preparation and no cooking. Each tasting lesson engages students in sensory exploration of four varieties of a particular fruit or vegetable (e.g., romaine lettuce, spinach, red leaf lettuce, and sunflower sprouts). Tasting lessons encourage students to learn about, observe, draw, use descriptive language, and express personal preferences regarding fresh fruits and vegetables (Walters & Stacey, 2009). Both cooking lessons and tasting lessons are aligned with state academic standards and provide applied learning opportunities in language arts, social studies, math, science, and health education (Walters & Stacey, 2009).

The purpose of this study was to identify strategies and practices that aided dissemination, adoption, and implementation of the *CWK* tasting curriculum in new settings by paraprofessional nutrition educators.

## **Research Questions**

The following research questions were addressed in this study:

### ***Formative Research Questions***

1. What factors contribute to/detract from the intent to adopt school-based curricula by paraprofessionals?
2. What factors contribute to/detract from implementation or adaptation of school-based curricula by paraprofessionals?

### ***Training Intervention Research Questions***

1. What changes occur at the paraprofessional level related to reaction, learning, behavior, and results (Kirkpatrick & Kirkpatrick, 2006) due to the training?
  - a. Are paraprofessionals satisfied with the level and style of training provided?
  - b. What changes in attitudes, knowledge, and skills occur as a result of attending the training?
  - c. What changes in behavior related to adoption, implementation, and/or adaptation occur from training through follow-up?
2. What factors contribute to/detract from the intent to adopt the *CWK* tasting curriculum by paraprofessionals that are related to the training?
3. What factors contribute to/detract from implementation or adaptation of the *CWK* tasting curriculum by paraprofessionals that are related to the training?

4. What opportunities and challenges do paraprofessionals and their supervisors encounter throughout the process of adopting and implementing the *CWK* tasting curriculum?

### **Definition of Terms**

*Adaptation of an Innovation.* The innovation is changed or modified to facilitate use of the innovation (Cunningham-Sabo et al., 2007).

*Adoption of an Innovation.* A decision to make full use of an innovation as the best course of action available (Rogers, 2003).

*Diffusion of an Innovation.* The process by which an innovation is communicated through certain channels over time among the members of a social system (Cunningham-Sabo et al., 2007; Rogers, 2003); the overall spread of an innovation (Oldenburg & Glanz, 2008).

*Dissemination of an Innovation.* The planned communication (rather than passive spread) of an innovation from the original developers to a new user system (Cunningham-Sabo et al., 2007; Rogers, 2003); the planned, systematic effort to make an innovation more widely available (Oldenburg & Glanz, 2008).

*Extension Programs.* Educational programs administered through county and regional extension offices which bring land-grant college and university expertise and resources to the local level through informal, non-credit programs ("United States Department of Agriculture, National Institute of Food and Agriculture," 2009).

*Implementation of an Innovation.* An innovation is put to use in a new setting without major modification or adaptation (Cunningham-Sabo et al., 2007; Rogers, 2003).

*Innovation.* An idea, practice, or object that is perceived as new, or as better than the original, by an individual, group, or organization (Rogers, 2003).

*Institutionalization of an Innovation.* The innovation becomes integrated into the routine and continuing programs, practices, and policies of the social system (Cunningham-Sabo et al., 2007).

*Paraprofessional.* A non-professional who works closely with professional staff and extends what the professional can do (Norris & Baker, 1998).

### **Delimitations**

This study was delimited to the following:

1. The sample in the formative portion of the study consisted of 27 users of the *CWK* curriculum and seven employees of New Mexico State University Cooperative Extension System.
2. The sample in the intervention portion of the study consisted of 54 Nutrition Educators and 23 Extension Agents working with limited resource audiences throughout New Mexico.
3. The timeline of this investigation was May, 2008 – May, 2010.
4. Data collected from participants included (a) demographic information; (b) surveys and interviews identifying factors contributing to and detracting from adoption, implementation, and adaptation of the *CWK* tasting curriculum; (c) interviews identifying ideal training components; (d) pre-training, post-training, four month follow-up, and eight month follow-up surveys evaluating knowledge, attitudes, and behaviors related to adoption, implementation, and adaptation of the *CWK* tasting curriculum; (e) reports detailing student and educator reactions from each

*CWK* tasting lesson delivered; and (f) follow-up interviews identifying how the *CWK* tasting curriculum was implemented in various settings.

### **Limitations**

The study was subject to the following potential limitations:

1. The participants represented a convenience sample.
2. Self-report measures were used.

### **Assumptions**

The following assumptions were made for this study:

1. The participants answered questions honestly and to the best of their ability.
2. All instruments and measures were generally understandable.

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## **CHAPTER 2**

### **REVIEW OF LITERATURE**

This chapter reviews the literature relevant to the issues of disseminating nutrition education curricula and the development and evaluation of paraprofessional training programs aimed at disseminating nutrition education curricula. The chapter is organized into the following sections: a review of nutrition education curricula dissemination research, a discussion of the Diffusion of Innovations theory and applications in nutrition education, considerations for training paraprofessionals, effective evaluation of training programs, a description of Social Cognitive Theory, and a summary.

#### **Dissemination of Nutrition Education Curricula**

Effective dissemination requires conscious and active effort to transferring knowledge and programs from researchers and developers to potential end users (Oldenburg & Glanz, 2008). Relatively little research has been conducted on the dissemination of nutrition education curricula. Peer-led teacher training workshops organized through Extension that incorporated reinforcement and practice of teaching behavior resulted in a relatively high level of dissemination and implementation of a nutrition education program aimed at secondary school students (Olson, Devine, & Frongillo Jr, 1993). Stark and Johnson reported that a three-hour nutrition education workshop can improve nutrition knowledge and lead to incorporation of nutrition

education materials in the classroom (Stark & Johnson, 1981). Others discovered that longer training workshops did not yield greater program use, but contact with nutrition consultants who encouraged implementation resulted in implementation of the entire curriculum (Tinsley, Houtkooper, Engle, & Gibbs, 1985). Researchers that compared an intensive full-day workshop training to a brief two-hour training found no effect of training condition on implementation, self-efficacy, enthusiasm, or preparedness (Rohrbach, Graham, & Hansen, 1993).

The Coordinated Approach to Child Health (CATCH) program is one of the most widely disseminated nutrition education curricula that have been investigated. The initial randomized, controlled field trial included 5,106 elementary school children at 56 intervention and 40 control schools in California, Louisiana, Minnesota, and Texas (Luepker et al., 1996). The intervention included classroom health curricula, enhanced physical education (PE), and school food service modifications. A subset of the intervention group also incorporated family education. Implementation training sessions were one to one and one-half days in length for classroom teachers and PE specialists and one day for food service personnel. School level outcomes included a significant reduction in fat content of school lunches in intervention schools as compared to control schools and increased time spent in vigorous and moderate-to-vigorous physical activity in PE. Individual outcomes included a reduction in self-reported energy intake from fat and increased vigorous activity (Luepker et al., 1996).

McCullum-Gomez and associates investigated factors that influenced the implementation of the CATCH food service component, Eat Smart, in Texas (McCullum-Gomez, Barroso, Hoelscher, Ward, & Kelder, 2006). School personnel involved in

implementing CATCH attended a six and one-half hour training session conducted by research staff. School personnel that reported having a program manual available for use were significantly more likely to have higher self-efficacy related to implementation of program guidelines than those who reported not having a manual available (McCullum-Gomez et al., 2006), which corroborates findings regarding the importance of program materials for dissemination and implementation (Caburnay, Kreuter, & Donlin, 2001).

Based on the success of the initial CATCH program, an adaptation for the after-school setting, the CATCH Kids Club, emerged. After-school program staff were trained in two four-hour interactive workshops designed to provide the knowledge and skills needed for successful implementation (Kelder et al., 2005). A booster training session was held midway through the 15-week intervention. Process evaluation revealed that staff considered hands-on training valuable. Training was a key variable in achieving proper implementation, but staff interest and skill level also influenced implementation (Kelder et al., 2005).

Another investigation of factors that influenced nutrition education curricula dissemination included an evaluation of regional, organizational and personal characteristics that predicted awareness and adoption of a nationally disseminated dietary curriculum designed to address diet-related cancer disparities among African Americans (Nanney et al., 2007). Factors that impacted awareness included region of the country where educators lived, years of experience, education level, and race/ethnicity. Determinants that influenced adoption included a convenient, relatively short training format and content that included reliable, easy-to-use nutrition information.

Lessons learned from successful dissemination of health promotion programs include involvement of stakeholders throughout the process (Franks et al., 2007; Hoelscher et al., 2001; Peterson, Rogers, Cunningham-Sabo, & Davis, 2007), use of dissemination strategies informed by a priori audience analysis (Franks et al., 2007), adequate training (Hoelscher et al., 2004; Hoelscher et al., 2001; Owen, Glanz, Sallis, & Kelder, 2006), use of interpersonal channels for communication (S. Brink et al., 1995; Hoelscher et al., 2001; Kaner, Lock, McAvoy, Heather, & Gilbarry, 1999), and use of simple and inexpensive curricula that align with academic standards yet allow for local adaptation (Belansky et al., 2006; Franks et al., 2007). Others have found that determinants of adoption and implementation include teacher attitudes toward the innovation and perceived relative advantage of the innovation (Parcel et al., 1995). Teacher enthusiasm, preparedness, teaching methods compatibility, perceived encouragement to implement the program, years of experience, and observation of program delivery also affect implementation (Rohrbach et al., 1993). In addition, self-efficacy (Owen et al., 2006; Sy & Glanz, 2008), innovations that are perceived as simple to implement (Brownson et al., 2007; Sy & Glanz, 2008), and adequate staffing and monetary resources (Brownson et al., 2007) have been found to impact adoption and implementation of health promotion programs.

### **Diffusion of Innovations**

#### ***Description***

Diffusion of Innovations theory outlines the typical spread of new ideas within a social system. Diffusion is “the process by which an innovation is communicated through certain channels over time among the members of a social system” (Rogers, 2003, p. 5).

An innovation is “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers, 2003, p. 12). The decision to adopt, accept, and use an innovation is a process that includes five stages: 1) knowledge – awareness that an innovation exists and having some understanding of how it functions, 2) persuasion – forming an opinion (either favorable or unfavorable) toward the innovation, 3) decision – the choice to adopt or reject the innovation, 4) implementation – using the innovation, and 5) confirmation – seeking further information about the innovation, leading either to continued implementation or discontinuance.

Recently, Davis and colleagues (Davis, Peterson, Helfrich, & Cunningham-Sabo, 2007) expanded the conceptual explanation of the research utilization process by adding to Rogers’ (2003) Diffusion of Innovations model. The stages of the research utilization model developed by Davis et al. included:

Stage 0:	Research Development	
Stage 1:	Dissemination	
Stage 2:	Intent to Adopt	
-----		Adoption decision
Stage 3a:	Implementation or	
Stage 3b:	Adaptation	
Stage 4:	Institutionalization	
Stage 5:	Diffusion	

Cunningham-Sabo and associates (Cunningham-Sabo et al., 2007) reviewed the prevention research literature from 1995 to 2002 in 12 public health areas using the above model. Of the 86 articles reviewed, only three were categorized as having nutrition as the research topic. All three of these studies were conducted in a work site setting. Seven studies did involve schools, but these studies were largely related to tobacco research. Thus, it appears that there is insufficient research related to the dissemination, adoption, implementation, institutionalization and diffusion of nutrition research in school settings.

This is not surprising given that diffusion studies constitute approximately one percent of all public health and health promotion research (Oldenburg, Sallis, French, & Owen, 1999; Woolf, 2008).

### ***Perceived Attributes***

Perceived attributes of an innovation strongly affect the rate of adoption and diffusion. These characteristics include the innovation's relative advantage, compatibility, complexity, trialability, and observability (Rogers, 2003).

Relative advantage is "the degree to which an innovation is perceived as better than the idea it supersedes" (Rogers, 2003, p. 15). Relative advantage can be measured in terms of economics, social prestige, convenience, and satisfaction. An innovation with greater perceived relative advantage will be more quickly adopted than an innovation of lesser perceived relative advantage.

Compatibility includes agreement with existing beliefs and values, past experiences, and needs of potential adopters (Rogers, 2003). An innovation with greater perceived compatibility will be more quickly adopted. Compatibility and relative advantage are particularly important in explaining an innovation's adoption rate. Re-invention is the degree to which an innovation is modified by the user to fit their setting (Rogers, 2003). Although re-invention is sometimes identified as a distinct feature of innovations (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004), it can also be considered an extension of compatibility. An innovation diffuses more rapidly when it can be re-invented to suit the adopters' needs and context (Oldenburg & Glanz, 2008).

Complexity is the degree to which an innovation is perceived as difficult to use (Rogers, 2003). A complex innovation will be more slowly adopted than a simpler

innovation due to the new skills and understandings needed before adoption of the complex innovation.

Trialability is “the degree to which an innovation may be experimented with on a limited basis” (Rogers, 2003, p. 16). An innovation that has a high degree of trialability, perhaps in the form of a free sample or the trial use of a new product, will be adopted more quickly than an innovation that cannot be experimented with on a small scale. The ability to test out an innovation on a limited basis helps to dispel the inherent uncertainty of any innovation.

Observability is the degree to which the results of an innovation are visible to others (Rogers, 2003). The easier it is for others to see the results of an innovation, the faster the adoption rate.

### ***Criticisms of Diffusion Research***

A serious shortcoming of diffusion research is its pro-innovation bias, the idea that an innovation should be diffused and adopted by all members of a social system, that it should be diffused rapidly, and that the innovation should not be re-invented or rejected (Rogers, 2003). This bias may lead to a failure to learn about important aspects of diffusion such as re-invention, rejection, and discontinuance. However, this bias can be overcome by gathering data at two or more time points during the diffusion process rather than only at the end of the process and investigating re-invention, rejection, and discontinuance from the potential adopter’s perspective (Rogers, 2003).

### ***Applications in Nutrition Education and Training***

Diffusion of Innovations theory has been used in the dissemination of several nutrition and health promotion programs (Hoelscher et al., 2004; Hoelscher et al., 2001;

Owen et al., 2006; Wiecha et al., 2004). Researchers, program planners, and trainers can use the framework to gain a better understanding of the reasons an educational program results in adoption or rejection of a particular practice (Hubbard & Sanmann, 2007).

Although little research has been conducted on factors affecting adoption and rejection of nutrition education curricula (Nanney et al., 2007), researchers have found that training and motivation are crucial components in achieving proper implementation and institutionalization of programs (Franks et al., 2007; Harvey-Berino, Ewing, Flynn, & Wick, 1998; Hoelscher et al., 2004; Hoelscher et al., 2001; Kealey, Peterson Jr, Gaul, & Dinh, 2000; Smith, Steckler, McCormick, & McLeroy, 1995). In a classic review of research regarding the effectiveness of nutrition education, the authors stated that “widespread dissemination of nutrition education programs depends on effective nutrition education inservice training for intermediaries” (Contento et al., 1995, p. 282). Within Extension, the intermediaries who deliver nutrition education are often paraprofessionals.

### **Paraprofessionals**

In 1967, Truax and Carkhuff suggested that after being trained, nonprofessionals might be as effective at counseling as professionals with “expert” knowledge (Truax & Carkhuff, 1967). These nonprofessionals, or paraprofessionals, typically possess a high school diploma and “are usually hired, not for their degrees or knowledge of subject matter, but for their life experiences, cultural, social, and economic backgrounds, and their ability to relate to clients” (Norris & Baker, 1998, p. vii). Research indicates that people tend to hear and personalize attitude and behavior change messages if the messenger is similar to them in lifestyle and faces the same concerns and pressures (Sloane & Zimmer, 1993). In addition, paraprofessionals have been found to have

intermediate characteristics that bridge the gap between program participants and professional leaders (Layne et al., 2008).

Several human service providers have used paraprofessionals as the mainstay of their workforce, including Extension which has employed paraprofessionals for over 40 years to deliver nutrition education (M. Brink, 2000). Although there is no single model of paraprofessional education (Hyland et al., 2006), there is a common underlying belief that aptly selected and trained paraprofessionals can be an acceptable and credible source of nutrition information that offer a cost-effective way to deliver nutrition education (McClelland, Irving, Mitchell, Bearson, & Webber, 2002; Norris & Baker, 1998).

### ***Paraprofessional Training for Nutrition Education***

Olson (1994) reviewed the literature up to the mid-1990's regarding the quantity and quality of nutrition education training needed by paraprofessionals to achieve appropriate nutritional goals. There were only two studies (Cadwallader & Olson, 1986; Looker, Long, Hamilton, & Shannon, 1983) found to provide the basis for conclusions about paraprofessional training. These studies, detailed below, concluded that training increased paraprofessionals' nutrition knowledge.

Looker and colleagues used a pre-post experimental design to test a nutrition education training model developed to train and update Expanded Food and Nutrition Education Program (EFNEP) aides as well as update the Home Economist supervisors without face-to-face contact with the university-based Extension nutrition specialist (Looker et al., 1983). The training model consisted of a self-instruction leader's guide for the Home Economist with in-depth information on each topic, teaching package for the Home Economist to use to conduct the training, and lesson plans for the EFNEP aides to

use while teaching homemakers. Nutrition knowledge tests were administered at an initial training session, immediately following training on each of four topics, and six months post-training. The experimental group had significantly ( $p<0.01$ ) greater gains in nutrition knowledge than the control group for three of the four topic areas. This gain in nutrition knowledge was retained at the six-month follow-up. The study did not examine the impact of the training on teaching behavior.

The effect of a four and one-half hour breastfeeding training program on EFNEP paraprofessional knowledge, attitudes, and teaching behavior intentions was examined by Cadwallader and Olson (1986). Using a pre-post single group design, the researchers found that knowledge of breastfeeding, attitudes toward breastfeeding, perceived adequacy of knowledge, attitudes toward teaching about breastfeeding, and teaching confidence improved significantly ( $p<0.001$ ) after the training. A small number of aides ( $n=28$ ; 11%) who were unable to attend the training had significantly lower knowledge scores ( $p<0.01$ ), but did not differ on the other outcomes.

Stepwise multiple regression revealed that perceptions of the drawbacks of breastfeeding and the drawbacks of teaching about breastfeeding, teaching self-confidence, and the expectations of others that the paraprofessional use the program were the best predictors of teaching behavior intention immediately following the training. These factors accounted for 23% of the variance in aides' intentions to use the program. Eight months post-training, the best predictors of teaching behavioral intention included perceptions of drawbacks of breastfeeding and teaching about it, the expectations of others, and the number of pregnant homemakers with whom they worked. These findings indicate that training should focus on strengthening perceptions that others expect the

program to be implemented, decreasing perceptions of drawbacks related to teaching the program, and increasing the paraprofessional's confidence in dealing with problems or questions that arise (Cadwallader & Olson, 1986).

Although the two studies described above showed gains in nutrition knowledge due to training, as have other studies (Serrano, Taylor, Kendall, & Anderson, 2000; Stark & Johnson, 1981; Taylor, Serrano, Anderson, & Kendall, 2000; Yerka, 1974), nutrition knowledge has not been associated with positive program outcomes (Olson, 1994). Some studies found that expectations of program supervisors, perceptions of drawbacks of teaching, positive attitudes toward the job and knowledge of teaching-learning strategies are the characteristics of paraprofessionals that have been most closely associated with positive program outcomes (Cadwallader & Olson, 1986; Yerka, 1974). More recently, researchers reported greater behavior change by EFNEP participants in sites where paraprofessionals gave positive ratings to the value of EFNEP ( $p < 0.02$ ) and managerial practices of their supervisors ( $p < 0.001$ ) (Dickin, Dollahite, & Habicht, 2005). Planning, monitoring, problem-solving, motivating, and clarifying roles and objectives were important managerial practices (Dickin et al., 2005). Together these results indicate that work context factors as well as perceptions of teaching and teaching strategies should be considered in the design, implementation, and evaluation of nutrition programs.

### ***Elements to consider when training paraprofessionals***

Paraprofessionals may come to their positions with very poor experiences in education (Norris & Baker, 1998; Taylor et al., 2000) and a resulting lack of confidence in themselves which should be taken into consideration during training sessions (Norris & Baker, 1998). In addition, paraprofessionals may find the balance between quantity

and quality of work challenging, so training should provide clear expectations in both areas (Norris & Baker, 1998).

Paraprofessional training should include information related to all areas of responsibility, such as class logistics, recruitment techniques, management ideas, and education material use (Taylor, Serrano, & Anderson, 2001). Incorporating content related to teaching and process skills into paraprofessional training may be as important as knowledge content (Leaman, Lechner, & Sheeshka, 1997; Meister, Warrick, de Zapien, & Wood, 1992). Focus groups with paraprofessionals indicate that they are interested in training on teaching techniques and prefer training in groups using hands-on, interactive educational techniques (Palmeri, Auld, Taylor, Kendall, & Anderson, 1998). Interviews with peer educators have also revealed a desire for training to focus on the specific, practical skills that would reflect the likely conditions during program implementation (Hyland et al., 2006). Researchers have found that practical hands-on training focusing on skills needed on the job improved work performance three months post-training (Welch & Price, 1991). Others have suggested modeling the education sessions, role playing, and team teaching to ensure consistent and complete delivery of educational sessions by peer educators (Anliker et al., 1999).

Supervisors of paraprofessionals play an important role before, during, and after training. It is suggested that supervisors review the training objectives and planned activities, attend and participate in the training so paraprofessionals see that the supervisors attach value to the training, and plan for post training reinforcement of what the paraprofessional learned (Norris & Baker, 1998). During training, content may be presented by someone other than the paraprofessional's supervisor. All presenters need to

be skilled at taking abstract principles and applying those principles to specific situations that the paraprofessional will encounter (Norris & Baker, 1998). Focus groups with paraprofessionals have indicated the need for ongoing support (Palmeri et al., 1998), which both supervisors and presenters can provide after the training as the paraprofessional makes the transition from what was learned during the training to applying it on the job.

In a review of the literature regarding effective utilization of indigenous health care workers, Giblin states that training of these paraprofessionals is more an effort to preserve their indigenesness and less about the acquisition of specific program skills (Giblin, 1989). Approaches to preserving indigenous values while instilling program priorities include training paraprofessionals and their supervisors at the same time to facilitate the mutual valuing of skills and perspectives (Callan & Franklin, 1972), avoiding didactic training methods (Halpern & Larner, 1990), emphasizing interpersonal skills (Halpern & Larner, 1990; Heath, 1967), incorporating continuous on-the-job training to reduce anxiety before assuming program responsibilities (Reiff & Riessman, 1964), and providing a format for paraprofessional contributions to program goals and procedures (D'Onofrio, 1970).

Research also points to differences based on teaching status of paraprofessionals. Taylor and associates found that paraprofessional nutrition educators who were currently teaching material learned during training retained knowledge of those nutrition principles more so than paraprofessionals who never taught the material (Taylor et al., 2000). Their analysis pointed to the importance of continued teaching to sustain nutrition knowledge

and skills and that, for educators who continuously teach, retraining may not be necessary (Taylor et al., 2000).

## **Training Programs**

### ***Development of Training Programs***

Multiple researchers suggest that inclusion of a needs assessment, careful planning and organization of the workshop to address perceived needs, and inclusion of a variety of activities with high participant involvement contribute to successful nutrition education training workshops (Albright, Bruce, Howard-Pitney, Winkleby, & Fortmann, 1997; Bloom & Sheerer, 1992; Contento, 2001; Stark & Johnson, 1981). In addition, a review by the Cochrane Effective Practice and Organization of Care Review Group indicates that didactic educational meetings and passive dissemination of information are generally ineffective, but interactive educational meetings that include discussion or practice appear to be consistently effective (Bero et al., 1998). This review was recently updated to include 49 additional studies from 1999-2006 for a total of 81 trials involving more than 11,000 health professionals. Findings indicate that a mix of interactive and didactic elements are more effective than either didactic or interactive meetings alone and that didactic educational meetings alone are “not likely to be effective for changing complex behaviors” (Forsetlund et al., 2009).

Kirkpatrick and Kirkpatrick (2006) recommend considering ten factors when planning and implementing an effective training program. The ten factors include determining needs, setting objectives, determining subject content, selecting participants, determining the best schedule, selecting appropriate facilities, selecting appropriate instructors, selecting and preparing visual aids, coordinating the program, and evaluating

the program (Kirkpatrick & Kirkpatrick, 2006). This model has been suggested for evaluating adult education programs as well (Knowles, 1990).

A needs assessment can be conducted via interviews or surveys of the training participants, their supervisors, and others who are familiar with the training participants' jobs. Objectives for the training should be based on the knowledge, skills, and attitudes needed to achieve the desired behaviors. The subject content should both meet the needs of the participants and accomplish the objectives. Decisions regarding participant selection include who can benefit from the training, whether the training should be voluntary or mandatory, and whether participants should be segregated by organization level. Determining the best schedule should consider the participants, their supervisors, and the best conditions for learning. Facilities for the training should be comfortable, convenient, and limit negative factors such as outside distractions, uncomfortable room temperature, lack of food, and lack of breaks. The most appropriate instructors are those who are knowledgeable about the topic, able to communicate clearly, skillful at getting people to participate, and learner-oriented. If visual aids are used, they should be selected to both help maintain interest and communicate information. If the training program requires coordination with outside speakers, the coordinator should ensure that the needs of the outside speakers are met as well as the needs of the participants. Evaluation of the program is the final factor to consider and is discussed in detail below.

### ***Use of Adult Learning Principles for Training***

Although no one theory or model of adult learning explains all that is known about adult learners, there is a mosaic of theories, models, and principles that provide a framework for development of trainings aimed at adult learners (Merriam, 2001). The

adult learner is described as someone who must know why they need to learn something before they begin to learn it; is independent and self-directed; considers past life experiences as a rich resource for learning; values learning that integrates with the demands of their everyday life; is problem-centered and wants to immediately apply knowledge; and is motivated to learn by internal factors (Kaufman, 2003; Knowles, Holton, & Swanson, 1998; Merriam, 2001). Each of these six characteristics is further described below.

Before adult learners undertake new learning, they will invest considerable effort to determine the benefits they will gain from learning and the negative consequences of not learning (Tough, 1979). Thus, when training adult learners, the first task is to help the learners become aware of their “need to know”, which can be accomplished by identifying how the material to be learned may improve the learners’ performance or quality of their lives (Knowles et al., 1998).

Psychologically, adults have a self-concept of being responsible for their own decisions and lives. From this self-concept the need to be seen and treated by others as independent and self-directed develops (Knowles et al., 1998). This independent, self-directed self-concept reflects the largely individualistic and pragmatic culture of the United States and is both valued and rewarded by many employers (Wlodkowski, 2008).

Adults come into learning situations with a wide range of past experiences which can be a rich resource for learning (Knowles et al., 1998). Therefore, the emphasis in adult learning is on experiential techniques that tap into the prior experiences of learners. Examples of these techniques include group discussion, simulation exercises, problem-solving activities, case studies, and peer-helping activities (Knowles et al., 1998).

When considering using an innovation for the first time, individuals' primary concerns relate to how adoption of the innovation will affect them and their daily activities (Basch, 1984). Adult learners need to know how the new information will apply to their daily life. Research indicates that programs based on needs of the target audience foster improved knowledge and skills (Beckert, Wilkinson, & Sainsbury, 2003; Bloom & Sheerer, 1992; Hall et al., 2004). Thus, including participatory and interactive learning exercises that reinforce how the new knowledge and skills will relate to their daily life is essential to improve adult learners' performance (Beckert et al., 2003; Hall et al., 2004).

An adult's orientation to learning is problem-centered as opposed to the subject-centered orientation to learning that typically occurs during school as a youth (Knowles et al., 1998). Therefore, adults are motivated to learn to the extent that learning will help them perform tasks or deal with problems that they experience in daily life (Knowles et al., 1998). Ideally, this entails presenting new learning related to knowledge, skills, and attitudes within the context of real-life situations that the learner is likely to encounter.

Although adults are sometimes responsive to external motivators such as increased pay, they are more highly motivated by internal factors such as job satisfaction, self-esteem, and quality of life (Knowles et al., 1998; Merriam, 2001). However, internal motivation is frequently blocked by the barriers of negative self-concept as a student, inaccessibility of resources, and time constraints (Tough, 1979).

Research suggests that interventions designed using formative evaluation research and theory offer the greatest opportunity for success (Ayala et al., 2001). Contento incorporates these suggestions in a six-step procedure for nutrition education (Contento,

2001). This six-step procedure reflects the factors outlined by Kirkpatrick and Kirkpatrick (2006) with the significant addition of theory. The six steps include:

- 1) assessing the needs, interests, and assets of the audience;
- 2) selecting a theoretical framework;
- 3) determining theory-based goals and objectives;
- 4) designing the theory-based nutrition education intervention;
- 5) implementing the intervention; and
- 6) evaluating the intervention using theory.

### ***Evaluation of Training Programs***

Evaluating the impact of an intervention requires consideration of the extent to which they are used, their effectiveness, and their feasibility in “real-world” environments (Dunton, Lagloire, & Robertson, 2009). To this end, process evaluation is often undertaken to determine how an intervention operated in order to explain the outcomes (Lee, Contento, Koch, & Barton, 2009; Olson, 1994) and is particularly useful in dissemination research. By understanding the dynamics involved in the dissemination process it may be possible to determine critical elements that contribute to successes and failures (Patton, 2002).

Kirkpatrick and Kirkpatrick specify four levels of evaluation for training programs. Each level is important and has an impact on the next level. The four levels include reaction, learning, behavior, and results (Kirkpatrick & Kirkpatrick, 2006). Reaction measures the “customer satisfaction” of the training program from the participant perspective. A positive reaction to a training program does not necessarily ensure that learning took place. However, a negative reaction almost certainly reduces the

possibility of learning occurring. Evaluation of reactions to the training program is often the only type of evaluation that occurs.

Learning measures the extent to which training participants change attitudes, improve knowledge, and/or increase skill as a result of attending the training program. The impact of a training session on participant knowledge, attitudes, or behavior is rarely measured (Santerre, 2005). In addition, it is essential to measure the attitudes, knowledge, and/or skills both before and after the training in order to get an accurate representation of the learning that occurred as a result of the program (Kirkpatrick & Kirkpatrick, 2006). In one study, the level of hands-on food preparation in participant sessions varied based on peer educator attitudes and confidence (Hyland et al., 2006), underscoring the need to assess these attributes throughout an intervention.

Evaluating behavior change is more difficult. In order to accurately measure behavior change, the behaviors of interest should be assessed both before and after the training program. Results can be difficult to measure since one must allow adequate time to elapse for the results to be achieved and the appropriate amount of time may differ from one training participant to another participant (Kirkpatrick & Kirkpatrick, 2006). In addition, one must consider that behavior change may be underestimated using the pre/post-test self-report method as compared to using a retrospective post/pre method (Rohs, Langone, & Coleman, 2001).

### **Social Cognitive Theory**

#### ***Description***

Researchers suggest that, in order to be effective, nutrition education programs should be guided by sound theory that specifically addresses behavior change

(Achterberg & Clark, 1992; Ayala et al., 2001; Contento et al., 1995; Glanz & Bishop, 2010; Perez-Escamilla & Putnik, 2007; Townsend et al., 2003). These same theories can be used to influence the diffusion of programs (Parcel, Eriksen et al., 1989; Parcel, Taylor et al., 1989). While nutrition education does not have a dominant theory specific to the discipline (Achterberg & Miller, 2004), Social Cognitive Theory (SCT) is often used in behavior change interventions (Glanz & Bishop, 2010; McAlister, Perry, & Parcel, 2008). This theoretical framework uses cognitive, environmental, and behavioral variables to explain and describe human behavior and learning (Bandura, 1986). It also provides the basis for intervention and learning strategies used to change behavior (McAlister et al., 2008). Table 2-1 lists key constructs of the theory and their definitions.

**Table 2-1:** Social Cognitive Theory Constructs and Definitions (Bandura, 1986; McAlister et al., 2008; *Theory at a Glance: A Guide for Health Promotion Practice*, 2005)

<b>Construct</b>	<b>Definition</b>
Reciprocal Determinism	The dynamic interaction between a person, his/her behavior, and the environment in which the behavior is performed
Facilitation	Providing tools and resources that make new behaviors easier to perform
Self-Efficacy	Confidence in performing the behavior, taking action, and overcoming barriers
Outcome Expectations	Beliefs about the likelihood and perceived value of the consequences of behavioral choices
Observational Learning	Behavioral acquisition through interpersonal or media displays of the behavior, particularly through peer modeling
Reinforcement	Responses to a person's behavior that increases (or decreases) the likelihood of reoccurrence
Self-Regulation	Influencing personal behaviors through self-monitoring, feedback, goal-setting, and self-reward

By addressing both cognitive and environmental influences on behavior, SCT provides direction for intervention design (McAlister et al., 2008). In addition, SCT can

be used to study diffusion of a program where the behavior of interest is the adoption, implementation, and maintenance of the program (Perry, Baranowski, & Parcel, 1990). Several strategies, including modeling, incentives, guided practice, self-application of acquired skills, and making contracts for intended behavioral changes in small achievable steps can be used to influence diffusion of health promotion programs (Contento et al., 1995; Parcel, Eriksen et al., 1989; Perry et al., 1990). Performance of many behaviors is determined by self-efficacy and is particularly important for complex behaviors (Bandura, 1997). Strategies for increasing self-efficacy include setting incremental goals, behavioral contracting, monitoring, and reinforcement (*Theory at a Glance: A Guide for Health Promotion Practice*, 2005). Without significant increases in self-efficacy, it is unlikely that those participating in nutrition education programs will make corresponding changes in behavior (Hannon, Bowen, Christensen, & Kuniyuki, 2008; Rimal, 2000). Bandura points out that there are four main sources of self-efficacy: verbal persuasion, performance accomplishment, vicarious performance, and physiological arousal (Bandura, 1997). These sources of self-efficacy can be addressed by persuading individuals that behaviors are within their control, role-playing, modeling appropriate behaviors, and making individuals aware of the benefits of taking action (Bandura, 1997; Rimal, 2000).

### **Summary**

Research is needed regarding general and specific training that paraprofessionals should receive (Perez-Escamilla, Hromi-Fiedler, Vega-Lopez, Bermudez-Millan, & Segura-Perez, 2008). Effective training programs must take into consideration the wants and needs of the target audience (Albright et al., 1997; Bloom & Sheerer, 1992; Stark &

Johnson, 1981). Therefore, formative research was conducted with New Mexico State University Extension personnel and end-users of the *CWK* curriculum to evaluate effective methods and content for the training. In addition, researchers stress the importance of using a theory-driven approach to design training workshops (Townsend et al., 2003), and multiple theories may be needed to adequately address the behavior in question (Achterberg & Clark, 1992; Achterberg & Miller, 2004). Thus, principles from adult learning, Diffusion of Innovations Theory, and Social Cognitive Theory were used to guide the development of the training and evaluation components.

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## **CHAPTER 3**

### **METHODS**

This chapter describes the methods used in this study. It is organized into the following sections: study design, participants and recruitment, protection of human subjects, instruments and procedures, and data analysis.

#### **Study Design**

The study used a mixed methods design. Qualitative and quantitative data were collected during formative assessment and throughout the training intervention period. Refer to Table 3-1 for details regarding each data source, its audience, and timing. Quantitative data provided a general understanding of the research problem while the qualitative data revealed participant views in more depth; together a more complete understanding of the research problem was attained (Tashakkori & Teddlie, 1998).

#### **Participants and Recruitment**

##### ***Formative Assessment***

Participants for the Nutrition Education Curriculum Survey (NECS) and Fruit and Vegetable Tasting Survey (FVTS) were recruited from individuals who registered on the *Cooking with Kids (CWK)* website to download free fruit and vegetable tasting lessons. Interview participants were recruited from NECS and FVTS respondents as well as *CWK* curriculum purchasers. Purposeful samples of NECS, FVTS, and purchasers were

interviewed. Care was taken to approximate the distribution of Extension regions, work environments, and curriculum purchase year from the original sample.

To understand Nutrition Educator (NE) training needs, interviews were conducted with New Mexico State University Extension (NMSU-E) staff responsible for nutrition education programming for low-income audiences. Interview participants represented all programming levels including NE, their Family and Consumer Science Extension Agent supervisors (EA), and state-level program administrators.

Five months prior to the training intervention, an overview of the *CWK* program and tasting curriculum was presented to paraprofessional NE and EA supervisors during an internet conference session. Following the overview, volunteers were recruited to pilot the tasting curriculum.

### ***Training Intervention***

All Colorado paraprofessional NE were invited to participate in face validity and reliability testing of the NE pre-training survey instrument. All NMSU-E NE and EA were invited to participate in a *CWK* tasting lesson training during one of three Regional Meetings held throughout New Mexico in August, 2009. The NE and EA completed surveys at pre-, post-, four months post-, and eight months post-training. In addition, NE completed *CWK* implementation reports detailing lesson delivery. Nine months post-training, follow-up interviews were conducted with a purposeful sample of NE and EA. Care was taken to interview participants who had implemented the curriculum at varying levels within each region.

## **Protection of Human Subjects**

The formative assessment design, instruments, and procedures were approved by University of New Mexico and Colorado State University Institutional Review Boards. The training intervention design, instruments, and procedures were approved by the Colorado State University Institutional Review Board. Approval letters are included in Appendix A.

## **Instruments and Procedures**

### ***Formative Assessment***

The web-based surveys consisted of five-point Likert scale questions plus several open-ended questions. The 92-item NECS consisted of five-point Likert scales measuring Diffusion of Innovations (DOI) perceived attributes (Rogers, 2003) related to nutrition education curricula, as well as demographic information and questions about downloading and using *CWK* tasting lessons. The NECS questions are included in Appendix B. The 29-item FVTS included demographic information and questions about downloading and using *CWK* tasting lessons. FVTS questions are included in Appendix C. The major difference between the NECS and FVTS was that the NECS contained 35 questions evenly divided into five scales measuring DOI perceived attributes.

DOI survey items were previously developed from an open-ended questionnaire distributed to a convenience sample of 13 individuals with interest in nutrition education curricula. Half of the respondents self-identified as dietitians or non-profit staff. The remaining respondents included EA, public health advocates, university professors, and parents. Responses revealed consistent descriptive language for each perceived attribute.

Surveys were tested for face validity and administered via an online survey program ("SurveyMonkey," 2007).

Qualitative interviews with survey respondents were semi-structured, using open-ended questions to explore reasons for choosing the curriculum, essential curriculum components, adaptations, and barriers to implementation. The interview guide is included in Appendix D. Interviews were recorded, transcribed, and uploaded into NVivo 8<sup>®</sup> ("NVivo qualitative data analysis software," 2008), a software program that supports qualitative data analysis. NVivo<sup>®</sup> software aids analysis by facilitating the coding of data according to a classification scheme that allows easy identification, indexing, or retrieval of data during analysis (Shepherd & Achterberg, 1992).

Interviews with NMSU-E staff were semi-structured, using open-ended questions to explore elements of effective trainings and reasons for adopting, adapting, and rejecting nutrition education curricula. The interview guide is included in Appendix E. Interviews were recorded, transcribed, and uploaded into NVivo 8<sup>®</sup> ("NVivo qualitative data analysis software," 2008). Each NE who piloted the curriculum prior to training was also interviewed regarding their experiences using *CWK* and suggestions for implementation throughout NMSU-E.

### ***Training Intervention***

#### ***Training Development and Format***

A three-hour *CWK* tasting lesson training was developed using Diffusion of Innovations (Rogers, 2003) and Social Cognitive Theory (Bandura, 1986) as the theoretical framework. Training methods that addressed DOI perceived attributes and selected Social Cognitive Theory (SCT) constructs are outlined in Table 3-2. Information

from the formative assessment interviews, pilot study, and pre-training survey (described below) informed the training design. A substantial portion of the training included modeling and practice of experiential learning activities from the curriculum. During training, state-level program administrators stated that implementation of *CWK* in low-income schools was expected; however, this expectation could not be enforced since the curriculum was one of several options that could be implemented by NE. The NE were asked to teach at least two series of a blended nutrition education program that included three *CWK* tasting lessons and three traditional lessons. Traditional lessons were based on MyPyramid and other materials from the United States Department of Agriculture (USDA). Lessons delivered from each curriculum (*CWK* and traditional) were chosen by the individual NE. During training, the research project was explained to participants and signed informed consent (see Appendix F) was obtained. The *CWK* training agenda is included in Appendix G.

#### *Survey Development and Content*

A series of four surveys (pre-, post-, four months post-, and eight months post-training) were developed. Separate surveys were developed for NE and EA. Five stakeholders from Colorado State University, NMSU-E, and *CWK* reviewed surveys for content validity. The NE pre-training survey was tested for face validity with demographically similar paraprofessional NE in Colorado through a group cognitive interview using the retrospective verbal probing technique (Willis, 2005). In retrospective probing, the participants are asked the probe questions after the entire survey has been administered. Prior to survey administration, the process was explained to NE and signed informed consent (see Appendix H) was obtained. The protocol and cognitive interview

questions are included in Appendix I. The survey was also tested for reliability using test-retest procedures (Gleason, Harris, Sheean, Boushey, & Bruemmer, 2010). The pre-training survey was sent electronically to each paraprofessional NE. One week after the completed survey was received, the NE was electronically sent the same survey to be completed a second time.

The pre-training surveys (Appendices J and K) included 13 items regarding NE and EA demographics, NE teaching preferences, and format of current youth classes. The NE pre-training survey included 14 items addressing attitudes, knowledge, and skills using a 6-point Likert scale. Items addressed NE comfort with and enjoyment of food preparation; confidence with, knowledge about, and motivation to use *CWK*; and information and skills needed to teach *CWK*. The EA pre-training survey included the same items except two items that related to teaching since EA do not regularly teach nutrition education sessions. Fifteen previously tested DOI perceived attribute statements were included to assess prediction of curriculum adoption and implementation. To guide training development, the NE pre-training survey included four open-ended questions about NE attitudes toward their current curriculum, the new *CWK* curriculum, and teaching 4<sup>th</sup> graders. Similar questions were asked of EA but focused on their supervisory role. The pre-training surveys were administered via email using an online survey program ("SurveyMonkey," 2007). Reminder emails were sent at two-week intervals to participants who had yet to take the survey. Participants were considered to be a non-responder if, after three emails, the participant still did not complete the survey.

Following the *CWK* training, NE and EA completed paper-and-pencil post-training surveys (see Appendices L and M, respectively) in which they rated the

training's acceptability, benefit, and clarity using a 6-point Likert scale. Questions related to attitudes, knowledge, skills, and thoughts and concerns about the current and new curricula were repeated. Participants responded to questions regarding intentions to use *CWK* in the future. Participants ranked available resources (training participation, *CWK* video, *CWK* tasting curriculum, EA, and NE) by perceived utility for implementation. To address the SCT outcome expectations construct, participants wrote short-term (one month), medium-term (four month), and long-term (eight month) goals related to implementing *CWK*. Four additional DOI perceived attribute (Rogers, 2003) statements were assessed using a 5-point Likert scale.

Four months and eight months post-training, NE and EA completed follow-up surveys (see Appendices N, O, P, and Q). The NE follow-up surveys included three items about current youth class format that had been asked on the pre-training survey. Questions from the pre- and post-training surveys addressing attitudes, knowledge, skills, and thoughts and concerns about the new curriculum were repeated on the NE and EA follow-up surveys. Participants responded to questions about whether they had used the *CWK* tasting curriculum since the training and reasons for their use or non-use of the curriculum. Ranking of available resources was repeated. The four month post-training survey included closed- and open-ended questions related to accomplishment of the participants' short-term and medium-term goals. The eight month post-training survey included questions related to accomplishment of the participants' long-term goal.

### *Implementation Reports*

Following each *CWK* tasting lesson, NE recorded information about the lesson on a one-page implementation report (see Appendix R). Data collected in the report included

NE name, classroom teacher name, number of students present, school name, lesson name, date, start and end time for the lesson, and a listing of the four foods tasted for that lesson. The NE also recorded student comments or reactions to the lesson and reported the percent of the lesson plan followed. Lesson adaptations and reasons for the adaptations were reported as well as impressions of what went well and what could have gone better during the lesson.

### *Follow-Up Interviews*

Nine months post-training a sub-sample of NE and EA who had implemented the CWK tasting curriculum at varying levels (none, low, moderate, high) were interviewed. Qualitative interviews with NE were semi-structured, using open-ended questions to explore impressions of the CWK training session and the training's usefulness in preparing NE for implementation, experiences using the tasting curriculum, adaptations made to lessons, promoters and challenges of implementation, and intended future use of the curriculum. Interviews with EA mirrored the NE interviews, but focused on the county-level supervisory perspective of the EA. The interview guides for NE and EA are included in Appendices S and T, respectively. Interviews were recorded, transcribed, and uploaded into NVivo 8<sup>®</sup> ("NVivo qualitative data analysis software," 2008).

## **Data Analysis**

### *Formative Assessment*

Descriptive analysis of NECS and FVTS responses included frequency measures. Differences between NECS and FVTS respondents on the importance of curriculum characteristics were examined via chi-square analysis. Cronbach's alpha determined internal consistency of questions based on the original DOI perceived attribute grouping

of survey items. Construct validity of survey items relating to perceived attributes was assessed using principal factor analysis with varimax rotation. In addition, communalities (proportion of item variance explained by the combined factors) were examined to assess generalizability of factor extractions (Hogarty, Hines, Kromrey, Ferron, & Mumford, 2005). Final solution quality was evaluated with Kaiser-Meyer-Olken (KMO) measure of sampling adequacy, acceptable if  $>0.5$  (Hair, Anderson, Tatham, & Black, 1998; Kaiser & Rice, 1974), Bartlett's test of sphericity, the amount of variance explained, overdetermination of factors (number of items per factor, item loadings  $>0.4$ , and internal consistency of factors), and theoretical meaningfulness of the resulting factors. Internal consistency of questions using Cronbach's alpha was repeated based on factor analysis results. Predictors of intended future use of tasting lessons were explored with Pearson correlations and stepwise multiple regression. Quantitative data was analyzed using SPSS ("SPSS 16.0 Graduate Student Version," 2008). Significance was set at  $p \leq 0.05$ .

Survey respondent and NMSU-E staff interview transcripts were coded inductively and deductively using directed content analysis (Hsieh & Shannon, 2005). A deductive coding structure was created from the conceptual framework, research questions, and key variables of interest (Miles & Huberman, 1994). An inductive coding technique led to the development of categories that summarized the raw data and conveyed key themes (Thomas, 2006). The initial coding structure was developed from the research questions, interview guides, and DOI and SCT constructs (deductive). In addition, three randomly selected transcripts were read for inclusion of themes that emerged during the interviews (inductive). The final coding structure and operational definitions for the formative assessment interview transcript analysis is included in

Appendix U. Coders came to consensus on interview question level coding during an initial pass through each document; with a second pass for further coding of research question and theory driven items as appropriate. Two coders independently coded 33% of transcripts to assess reliability. Inter-coder reliability was calculated using percentage agreement with adequate agreement defined as  $\geq 85\%$  agreement (Neuendorf, 2002).

### ***Training Intervention***

#### *Surveys*

Quantitative survey data was analyzed using SPSS ("SPSS 16.0 Graduate Student Version," 2008). Principal factor analysis with varimax rotation was conducted to assess the underlying structure for the 14 items relating to attitudes, knowledge and skills. Reliability testing of the attitude, knowledge, and skills survey items was conducted using paired samples *t*-tests. In addition, Cronbach's alpha was used to assess internal consistency of survey items relating to attitudes, knowledge, and skills. Descriptive statistics including frequencies and ranges were used to analyze demographic data; mean and standard deviation were used to analyze training satisfaction, ranking of preferred grade levels when teaching children, ranking of resources for *CWK* implementation, and likelihood of using *CWK* in the future. Analysis of variance (ANOVA) was performed to determine any differences between responses based on training session location. A series of paired samples *t* tests were used to determine perceived behavior change over time from pre-training to eight months post-training. Independent *t* tests assessed differences between NE and EA regarding the likelihood of using *CWK* in the future as measured by a 6-point Likert scale. Pearson correlations and stepwise multiple regression were conducted to explore predictors of future curriculum use. Significance for ANOVA, *t*

tests, Pearson correlations, and stepwise multiple regression was set at  $p < 0.05$ . The magnitude of the difference between pre and post values, or effect size, was calculated as a measure of the findings' practical significance. An effect size ( $d$ ) of  $|0.20|$  is smaller than typical,  $|0.50|$  is typical,  $|0.80|$  is larger than typical, and  $\geq |1.00|$  is much larger than typical (Cohen, 1988). Qualitative survey responses related to thoughts and concerns with *CWK* over time, facilitators and barriers to accomplishing goals, and likelihood of using *CWK* in the future were analyzed for themes.

### *Implementation Reports*

Descriptive statistics including means, frequencies and ranges were used to analyze lesson length, class size, percent of lesson implemented, number of NE who implemented lessons, and number of *CWK* tasting lessons and series delivered. Qualitative responses related to lesson adaptations, reasons for adaptations, and impressions of what went well and what could have gone better during lessons were analyzed for themes.

### *Follow-Up Interviews*

Interview transcripts were coded inductively (Thomas, 2006) and deductively (Miles & Huberman, 1994) using directed content analysis (Hsieh & Shannon, 2005). The final coding structure and operational definitions for the formative assessment interview transcript analysis is included in Appendix V. Coders came to consensus on interview question level coding during an initial pass through each document; with a second pass for further coding of theory driven items as appropriate. Two coders independently coded 33% of transcripts to assess reliability. Inter-coder reliability was calculated using percentage agreement methods (Neuendorf, 2002).

**Table 3-1:** Data Sources, Audiences and Timing for Formative Assessment and Training Intervention

<b>Research Aspect</b>	<b>Data Source</b>	<b>Audience</b>	<b>Timing</b>
Formative Assessment	Nutrition Education Curriculum Survey (NECS) – secondary data analysis	<i>Cooking with Kids (CWK)</i> website registrants	June, 2008 – February, 2009
	Fruit and Vegetable Tasting Survey (FVTS) – secondary data analysis	<i>CWK</i> website registrants	June, 2008 – February, 2009
	Formative Assessment Interview	NECS respondents FVTS respondents <i>CWK</i> purchasers	July – August, 2008
	Needs Assessment Interview	New Mexico State University Extension (NMSU-E) staff	August – September, 2008
	Pilot Assessment Interview	NMSU-E Nutrition Educators (NE)	May, 2009
Training Intervention	Cognitive Interview	Colorado NE	May, 2009
	Pre-Training Survey	NMSU-E NE NMSU-E Family and Consumer Science Extension Agents (EA)	June, 2009
	Post-Training Survey	NMSU-E NE NMSU-E EA	August, 2009
	Four Month Post-Training Survey	NMSU-E NE NMSU-E EA	January, 2010
	Eight Month Post-Training Survey	NMSU-E NE NMSU-E EA	April, 2010
	<i>CWK</i> Implementation Reports	NMSU-E NE	September, 2009 – May, 2010
	Nine Month Post-Training Interviews	NMSU-E NE NMSU-E EA	May – June, 2010

**Table 3-2:** Diffusion of Innovations and Social Cognitive Theory Elements, Definitions, and Application during Training

<b>Theory</b>	<b>Element</b>	<b>Definition</b>	<b>Application during Training</b>
Diffusion of Innovations	Relative Advantage	Degree to which an innovation is perceived as better than the idea it supersedes	Establish <i>CWK</i> as exciting addition to current curriculum; no additional reporting required
	Compatibility	Degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of adopters	Discussion of how <i>CWK</i> curriculum fit with and complimented current curriculum
	Simplicity	Degree to which an innovation is perceived as difficult to understand and use	Review of <i>CWK</i> tasting curriculum lesson; Frequently Asked Questions list; participation in experiential learning activities from curriculum
	Trialability	The degree to which an innovation may be experimented with on a limited basis	Pilot study; encouragement to use three <i>CWK</i> tasting lessons in two class series
	Observability	The degree to which the results of an innovation are visible to others	Reports from pilot counties; video of <i>CWK</i> tasting lesson elements
Social Cognitive Theory	Behavioral Capability	The knowledge and skill needed to perform the behavior	Video of <i>CWK</i> lesson elements; participation in experiential learning activities from curriculum
	Self-Efficacy	Confidence in performing the behavior, taking action, and overcoming barriers	Participation in experiential learning activities from curriculum; list of tips for working with children and using the <i>CWK</i> tasting curriculum; discussion on how to handle potential barriers
	Outcome Expectations	Anticipated outcomes of a behavior	Individual goal setting for implementing <i>CWK</i> in counties
	Expectancy	Value placed on behavioral outcome	Expectation of implementation from EA and NMSU-E; reports from pilot counties
	Observational Learning	Behavioral acquisition through watching actions and outcomes of others' behavior	Video of <i>CWK</i> tasting lesson elements; modeling of learning activities from curriculum
	Reinforcement	Responses to a person's behavior that increases the likelihood of reoccurrence	Recognition of accomplishments during and after training

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## CHAPTER 4

### FACTORS INFLUENCING ADOPTION AND IMPLEMENTATION OF AN EXPERIENTIAL SCHOOL-BASED NUTRITION EDUCATION CURRICULUM: *COOKING WITH KIDS*

Accepted by *Journal of Extension*

#### **Abstract**

Little research has been conducted to examine factors leading to adoption and implementation of nutrition education curricula. Data from two web-based surveys (n = 313) and 27 interviews were used to explore how Diffusion of Innovations' perceived attributes contributed to adoption and implementation of *Cooking with Kids (CWK)* food and nutrition education curriculum. Results suggest programs that create or adapt nutrition education curricula for use in schools should emphasize experiential methods and ease of use to increase adoption and implementation. Perceived simplicity predicted intended use. Ensuring that users have adequate information and planning time to overcome barriers is essential for implementation and sustainability.

#### **Introduction**

Investigators reviewing literature to determine use of health promotion/ disease prevention research in practice settings (Cunningham-Sabo et al., 2007; Estabrooks, Dzewaltowski, Glasgow, & Klesges, 2003) found insufficient research on adoption and implementation of nutrition interventions in schools. Extension educators offer perspectives of strengths and challenges encountered with various audiences and settings,

which play an important role in translating research into practice (Serrano, Anderson, & Chapman-Novakofski, 2007).

Diffusion of Innovations (DOI) theory indicates that perceived attributes of an innovation (new practice) strongly affect adoption and diffusion of that practice (Rogers, 2003). A brief description of each perceived attribute follows.

- *Relative advantage* - degree to which an innovation is perceived as better than the practice it supersedes
- *Compatibility* - degree to which an innovation is perceived as being consistent with existing values, past experiences, and needs of potential adopters
- *Complexity* - degree to which an innovation is perceived as difficult to understand and use
- *Trialability* - degree to which an innovation may be experimented with on a limited basis
- *Observability* - degree to which results of an innovation are visible to others

Little research has been conducted examining DOI perceived attributes as they relate to nutrition education curricula adoption and implementation (McCullum-Gomez, Barroso, Hoelscher, Ward, & Kelder, 2006; Nanney et al., 2007) yet these attributes have potential to broaden understanding of why some nutrition education curricula are adopted and implemented while others are not. The *Cooking with Kids (CWK)* curriculum includes cooking lessons and tasting lessons that encourage elementary schoolchildren's innate curiosity and enthusiasm for food through direct experience with fresh, affordable

foods (Walters & Stacey, 2009). Cooking lessons emphasize foods from around the world. Tasting lessons engage students in sensory exploration of fruits and vegetables with minimal food preparation and no cooking. Both cooking lessons and tasting lessons are aligned with state academic standards and provide applied learning opportunities in language arts, social studies, math, science, and health education. The purpose of this study was to explore how DOI perceived attributes contribute to adoption, implementation, and adaptation of *CWK*.

## **Methods**

### ***Study Design***

The study used a mixed methods design to collect and analyze quantitative and qualitative data via web-based surveys and telephone interviews. The study design, procedures, and instruments were approved by University of New Mexico and Colorado State University Institutional Review Boards.

### ***Participants and Recruitment***

Participants for two web-based surveys, the Nutrition Education Curriculum Survey (NECS) and Fruit and Vegetable Tasting Survey (FVTS), were recruited from individuals throughout the U.S. who registered on the *CWK* website to download free fruit and vegetable tasting lessons. Interview participants were recruited from NECS and FVTS survey respondents as well as *CWK* curriculum purchasers. Purposive samples from each group (NECS, FVTS, and purchasers) were selected for interviews. Care was taken to approximate the distribution of Cooperative Extension System Regions, work environment, and curriculum purchase year from the original sample.

### ***Instruments and Procedures***

The web-based surveys consisted of five-point Likert scale questions plus several open-ended questions. The 92-item NECS consisted of five-point Likert scales measuring DOI (Rogers, 2003) perceived attributes related to nutrition education curricula, as well as demographic information and questions about downloading and using *CWK* tasting lessons. The 29-item FVTS included demographic information and questions about downloading and using *CWK* tasting lessons. The major difference between the NECS and FVTS was that the NECS contained 35 questions evenly divided into five scales measuring Rogers' DOI perceived attributes. Complexity items were worded to indicate lack of complexity, or simplicity; therefore simplicity will be used in this article to describe this concept.

DOI survey items were developed from an open-ended questionnaire administered to a convenient sample of 13 individuals known to have interest in nutrition education curricula. Half of the respondents self-identified as dietitians or non-profit staff. The remaining respondents included Family and Consumer Science Extension Agents, public health advocates, university professors, and parents. Responses revealed consistent descriptive language for each perceived attribute. Surveys were tested for face validity and administered via an online survey program ("SurveyMonkey," 2007).

Qualitative interviews were semi-structured, using open-ended questions to explore reasons for choosing the curriculum, essential curriculum components, adaptations, and barriers to implementation. Interviews were recorded, transcribed, and uploaded into NVivo 8® ("NVivo qualitative data analysis software," 2008) for qualitative data analysis.

### ***Data Analysis***

Descriptive analysis included frequency measures. We examined differences between NECS and FVTS respondents on the importance of curriculum characteristics via chi-square analysis. Cronbach's alpha determined internal consistency of questions based on the original DOI perceived attribute grouping of survey items. Construct validity of survey items relating to perceived attributes was assessed using principal factor analysis with varimax rotation. In addition, communalities (proportion of item variance explained by the combined factors) were examined to assess generalizability of factor extractions (Hogarty, Hines, Kromrey, Ferron, & Mumford, 2005). Final solution quality was evaluated with Kaiser-Meyer-Olken (KMO) measure of sampling adequacy, acceptable if  $>0.5$  (Hair, Anderson Jr., Tatham, & Black, 1998; Kaiser & Rice, 1974), Bartlett's test of sphericity, the amount of variance explained, overdetermination of factors (number of items per factor, item loadings  $>0.4$ , and internal consistency of factors), and theoretical meaningfulness of the resulting factors. Internal consistency of questions using Cronbach's alpha was repeated based on factor analysis results. Finally, we explored predictors of intended future use of tasting lessons via Pearson correlations and stepwise multiple regression. Significance was set at  $p \leq 0.05$ .

The 27 interview transcripts were coded inductively (Thomas, 2006) and deductively (Miles & Huberman, 1994) using directed content analysis (Hsieh & Shannon, 2005). Coders came to consensus on interview question level coding during an initial pass through each document with a second pass for further coding refinement to address research questions and theory as appropriate. Two coders independently coded nine transcripts to assess reliability.

## **Results and Discussion**

### *Surveys*

#### *Descriptive Analysis*

The NECS (n=109) and FVTS (n=204) respondents were primarily female, representing 95% and 90% of survey samples, respectively. Surveys had fairly equal geographic distribution throughout the U.S., although there was slightly more representation from the Western region. School and community/Extension education positions were the most prominent employment descriptors on both surveys, representing 42% of NECS respondents and 67% of FVTS respondents. Approximately 17% of NECS and 29% of FVTS respondents worked in community/Extension education positions. Survey respondents learned about CWK primarily through internet searches (72% and 77% of NECS and FVTS respondents, respectively).

When asked to rate the importance of characteristics that led to downloading CWK tasting lessons, respondents of both surveys indicated that important attributes were that lessons were free, easy to implement, and tailored for different age groups (Table 4-1). Interestingly, lessons in Spanish were not overly important for these groups, which supports findings by others (T. Hoover, Cooper, Tamplin, Osmond, & Edgell, 1996) but contradicts recommendations for culturally responsive curricula (Espinosa, 2005). Our findings reflect the fact that 87% of NECS respondents and 90% of FVTS respondents who used tasting lessons taught the lessons in English; the remaining 13% and 10%, respectively, taught lessons in both languages.

Pearson's chi-square investigated whether NECS and FVTS respondents differed on their perspective on the importance of curriculum characteristics. Results indicate that

NECS and FVTS respondents perceive the importance of the program's reputation and looking for nutrition education materials differently. FVTS respondents were more likely to view the program's reputation as important or very important ( $\chi^2=10.97$ ,  $df=1$ ,  $N=225$ ,  $p=0.001$ ). Phi, which indicates the strength of the association between two variables, is 0.22 which is a small to medium effect size (Cohen, 1988). On the other hand, NECS respondents were more likely to consider looking for nutrition education materials as an important or very important reason that led to downloading CWK tasting lessons ( $\chi^2=6.23$ ,  $df=1$ ,  $N=251$ ,  $p=0.013$ ). Phi of -0.16 indicates a small to medium effect size (Cohen, 1988).

#### *Factor Analysis*

The NECS included 35 questions related to DOI perceived attributes. Initial reliability of the five perceived attribute scales were unacceptable for compatibility ( $\alpha=0.55$ ), relative advantage ( $\alpha=0.41$ ), trialability ( $\alpha=0.58$ ), and observability ( $\alpha=0.34$ ). However, initial reliability for simplicity ( $\alpha=0.64$ ) was acceptable. In behavioral research, alpha  $>0.6$  is acceptable (Kerlinger & Lee, 2000). Given the relatively low participant-to-item ratio (approximately 3:1), Bartlett's Test of Sphericity and the KMO measure of sampling adequacy were reviewed. Bartlett's Test of Sphericity was significant (approximate  $\chi^2=1192.25$ ,  $df=595$ ,  $p<0.001$ ) and the KMO measure of sampling adequacy was acceptable at 0.65, providing evidence for an adequate number of significant correlations among items to justify proceeding with factor analysis.

Initial factor analysis revealed 20 items with loadings greater than  $|0.40|$  that converged in seven iterations yielding a five factor solution. However, one factor only had two questions that loaded, so that factor was dropped from the final solution. The

final four factors related to perceived attributes of compatibility, relative advantage, simplicity, and trialability (Table 4-2). The final four factor solution converged in seven iterations with eigenvalues  $>1.0$  (range 1.97-5.99) that explained 35.8% of the variance. These results indicate that a shorter 20-item survey could be used to measure attitudes relevant to nutrition education curriculum adoption and implementation.

Some survey items developed for the observability scale loaded under trialability and compatibility (Table 4-2). Others have found that trialability and observability fuse into one factor (Hurt & Hibbard, 1989). The authors attributed this result to potential ambiguity in item construction and conceptual attribute overlap. One survey item was retained in more than one factor due to cross-loading (Table 4-2). Reliability testing based on factor analysis results indicates acceptable reliability for compatibility ( $\alpha=0.61$ ), relative advantage ( $\alpha=0.71$ ), simplicity ( $\alpha=0.69$ ), and trialability ( $\alpha=0.71$ ).

The majority of NECS respondents agreed or strongly agreed with statements reflecting perceived attributes of relative advantage, simplicity, and trialability (Table 4-2). These results support findings indicating the importance of experiential learning, academic integration, and user-friendliness (Belansky et al., 2006), as well as cultural relevance (Perez-Rodrigo & Aranceta, 2003) of nutrition education curricula. However, some survey statements related to compatibility revealed varying opinions on the necessity of aligning nutrition education curricula with academic standards. Although 53% of respondents reported alignment with academic standards as a critical component of curricula compatibility, only 41% of respondents used tasting lessons to meet academic standards.

### *Prediction of Intended Future Use*

Summated scales of the four perceived attributes that emerged from the factor analysis were calculated. Summated scales for relative advantage, simplicity, and trialability were significantly correlated with planned future use of tasting lessons ( $r=0.21, p=0.043$ ;  $r=0.22, p=0.034$ ; and  $r=0.22, p=0.042$ , respectively). Respondents who had relatively high summated scores for relative advantage, simplicity, or trialability indicated intention to use tasting lessons in the future. These correlations are considered to be small to medium (Cohen, 1988). Stepwise multiple regression was conducted to investigate the best predictors of planned future use of tasting lessons and revealed that simplicity predicted future planned usage of tasting lessons ( $p=0.034$ ).

### *Interviews*

The interview sample ( $n=27$ ) was 96% female; 85% of interviewees held bachelor's (37%) or master's (48%) degrees. Interviewees were primarily employed by Cooperative Extension (30%) or schools (41%) and learned about *CWK* mainly through internet searches (59%). Coding reliability using percentage agreement methods ranged from 87% - 100% for nine reliability documents, indicating good agreement (Simons-Morton et al., 1992).

Analysis of interview transcripts resulted in identification of multiple desirable attributes of nutrition education curricula, including cultural relevance, experiential learning, user-friendliness, grade level adaptations, and ability to adapt curricula to multiple situations and settings. Limited resources were the predominant barrier to implementing the curriculum.

### *Desirable Attributes of CWK*

Descriptive analysis results (Tables 4-1 and 4-2) were supported by themes from interviews. In addition to the overall user-friendliness of the curriculum, interviewees highlighted the diversity of cultures and foods in the cooking curriculum and integration with core academic subjects as reasons for choosing the curriculum, similar to other research findings (Belansky et al., 2006).

*“I liked how diverse the curriculum is. I also liked how user-friendly it appeared, and it certainly turned out to be very user-friendly. It explores a lot of different foods from around the world, a lot of different subjects, and that really appealed to me; it also did to the kids.”*

*~curriculum purchaser #3*

*“...this exposed kids to a lot of different cultures that they would never, ever have experience with, especially the low-income children... this gave them the chance to try new foods and be able to get a hands-on and fix the foods themselves. So it was absolutely just right up our alley what we were looking for.”*

*~curriculum purchaser #5*

*“...what I was interested in was finding something that allowed me to do cross-curricular activities and learning but based in the kitchen.”*

*~curriculum purchaser #9*

As noted in Tables 4-1 and 4-2, hands-on, experiential activities are considered important. This emphasis was also seen in interview responses indicating that the hands-on experiential component of CWK was considered essential. These results reflect research from other groups about the importance of hands-on experiences (Hammerschmidt, Murphy, Youatt, Sawyer, & Andrews, 1994; J. Hoover, Martin, & Litchfield, 2009).

*“Well I think hands-on is always good, no matter what. It’s my own personal experience with adults as well as children, you can tell anybody anything, you can make anybody read anything, but*

*it's not until it's this hand-eye connection, touch, feel, that people really get it."*

*~curriculum survey respondent #4*

*"...you need to make sure that whoever is behind those lessons lets the kids do the work... You don't want to save time at the expense of kids not getting the experience or the skill base."*

*~curriculum purchaser #11*

Some interviewees incorporated a school garden as an adaptation and used garden produce in tasting activities. Other adaptations included ingredient substitutions due to availability or cost, addition or deletion of activities due to available time and/or equipment, or stretching a lesson over several days due to time constraints.

*"...I would pair a tasting activity every day with a regional activity, because I had four hours to fill [during a summer school program]. ...One day I brought in [the book] Green Eggs and Ham, and we read [it], I think that was the first day, because that was an easy cooking activity and they were getting used to the kitchen. So I brought in some supplemental activities as well."*

*~curriculum purchaser #9*

*"Not a lot of our educators have a two-hour span at one time. So, some are actually doing one cooking lesson over a week's time. So what they may do is day one, they may do the reading part. And day two they may do the math or the geography part. And day three they may discuss the recipe, and by day four they're actually cooking. ... We sometimes only have a thirty minute span, you know, with the kids, so they broke it down into where one lesson, or one cooking activity, will take them a week."*

*~curriculum purchaser #5*

### *Barriers to Implementation*

Barriers to implementing CWK were primarily related to limited resources. Some participants indicated that it's difficult to get permission to go into a school classroom for two-hour blocks of time to teach cooking lessons due to testing requirements that are prevalent in schools. Other barriers included limited resources related to funding, space,

and volunteers. The barriers reported in this study support findings from other research (Lanigan & Power, 2008).

*“Funding is probably number one, because one of the most important things I’m finding is that to do cooking in the class[room], there are some teachers, there’s a portion that want to, but they end up buying a lot of their own supplies, especially food.”*

*~curriculum survey respondent #1*

*“Some of the facilities did not have the space for a nutrition cart. They did not have a covered space even to put everything that’s required for the recipes.”*

*~curriculum purchaser #2*

*“I think for it to be a success you would have to do it as it is written with parent volunteers, because I think for it to be successful you have to have a high adult-student ratio.”*

*~curriculum purchaser #9*

Another barrier mentioned during interviews was teacher comfort with cooking. The CWK curriculum includes 2-hour cooking lessons and 1-hour fruit or vegetable tasting lessons. Several interviewees (who were teachers) indicated that they are more comfortable conducting tasting lessons in the classroom than cooking lessons because tasting lessons involve minimal food preparation and no cooking.

## **Limitations**

Four limitations are noted:

1. The survey contained negatively worded DOI perceived attribute statements. Although negatively worded items and a balance of negatively and directly worded items have been recommended to reduce response bias (Cronbach, 1950; Nunnally, 1978; Anastasi, 1982), recent research recommends discontinuing this practice (Babbie, 1998; Baxter and Babbie, 2004).

2. Although internal consistency was measured for appropriate survey items, test-retest measures were not performed.
3. A small number of individuals were interviewed (n=27); however, care was taken to recruit a representative sample. In addition, saturation of themes was reached.
4. A limited number of responses were available for use in factor analysis (n=109). However, the acceptable KMO measure, item communalities, limited number of extracted factors and probable overidentification of the trialability factor argue for stability of the factor solution (Hogarty et al., 2005; MacCallum, Widaman, Zhang, & Hong, 1999).

### **Conclusion**

Results of this study indicate that a 20-item survey could be used to measure attitudes relevant to nutrition education curriculum adoption and implementation by Extension professionals and K-12 teachers. With further research, the survey has potential use for predicting adoption and implementation of nutrition education curricula. In particular, perceived relative advantage, simplicity, and trialability were correlated with planned future curriculum use, indicating that Extension practitioners should aim to include easy to use curricula that offer a perceived advantage over previous curricula and can initially be used on a trial or pilot basis. In addition, simplicity significantly predicted future planned curriculum use. Programs that create or adapt nutrition education curricula for use in schools should focus on making curricula easy to use and understand in order to increase adoption and implementation.

This study also highlights several curriculum attributes desirable for nutrition education. Programs that create or adapt nutrition education curricula for use in schools should incorporate experiential “hands-on” components such as food preparation or other participatory activities that engage students’ senses and incorporate learning opportunities in a variety of school subjects. In addition, since user-friendly products are desirable, Extension practitioners who create nutrition education curricula should incorporate handouts, worksheets, and activities that are in a user-friendly format such as in a three-ring binder for ease of copying. Programs should anticipate barriers to implementing nutrition education curricula, including lack of adequate resources. In order to overcome barriers to implementation and to support sustainability of use, it is essential that curriculum users have adequate information and planning time.

**Table 4-1:** Importance of Characteristics That Led to Downloading CWK Tasting Lessons

Characteristic	Important or Very Important (%)	
	NECS	FVTS
Importance of lessons that appear easy to implement	92	90
Importance of program having a good reputation	47 <sup>a</sup>	58 <sup>a</sup>
Importance of lessons tailored for different ages of students	94	87
Importance of free cost	89	89
Importance of lessons in Spanish	32	26
Importance of looking for nutrition education materials	99 <sup>b</sup>	87 <sup>b</sup>

<sup>a</sup>p=0.001

<sup>b</sup>p=0.013

**Table 4-2:** Factor Loadings and Responses to 20 Diffusion of Innovations (DOI) Perceived Attribute Survey Items

<b>Perceived Attribute</b>	<b>Statement</b>	<b>Factor Loading</b>	<b>Strongly Agree or Agree (%)</b>	<b>Strongly Disagree or Disagree (%)</b>
Compatibility	Before I adopt a new curriculum, it must be clear that the lessons are culturally appropriate.	0.505	89	4
	Nutrition education curriculum for children must be aligned with Academic Standards for me to use it.	0.541	53	27
	Nutrition education curricula do not need to be aimed at achieving specific behavior changes.	-0.496	28	51
	Nutrition education materials that are available in different languages are more useful than materials only available in English.	0.450	64	14
	Seeing nutrition education lessons implemented in a school is the only way that I can know that they work. (original observability item)	0.463	9	69
Relative Advantage	Hands-on activities work better in teaching nutrition education than didactic methods.	0.724	97	0
	Cooking activities that incorporate other kinds of learning into nutrition education are important to me.	0.429	93	1
	Hands-on activities work better in teaching nutrition education than lecturing.	0.773	96	0
	Sample units make nutrition education curricula easy to try out.	0.515	91	0

**Table 4-2 (continued):** Factor Loadings and Responses to 20 DOI Perceived Attribute Survey Items

<b>Perceived Attribute</b>	<b>Statement</b>	<b>Factor Loading</b>	<b>Strongly Agree or Agree (%)</b>	<b>Strongly Disagree or Disagree (%)</b>
Simplicity	When considering new nutrition education materials, one important factor is seeing that they are designed for the intended audience.	0.444	99	0
	Nutrition education curriculum does not need to be easy to use.	-0.415	2	90
	It is important that nutrition education curricula specify all of the materials needed for each lesson.	0.676	99	0
	Lesson plans need to be easy to follow.	0.665	100	0
	Materials need to be readily available to implement nutrition education lessons. (loaded also in trialability)	0.407	96	0
Trialability	Materials need to be readily available to implement nutrition education lessons.	0.499	96	0
	An attractive format makes me want to try out a new curriculum.	0.545	83	6
	I like nutrition education lessons that are downloadable from the internet.	0.382	92	2
	It is helpful to be able to pilot new lessons before purchasing a whole curriculum.	0.519	98	1
	Clear directions make new nutrition education curricula easy to try out.	0.619	99	0
	It is important for me to be able to see a nutrition education lesson in action. (original observability item)	0.473	55	21
	Demonstrations of components of nutrition education curricula can show how a curriculum works. (original observability item)	0.430	79	1

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**CHAPTER 5**  
**EFFECTIVE TRAINING DESIGN:  
USE OF THEORY AND FORMATIVE ASSESSMENT**

*Accepted by Health Promotion Practice*

**Abstract**

Effective nutrition education training should be guided by sound theory that specifically addresses behavior change. A three-hour training was developed using Diffusion of Innovations (DOI) and Social Cognitive theories and formative assessment. Essential training components included interactive learning techniques and curriculum lesson practice. Descriptive statistics were used to analyze training satisfaction, paired samples *t* tests determined pre- to post-training differences, and Pearson correlations and stepwise multiple regression were conducted to explore predictors of future curriculum use. Paraprofessional Nutrition Educators (NE) and their supervisors rated the training high in acceptability, benefit, and clarity. The NE and supervisors improved knowledge about teaching the curriculum ( $t=5.12, p<0.01$  and  $t=8.31, p<0.01$ , respectively), confidence ( $t=3.93, p<0.01$  and  $t=3.62, p<0.01$ , respectively), motivation ( $t=3.71, p<0.01$  and  $t=2.63, p<0.05$ , respectively), and information ( $t=7.17, p<0.01$  and  $t=4.15, p<0.01$ , respectively) to teach the curriculum. The DOI attributes of relative advantage and trialability were correlated with intended future curriculum use by NE ( $r=0.577, p=0.002$  and  $r=0.418, p=0.027$ , respectively). Relative advantage was correlated with intended use

by supervisors ( $r=0.502$ ,  $p=0.040$ ). These results underscore the importance of utilizing both theory and formative assessment for successful training development.

## **Introduction**

Effective strategies for dissemination and implementation of health education programs are needed. Didactic education and passive dissemination are generally ineffective (Bero et al., 1998; Forsetlund et al., 2009). Interactive education including discussion or practice are consistently effective (Bero et al., 1998), and a mix of interactive and didactic elements are more effective than either didactic or interactive meetings alone (Forsetlund et al., 2009). Others suggest effective nutrition education programs and trainings be guided by sound theory that addresses behavior change (Achterberg & Clark, 1992; Ayala et al., 2001; Contento et al., 1995; Townsend et al., 2003), but multiple theories may be needed to adequately address behavior(s) (Achterberg & Clark, 1992; Achterberg & Miller, 2004). Additionally, interventions designed using results from formative evaluation offer greater opportunity for success because they build on needs and strengths of their intended audience (Ayala et al., 2001).

Diffusion of Innovations (DOI) theory states that perceived attributes of an innovation (new practice) strongly affect its adoption and dissemination (Rogers, 2003). These attributes include relative advantage, compatibility, complexity, trialability, and observability. Four of these attributes positively influence an innovation's adoption and dissemination, while complexity has a negative influence. A lack of complexity, or simplicity, would therefore positively impact adoption and dissemination. For clarity, the term simplicity is used to describe this concept.

Social Cognitive Theory (SCT) is often used in behavior change interventions (Perry, Baranowski, & Parcel, 1990). This framework uses cognitive, environmental, and behavioral variables to explain and describe human behavior and learning (Bandura, 1986). SCT can be used to study diffusion where the behavior of interest is program adoption, implementation, and maintenance (Perry et al., 1990). Several strategies, including modeling, guided practice, and goal-setting can influence health promotion program dissemination and diffusion (Contento et al., 1995; Perry et al., 1990).

Kirkpatrick and Kirkpatrick specify four levels of evaluation for training programs: reaction, learning, behavior, and results (Kirkpatrick & Kirkpatrick, 2006). Reaction measures “customer satisfaction” with training from the participant perspective. A positive reaction does not ensure learning; however, a negative reaction almost certainly reduces that possibility. Learning measures the extent to which training participants change attitudes, improve knowledge, and/or increase skill as a result of training. Although many training evaluations include some learning assessment, it is essential to measure attitudes, skills, and results before and after training to fully assess training outcomes.

*Cooking with Kids (CWK)* is an experiential school-based program that encourages healthy eating behaviors by engaging elementary schoolchildren’s innate curiosity and enthusiasm for food through direct experience with fresh, affordable foods (Walters & Stacey, 2009). The bilingual (Spanish/English) curriculum includes 2-hour cooking and 1-hour tasting lessons. Cooking lessons emphasize foods from around the world. Tasting lessons engage students in sensory exploration of fruits and vegetables, with minimal food preparation and no cooking. Lessons align with state academic

standards and provide applied learning opportunities in language arts, social studies, math, science, and health education.

*CWK* was well-integrated in Santa Fe, New Mexico by program developers, but there was a state-level request for broader dissemination. Therefore, a decision was made to disseminate the *CWK* tasting curriculum through training of Extension-based paraprofessional Nutrition Educators (NE). Extension programs are administered through county and regional extension offices which bring land-grant college and university expertise and resources to the local level through informal, non-credit programs ("United States Department of Agriculture, National Institute of Food and Agriculture," 2009).

The purpose of this article is to describe *CWK* curriculum training development and report changes in participant attitudes, knowledge, and skills as a result of attending training. A future article will describe training impact on curriculum implementation. The Colorado State University Institutional Review Board approved the study.

## **Methods**

### ***Formative Assessment Interviews***

To understand paraprofessional NE training needs, interviews were conducted with seven New Mexico State University Cooperative Extension System (NMSU CES) staff responsible for nutrition education programming for low-income audiences. Interviews were semi-structured, using open-ended questions to explore elements of effective trainings and reasons for adopting, adapting, and rejecting nutrition education curricula. Interviews were recorded, transcribed, and uploaded into NVivo 8<sup>®</sup> ("NVivo qualitative data analysis software," 2008), a software program that supports qualitative data analysis.

### ***Pilot Study***

Five months prior to the training intervention, an overview of the *CWK* program and tasting curriculum was presented to paraprofessional NE and their Family and Consumer Science Extension Agent supervisors (EA). Volunteers were then recruited to pilot the tasting curriculum. Four NE representing three counties piloted the *CWK* curriculum. Each NE was interviewed regarding their experiences using *CWK* and suggestions for implementation throughout NMSU CES.

### ***Training Development and Format***

A 3-hour *CWK* tasting lesson training was developed using DOI (Rogers, 2003) and SCT (Bandura, 1986) as the theoretical framework. Training methods that addressed DOI perceived attributes and selected SCT constructs are outlined in Table 5-1. Information from the formative assessment interviews, pilot study, and pre-training survey (described below) informed the training design. The NE and EA participated in the *CWK* training during two-day meetings conducted in the three regions of the state. A substantial portion of the training included modeling and practice of experiential learning activities from the curriculum.

### ***Survey Development and Content***

A series of 4 surveys (pre-training, post-training, 4-month follow-up, and 8-month follow-up) were developed (available at [http://www.fshn.caahs.colostate.edu/faculty\\_staff/cunningham-sabo/cooking%20with%20kids.aspx](http://www.fshn.caahs.colostate.edu/faculty_staff/cunningham-sabo/cooking%20with%20kids.aspx)). Separate surveys were developed for NE and EA. A panel of experts reviewed each survey for content validity. The 46-item NE pre-training survey was tested for face validity and test-retest reliability with demographically similar paraprofessional NE. Post-training and follow-up surveys were

similar to the pre-training survey as further described below. This article reports results from pre- and post-training surveys.

### *Pre-Training Survey*

The pre-training survey included 13 items regarding NE and EA demographics, NE teaching preferences, and format of current youth classes. The NE pre-training survey included 14 items addressing attitudes, knowledge, and skills using a 6-point Likert scale. Items addressed NE comfort with and enjoyment of food preparation; confidence with, knowledge about, and motivation to use *CWK*; and information and skills needed to teach *CWK*. The EA pre-training survey included the same items with the exception of two items that related to teaching since EA do not regularly teach nutrition education sessions. Fifteen previously tested DOI perceived attribute statements were included in the survey to assess prediction of curriculum adoption and implementation. Prior work from our group indicated perceived relative advantage, simplicity, and trialability were correlated with planned future curriculum use and simplicity predicted future use (Diker, Walters, Cunningham-Sabo, & Baker, in press). To guide training development, the NE pre-training survey included four open-ended questions about NE attitudes toward their current curriculum, the new *CWK* curriculum, and teaching 4<sup>th</sup> graders. Similar questions were asked of EA but focused on their supervisory role.

### *Post-Training Survey*

Following the *CWK* training, NE and EA rated the training's acceptability, benefit, and clarity using a 6-point Likert scale. Questions related to attitudes, knowledge, skills, and thoughts and concerns about the current and new curricula were repeated. Participants responded to questions regarding future *CWK* use. Participants ranked

available resources (training participation, *CWK* video, *CWK* tasting curriculum, EA, and NE) by perceived utility for implementation. To address the SCT outcome expectations construct, participants wrote short-term (one month), medium-term (four month), and long-term (eight month) goals related to implementing *CWK*. Four additional DOI perceived attribute (Rogers, 2003) statements were assessed using a 5-point Likert scale.

### ***Data Analysis***

Formative assessment interview transcripts were coded inductively (Thomas, 2006) and deductively (Miles & Huberman, 1994) using directed content analysis (Hsieh & Shannon, 2005). Two coders independently coded two transcripts to assess reliability. Quantitative data was analyzed using SPSS ("SPSS 16.0 Graduate Student Version," 2008). Principal factor analysis with varimax rotation, test-retest, and Cronbach's alpha assessed the underlying structure, reliability, and internal consistency of the 14 attitude, knowledge and skill items. Descriptive statistics were used to analyze demographic data, training satisfaction, item rankings, and planned future *CWK* use. Analysis of variance (ANOVA) determined training location response differences. Paired samples *t* tests determined pre- to post-training differences. Pearson correlations and stepwise multiple regression were conducted to explore predictors of future curriculum use. Significance was set at  $p < 0.05$ . Effect size was calculated as a measure of practical significance. An effect size (*d*) of  $|0.20|$  is smaller than typical,  $|0.50|$  is typical,  $|0.80|$  is larger than typical, and  $\geq |1.00|$  is much larger than typical (Cohen, 1988).

## **Results**

### ***Formative Assessment Interviews***

Interviewees (n=7) were female (100%), Caucasian (71%), and held graduate degrees (86%). State-level (43%), county-level (43%), and collaborator (14%) participants were interviewed. Coding reliability using percent agreement was 93% - 100%, indicating good agreement (Miles & Huberman, 1994). Analysis revealed the following features for effective training of paraprofessional NE: face-to-face training; interactive, hands-on learning; enthusiastic, skilled trainers; lesson observation and practice; pilot-testing; and ability to contact trainers after training.

### ***Pilot Study***

Four paraprofessional NE piloted *CWK* in nine 4<sup>th</sup> grade classrooms. The NE incorporated two new tasting lessons into existing programming, either adding new lessons to existing lessons or replacing an existing lesson with a tasting lesson. Comments from the pilot included the need to minimize paperwork, have adequate information about paperwork submission, and accurately capture *CWK* within the reporting database.

Teacher reaction to *CWK* was generally positive, as evidenced by comments such as "...students were enthusiastic about not just eating the food but where it comes from and how they are grown". One NE reported that teachers wanted more content in lessons. Student reaction included comments such as "I liked *CWK* class because I can try and observe the food by tasting and looking at it. We could be fourth grade scientists". However, some preferred the previous curriculum because they could participate in food preparation and eat more food.

### *Pre- and Post-training Survey*

Factor analysis yielded four factors accounting for 78% of the variance (Table 5-2). Internal consistency analysis indicated acceptable reliability (Table 5-2). Survey reliability was acceptable as there were no significant differences found between test and retest scores ( $p \geq 0.07$ ). Significant pre-training survey differences between NE training group locations included percent of classes taught to children. There were no significant differences between NE groups at post test. The EA training groups differed by ethnicity. Post-training survey differences between EA training groups included reported enjoyment of preparing food at home, motivation to use *CWK*, and likelihood of using *CWK* in the future. In addition, there were post-training EA training group differences regarding level of agreement with the statement “I really think *CWK* matters. I see kids learning a lot with this program.” Since there were no significant differences between training groups for most survey items, data from all trainings were combined.

### *Participant Demographics*

Training occurred at three sites: Site A (n=21; 15 NE, 6 EA); Site B (n=37; 27 NE, 10 EA); and Site C (n=12; 7 NE, 5 EA). Meetings were similar in content and occurred over a nine-day period. Participant demographics are outlined in Table 5-3. The NE were female (100%), primarily Hispanic (55%), and typically had less than 2 years of college education (60%). The EA were female (100%), held graduate degrees (80%), and were primarily non-Hispanic (61%). This varied by training site with all EA at Site A and C identifying as non-Hispanic and 67% of EA at Site B identifying as Hispanic.

The NE reported teaching children 54% of the time on average. This percentage varied by training site from 41% (Site B) to 77% (Site C). When asked to rank grade

levels from least (1) to most (6) enjoyable, the highest average rating was for lower elementary grades ( $M=4.61$ ) followed by kindergarten ( $M=4.50$ ), upper elementary grades ( $M=4.34$ ), pre-kindergarten ( $M=3.50$ ), middle school/junior high ( $M=3.03$ ), and high school ( $M=2.42$ ).

### *Training Development*

Pre-training survey responses informed training development. Prior to training, participants perceived *CWK* tasting lessons to be interactive, easy to understand, expensive, and time-intensive. Positive perceptions solidified the decision to use an interactive training approach. Negative perceptions were addressed during training through lesson implementation discussions. Concerns about teaching 4<sup>th</sup> graders included keeping students engaged and potential behavior and attitude problems. These concerns were addressed during training by using specific examples of how to talk to and engage 4<sup>th</sup> graders. Concerns about teaching *CWK* included funding for food and learning a new curriculum. These concerns were addressed at training through discussions of budget and appropriate amounts of food to buy for tasting lessons and direct experience with the curriculum.

### *Training Satisfaction*

The NE rated the *CWK* training high in acceptability ( $M=5.6\pm0.6$ ), benefit ( $M=5.5\pm0.7$ ), and clarity ( $M=5.4\pm1.0$ ) using a 6-point Likert scale. Likewise, EA rated the training high in acceptability ( $M=5.6\pm0.6$ ), benefit ( $M=5.4\pm0.7$ ), and clarity ( $M=5.7\pm0.5$ ). Participants ranked available resources according to perceived usefulness for future *CWK* implementation. Responses were ordered from most (1) to least (5) helpful. The NE rated the *CWK* binder ( $M=1.6\pm0.8$ ) as the most helpful resource

followed by participating in training ( $M=2.1\pm 1.1$ ), the *CWK* video ( $M=2.8\pm 1.2$ ), another NE ( $M=3.7\pm 1.3$ ), and their supervising EA ( $M=4.1\pm 1.2$ ). Similar results were seen in rankings by EA. The EA rated training participation ( $M=1.7\pm 0.8$ ) as the most helpful resource followed by the *CWK* binder ( $M=1.9\pm 1.0$ ), the *CWK* video ( $M=2.8\pm 1.1$ ), NE ( $M=3.5\pm 1.3$ ) and another EA ( $M=4.4\pm 1.1$ ). Scores indicate that participation in training was deemed useful and is further evidence of training participant satisfaction.

#### *Changes in Attitude, Knowledge, and Skills*

Significant improvements in teaching attitudes and knowledge were reported by NE and EA as a result of training (Table 5-4). Both groups significantly improved in their reported motivation to use *CWK* tasting lessons. Motivation to use *CWK* differed by training site for EA, with the lowest motivation reported at Site C ( $M=4.0\pm 0.8$ ). The highest motivation was reported at Site B ( $M=5.8\pm 0.4$ ). The NE realized significant improvements in communication skills needed to manage 4<sup>th</sup> graders and confidence to wash and prepare produce in a variety of settings. The EA realized significant improvements in their ability to purchase and transport produce.

Effect size was much larger than typical for NE and EA related to obtaining adequate information to teach tasting lessons, indicating practical as well as statistical significance. The effect size was also much larger than typical for EA increase in knowledge about teaching *CWK*. Large effect sizes were seen for NE knowledge about teaching *CWK* and EA confidence with conducting tasting lessons. Medium to large effect sizes were seen for NE confidence with conducting tasting lessons, NE and EA motivation to use *CWK*, and EA ability to purchase and transport produce. Small to

medium effect sizes were found for NE communication skills to manage 4<sup>th</sup> graders and their confidence to wash and prepare produce for tasting lessons.

### *Planned CWK Implementation*

During training, NMSU CES state-level administrators indicated they expected each NE to complete two lesson series that each incorporated three existing nutrition education lessons and three *CWK* tasting lessons during the upcoming school year. This expectation was included as an application of the SCT expectancy construct. At the conclusion of the training, participants wrote short-term (one month), medium-term (four month), and long-term (eight month) goals related to implementing *CWK* as an application of the SCT outcome expectations construct. The NE short-term goals included becoming familiar with the curriculum and recruiting schools to participate. Typical NE medium-term goals included conducting at least one class series using *CWK*. Typical NE long-term goals included teaching at least two class series using *CWK*. Goals set by EA mirrored those set by NE at each time point.

Participants were asked how likely they were to use *CWK* for future classes. The scale ranged from “not at all likely” (1) to “extremely likely” (6). At the end of training both NE ( $M=5.6\pm0.7$ ) and EA ( $M=5.1\pm0.9$ ) reported they were very likely to use *CWK* in the future. Participants also commented on their numerical response indicating they were likely to use *CWK* because it enhanced current programming, they had agreed to teach at least two class series with *CWK*, and it was an exciting new program they thought children would enjoy. Differences in ranking were seen among EA at different training sites. The lowest likelihood of future *CWK* use was reported by Site C participants

( $M=4.0\pm 0.8$ ) and the highest likelihood was reported by Site B participants ( $M=5.7\pm 0.5$ ), which mirrors motivation results.

Participants responded to statements related to DOI perceived attributes which were collapsed into summed scales based on previous work (Diker et al., in press). In this study, NE summed scales of relative advantage and trialability were significantly correlated with likelihood of future CWK use ( $r=0.577$ ,  $p=0.002$  and  $r=0.418$ ,  $p=0.027$ , respectively). The simplicity summed scale was not significantly correlated ( $r=0.357$ ,  $p=0.053$ ). Only the relative advantage summated scale was significantly correlated with likelihood of future CWK use for EA ( $r=0.502$ ,  $p=0.040$ ). Stepwise multiple regression revealed that relative advantage significantly predicted likelihood of future use for NE ( $p=0.003$ ). The adjusted  $R^2$  value was 0.29, indicating that 29% of the variance was explained by the relative advantage summated score. This is a small to medium effect size (Cohen, 1988).

## **Discussion**

Our formative assessment indicated active participation was critical to include when training paraprofessional NE, findings consistent with the literature (Contento et al., 1995; Norris & Baker, 1998; Olson, 1994), DOI perceived attribute of simplicity, and SCT behavioral capability and self-efficacy constructs. Therefore, the developed training focused on active participation, such as participating in lessons and sharing NE pilot experiences with the larger group. Formative assessment also revealed lesson observation as essential for new curriculum training, consistent with the DOI perceived attribute of observability and SCT constructs of behavioral capability and observational learning. This element was incorporated into training by showing a video of an educator teaching

*CWK* to 4<sup>th</sup> graders. Formative assessment results also led to a pilot study prior to training as an application of the DOI trialability perceived attribute. Incorporation of pilot county verbal reports during training related to the DOI perceived observability attribute and SCT expectancy construct. Others suggest that interventions designed using formative evaluation have greater opportunity for success (Ayala et al., 2001). Data obtained from the interviews, pilot, and pre-training survey helped inform training development and is likely a key factor in the positive responses to training.

Results comparing post-training and pre-training surveys indicate significant improvement for NE and EA in teaching attitudes, knowledge, and skills, and motivation to use *CWK*. Both NE and EA were very likely to use *CWK* in the future. However, motivation to use *CWK* and the likelihood of using lessons in the future differed for EA by training site. The lowest motivation levels and likelihood of future use were reported at Site C which was smallest in participant size and had a higher proportion of rural counties than other sites. The highest motivation levels and likelihood of future use were reported at Site B, which was largest in participant size, had a relatively high proportion of participants from urban counties, and likely had the most prior knowledge of *CWK* since they were geographically closest to where *CWK* originated. It is possible that training group size or composition affected motivation and likelihood of using *CWK* in the future. Care was taken to follow the same training schedule and provide the same content at each site, so training site order is not a likely explanation for differences. Research has demonstrated behavior change can be underestimated using the pre/post-test self-report method as compared to a retrospective post/pre method (Rohs, Langone, & Coleman, 2001), so the impact of the training is possibly greater than reported. Many

participants scored highly on several pre-training questions (Table 4), and therefore could not improve substantially on these behaviors. Many of these behaviors are related to food preparation and teaching skills that NE regularly perform so high scores were expected.

Previous work indicated relative advantage, simplicity, and trialability summed scales were significantly correlated with planned future use of *CWK* (Diker et al., in press). In this study only relative advantage and trialability scales were significantly correlated with NE likelihood of using *CWK* in the future. The simplicity scale indicated a trend towards significance, but was not significantly correlated. Only the relative advantage scale was significantly correlated with likelihood of EA using *CWK* in the future. It is possible that relative advantage is important for all groups when adopting a new curriculum, but trialability is only important for those who will be teaching.

The significance of these results are limited by the following: 1) the participants are a convenience sample, although they represent 78% and 96% of NMSU CES NE and EA, respectively; 2) the lack of a control group; 3) potential bias toward socially desirable responses as with any self-reported assessment; and 4) limited reliability of the survey since the same group was used for face validity and test-retest reliability.

### **Conclusion**

These results underscore the importance of combining theory and formative assessment for successful training development. DOI and SCT were used as the framework for training development and shaped the inclusion of many components including experiential learning and goal-setting. However, without information from formative assessment interviews and surveys, the training would likely have been less effective in achieving the reported results. Although it is perhaps expected that training

would increase participant knowledge about a new curriculum and confidence to use it, this study also revealed significant improvement in motivation to use the curriculum. Improved motivation may be attributed to use of pilot study results and having paraprofessional NE share their pilot study experiences during training.

Recommendations for practitioners who design and conduct training sessions include:

- 1) Use formative assessment to understand target audience needs and strengths. For example, ask trainees and their supervisors what an ideal training on the topic would look like, including content, format, length, and location. Incorporate findings into training design and implementation.
- 2) Ideally, pilot the new curriculum or program with a small sample of the target audience prior to the training. Interview pilot participants about their experiences, what went well, what didn't go well, and their suggestions for training. Include their feedback during training.
- 3) Use behavioral change theory or theories, as appropriate, to guide development and evaluation of training.

**Table 5-1:** Diffusion of Innovations and Social Cognitive Theory Elements, Definitions, and Application during Training

<b>Theory</b>	<b>Element</b>	<b>Definition</b>	<b>Application during Training</b>
Diffusion of Innovations	Relative Advantage	Degree to which an innovation is perceived as better than the idea it supersedes	Establish <i>CWK</i> as exciting addition to current curriculum; no additional reporting required
	Compatibility	Degree to which an innovation is perceived as being consistent with existing values, past experiences, and needs of adopters	Discussion of how <i>CWK</i> curriculum fit with and complimented current curriculum
	Simplicity	Degree to which an innovation is perceived as difficult to understand and use	Review of <i>CWK</i> tasting curriculum lesson; Frequently Asked Questions list; participation in experiential learning activities from curriculum
	Trialability	Degree to which an innovation may be experimented with on a limited basis	Pilot study; encouragement to use three <i>CWK</i> tasting lessons in two class series
	Observability	Degree to which the results of an innovation are visible to others	Reports from pilot counties; video of <i>CWK</i> tasting lesson elements
Social Cognitive Theory	Behavioral Capability	The knowledge and skill needed to perform the behavior	Video of <i>CWK</i> lesson elements; participation in experiential learning activities from curriculum
	Self-Efficacy	Confidence in performing the behavior, taking action, and overcoming barriers	Participation in experiential learning activities from curriculum; list of tips for working with children and using the <i>CWK</i> tasting curriculum; debriefing session for handling potential barriers
	Outcome Expectations	Anticipated outcomes of a behavior	Individual goal setting for implementing <i>CWK</i> in counties
	Expectancy	Value placed on behavioral outcome	Expectation of implementation from EA and NMSU CES; reports from pilot counties
	Observational Learning	Behavioral acquisition that occurs by watching the actions and outcomes of others' behavior	Video of <i>CWK</i> tasting lesson elements; modeling of learning activities from curriculum
	Reinforcement	Responses to a person's behavior that increases the likelihood of reoccurrence	Recognition of accomplishments during and after training

**Table 5-2:** Factor Loadings for Survey Items Related to Attitudes, Knowledge, and Skills

<b>Survey Item</b>	<b>Factor 1: Food Preparation Attitudes</b>	<b>Factor 2: Teaching Attitudes &amp; Knowledge</b>	<b>Factor 3: Teaching Skills</b>	<b>Factor 4: Value/ Motivation</b>
Enjoyment of Preparing Food at Work	0.932			
Comfort Level with Food Preparation Skills	0.926			
Enjoyment of Hands-On Food Preparation when Teaching	0.743			
Comfort Level with Hands-On Food Preparation when Teaching	0.715			
Enjoyment of Preparing Food at Home	0.694			
Confidence with Conducting <i>CWK</i> Tasting Lessons		0.932		
Knowledge about Teaching <i>CWK</i> Tasting Lessons		0.879		
Have Enough Information to Teach <i>CWK</i> Tasting Lessons		0.830		
Confidence to Adjust Activities to Fit Time Allowed			0.850	
Have Appropriate Communication Skills to Manage 4 <sup>th</sup> Grade Classroom			0.758	
Confidence to Wash and Prepare Fruits/Vegetables			0.753	
Able to Purchase and Transport Fruits/Vegetables			0.729	
Think <i>CWK</i> Matters				0.846
Motivation to Use <i>CWK</i> Tasting Lessons				0.758
% of variance explained	24.19	22.52	19.81	11.93
Reliability ( $\alpha$ )	0.863	0.917	0.878	0.879

**Table 5-3:** Demographic Characteristics of Nutrition Educators (n=42) and Extension Agents (n=22)

	<b>Nutrition Educators (n=42)</b>	<b>Extension Agents (n=22)</b>
Female	100%	100%
Race <sup>a</sup>		
White or Caucasian	75%	89%
Black or African American	9%	0%
American Indian or Alaska Native	13%	11%
Asian	3%	0%
Native Hawaiian or Other Pacific Islander	0%	0%
Other	19%	17%
Ethnicity		
Hispanic or Latino	55%	39%
Non-Hispanic or Non-Latino	45%	61%
Age, average years (range)	50 (25-66)	46 (25-62)
Highest Education Attained		
High school/GED	18%	0%
Some college (< 2 years)	42%	0%
Associate's degree	10%	0%
Bachelor's degree	10%	15%
Some graduate school	8%	5%
Graduate degree	7%	80%
Other	5%	0%
Service in New Mexico Extension, average years (range)	6.27 (0.17-21)	10.45 (0.17-30)

<sup>a</sup>Total exceeds 100% as respondents could select more than one response

**Table 5-4:** Change in Attitudes, Knowledge, and Skills by Nutrition Educators and Extension Agents from Pre-training to Post-training

Factor	Variable	<i>Nutrition Educators (n=33)</i>						<i>Extension Agents (n=20)</i>					
		Pre-test Mean <sup>a</sup>	Post-test Mean	Mean Difference	sd	<i>t</i>	Effect Size ( <i>d</i> ) <sup>b</sup>	Pre-test Mean	Post-test Mean	Mean Difference	sd	<i>t</i>	Effect Size ( <i>d</i> )
1. Food Preparation Attitudes	Enjoyment of Food Preparation at Work	5.72	5.59	-0.13	0.55	-1.28	-0.23	4.82	5.06	0.24	1.03	0.94	0.23
	Comfort Level with Food Preparation Skills	5.79	5.64	-0.15	0.62	-1.41	-0.25	5.50	5.65	0.15	0.75	0.90	0.20
	Enjoyment of Hands-On Food Preparation when Teaching	5.28	5.44	0.16	1.11	0.80	0.14	n/a	n/a	n/a	n/a	n/a	n/a
	Comfort Level with Hands-On Food Preparation when Teaching	5.48	5.48	0.00	0.56	0.00	0.00	n/a	n/a	n/a	n/a	n/a	n/a
1. Enjoyment of Food Preparation at Home	5.67	5.67	0.00	0.56	0.00	0.00	5.05	5.25	0.20	0.77	1.17	0.26	
2. Teaching Attitudes and Knowledge	Confidence with Conducting CWK Tasting Lessons	<b>3.03</b>	<b>4.47</b>	<b>1.43</b>	<b>1.96</b>	<b>3.93**</b>	<b>0.73</b>	<b>3.63</b>	<b>5.11</b>	<b>1.47</b>	<b>1.78</b>	<b>3.62**</b>	<b>0.83</b>
	Knowledge about Teaching CWK Tasting Lessons	<b>2.50</b>	<b>4.23</b>	<b>1.73</b>	<b>1.86</b>	<b>5.12**</b>	<b>0.93</b>	<b>2.58</b>	<b>4.47</b>	<b>1.89</b>	<b>0.99</b>	<b>8.31**</b>	<b>1.91</b>
	Have Enough Information to Teach CWK Tasting Lessons	<b>2.76</b>	<b>5.07</b>	<b>2.31</b>	<b>1.73</b>	<b>7.17**</b>	<b>1.33</b>	<b>2.41</b>	<b>3.53</b>	<b>1.12</b>	<b>1.11</b>	<b>4.15**</b>	<b>1.01</b>

**Table 5-4 (continued):** Change in Attitudes, Knowledge, and Skills by Nutrition Educators and Extension Agents from Pre-training to Post-training

Factor	Variable	<i>Nutrition Educators (n=33)</i>						<i>Extension Agents (n=20)</i>					
		Pre-test Mean <sup>a</sup>	Post-test Mean	Mean Difference	sd	<i>t</i>	Effect Size ( <i>d</i> ) <sup>b</sup>	Pre-test Mean	Post-test Mean	Mean Difference	sd	<i>t</i>	Effect Size ( <i>d</i> )
3. Teaching Skills	Confidence to Adjust Activities to Fit Time Allowed	4.52	4.95	0.43	1.53	1.51	0.28	3.29	3.53	0.24	0.66	1.46	0.35
	Have Appropriate Communication Skills to Manage 4 <sup>th</sup> Grade Class	<b>4.63</b>	<b>5.27</b>	<b>0.63</b>	<b>1.40</b>	<b>2.48*</b>	<b>0.45</b>	3.42	3.58	0.16	0.50	1.37	0.32
	Confidence to Wash and Prepare Fruits and Vegetables	<b>4.90</b>	<b>5.57</b>	<b>0.67</b>	<b>1.49</b>	<b>2.45*</b>	<b>0.45</b>	3.42	3.79	0.37	0.83	1.93	0.44
	Able to Purchase and Transport Fruits and Vegetables	5.13	5.27	0.13	1.20	0.61	0.11	<b>3.22</b>	<b>3.61</b>	<b>0.39</b>	<b>0.70</b>	<b>2.36*</b>	<b>0.56</b>
4. Value/Motivation	Think CWK Matters	4.83	5.42	0.58	1.56	1.83	0.37	3.29	3.65	0.35	0.93	1.56	0.38
	Motivation to Use CWK Tasting Lessons	<b>4.29</b>	<b>5.25</b>	<b>0.96</b>	<b>1.37</b>	<b>3.71**</b>	<b>0.70</b>	<b>4.47</b>	<b>5.24</b>	<b>0.76</b>	<b>1.20</b>	<b>2.63*</b>	<b>0.64</b>

\*  $p < 0.05$

\*\*  $p < 0.01$

<sup>a</sup> Items were assessed using a Likert scale; responses ranged from 1 (low) to 6 (high)

<sup>b</sup> An effect size (*d*) of |0.20| is smaller than typical, |0.50| is typical, |0.80| is larger than typical, and  $\geq |1.00|$  is much larger than typical (Cohen, 1988)

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## CHAPTER 6

### PROMOTERS OF AND CHALLENGES TO ADOPTION AND IMPLEMENTATION OF AN ELEMENTARY SCHOOL EXPERIENTIAL FOODS CURRICULUM

In Preparation to *Health Education Behavior*

#### **Abstract**

Research is needed to identify and measure promoters and challenges of adoption and implementation of evidence-based health education programs. Paraprofessional Nutrition Educators (NE) and their supervisors participated in a *Cooking with Kids (CWK)* tasting lesson training designed using elements of Diffusion of Innovations and Social Cognitive Theory. Process and outcome evaluation data were collected using surveys, implementation reports, and interviews. Gains in NE perceived knowledge, confidence, motivation, and communication skills were sustained eight months post-training. High levels of adoption and implementation were attributed to strong implementation expectations, experiential and observational learning training elements, and perceived curriculum compatibility. Environmental factors such as time constraints, personnel turnover and scheduling conflicts proved challenging. Using appropriate behavior change theory and maximizing perceived attributes of the new curriculum supported adoption and use. Adaptations and techniques to problem-solve challenges should be provided to those implementing new curricula.

## **Introduction**

Numerous school health education programs, including nutrition education curricula and interventions have been developed. The impact of a program is a function of its reach, effectiveness, adoption, implementation, and maintenance over time (Dzewaltowski, Estabrooks, Klesges, Bull, & Glasgow, 2004; Glasgow, Vogt, & Boles, 1999). To improve adoption and implementation of these programs, research is needed to identify and measure promoters of and challenges to dissemination and implementation (Brownson et al., 2007; Hoelscher et al., 2001). However, few studies have investigated qualitative aspects of program implementation (Lee, Contento, Koch, & Barton, 2009) or factors affecting dissemination, adoption, and implementation of nutrition education curricula (Franks et al., 2007; McCullum-Gomez, Barroso, Hoelscher, Ward, & Kelder, 2006; Nanney et al., 2007; Serrano, Anderson, & Chapman-Novakofski, 2007).

Diffusion of Innovations (DOI) theory states that perceived attributes of an innovation (new practice) strongly affect its adoption and dissemination (Rogers, 2003). These attributes include relative advantage, compatibility, complexity, trialability, and observability. Four of these attributes positively influence an innovation's adoption and dissemination, while complexity has a negative influence. A lack of complexity, or simplicity, therefore positively impacts adoption and dissemination. For clarity, the term simplicity is used to describe this concept. Researchers, program planners, and trainers can use the DOI framework to gain a better understanding of the reasons for adoption or rejection of a particular practice (Hubbard & Sanmann, 2007).

Social Cognitive Theory (SCT) is often used in behavior change interventions (Glanz & Bishop, 2010; McAlister, Perry, & Parcel, 2008). This framework uses

cognitive, environmental, and behavioral variables to explain and describe human behavior and learning (Bandura, 1986). SCT can be used to study diffusion, where the behavior of interest is program adoption, implementation, and maintenance (McAlister et al., 2008). Several strategies, including modeling, guided practice, and goal-setting can influence health promotion program dissemination and diffusion (Glanz & Bishop, 2010).

*Cooking with Kids* (CWK, [www.cookingwithkids.net](http://www.cookingwithkids.net)) is an experiential school-based program that encourages healthy eating behaviors by engaging elementary schoolchildren's innate curiosity and enthusiasm for food through direct experience with fresh, affordable foods (Walters & Stacey, 2009). The bilingual (Spanish/English) curriculum includes 2-hour cooking lessons and 1-hour tasting lessons. Cooking lessons provide opportunities for students to work together to prepare foods from around the world. Each tasting lesson engages students in sensory exploration of four varieties of fruits or vegetables, with minimal food preparation and no cooking. Tasting lessons include farmer letters, food history and nutrition information, discussion questions, vocabulary words, charts developed for fruit or vegetable drawings and recording of adjectives, a bar graph to record voting results for the favorite fruit or vegetable variety, and additional drawing and writing activities (Stacey & Walters, 2009). Lessons align with state academic standards and provide applied learning opportunities in language arts, social studies, math, science, and health education.

CWK was well integrated in Santa Fe, New Mexico by program developers, but there was a state-level request for broader dissemination. Therefore, a decision was made to disseminate the CWK tasting curriculum through training of Extension-based paraprofessional Nutrition Educators (NE). Extension programs are administered through

county and regional extension offices which bring land-grant college and university expertise and resources to the local level through informal, non-credit programs ("United States Department of Agriculture, National Institute of Food and Agriculture," 2009).

The purposes of this article are to describe the changes in attitudes, knowledge, and skills over time as a result of training; identify promoters of and challenges to implementation and future use of the *CWK* tasting lessons; and describe educator-reported student level outcomes of the *CWK* tasting lessons. The Colorado State University Institutional Review Board approved the study.

## **Methods**

### ***Design and Sample***

The study used a mixed methods design. New Mexico State University Cooperative Extension System (NMSU CES) paraprofessional NE and their Family and Consumer Science Extension Agent supervisors (EA) participated in a *CWK* tasting lesson training during one of three Regional Meetings held throughout New Mexico in August, 2009. Training methods are described elsewhere (Diker et al., in press) and addressed DOI perceived attributes and select SCT constructs. The NE were asked to teach at least two series of a blended nutrition education program that included three *CWK* tasting lessons and three traditional lessons.

### ***Variables and Measures***

#### ***Surveys***

A series of four surveys (pre-, post-, four months post-, and eight months post-training) were developed. Separate surveys were developed for NE and EA. Survey development, content, validity, and reliability of pre- and post-training surveys are

described elsewhere (Diker et al., in press). Items addressing attitudes, knowledge, skills, and thoughts and concerns about the new curriculum were repeated on the NE and EA follow-up surveys to measure change over time. Participants responded to questions about whether they had used the *CWK* tasting curriculum since the training and reasons for their use or non-use of the curriculum. The four month post-training survey included closed- and open-ended questions related to accomplishment of the participants' short-term and medium-term goals. The eight month post-training survey included questions related to accomplishment of the participants' long-term goal. Follow-up surveys were administered via an online survey program ("SurveyMonkey," 2007). Participants were considered to be a non-responder if, after three emails, the participant still did not complete the survey.

#### *Implementation Reports*

Following each *CWK* tasting lesson, NE recorded information about the lesson in an implementation report. Data collected included lesson duration, number of students present, student response to the lesson, and percent of the lesson plan followed. Lesson adaptations and reasons for the adaptations were reported as well as impressions of what went well and what could have gone better during the lesson.

#### *Interviews*

Nine months post-training, interviews with a subset of NE and EA were conducted using maximum variation purposeful sampling techniques (Patton, 2002). Qualitative interviews with NE were semi-structured, using open-ended questions to explore perceived value of the *CWK* training session, motivation behind curriculum adoption, experiences using the tasting curriculum, adaptations made to lessons,

promoters and challenges of implementation, and intended future use of the curriculum. Interviews with EA mirrored the NE interviews, but focused on the county-level supervisory perspective of the EA. Interviews were recorded, transcribed, and uploaded into NVivo 8<sup>®</sup> ("NVivo qualitative data analysis software," 2008), a software program that supports qualitative data analysis.

### ***Data Analysis***

#### *Surveys*

Quantitative survey data was analyzed using SPSS ("SPSS 16.0 Graduate Student Version," 2008). Significance was set at  $p \leq 0.05$ . Independent *t* tests assessed differences between NE and EA regarding the likelihood of using *CWK* in the future as measured by a 6-point Likert scale. Predictors of likelihood of using *CWK* in the future were explored via Pearson correlations and stepwise multiple regression. Paired *t* tests were used to analyze perceived behavior change from pre-training through 8 months post-training. The magnitude of the difference between values, or effect size, was calculated as a measure of the findings' practical significance. An effect size (*d*) of  $|0.20|$  is smaller than typical,  $|0.50|$  is typical,  $|0.80|$  is larger than typical, and  $\geq |1.00|$  is much larger than typical (Cohen, 1988). Qualitative survey responses related to thoughts and concerns with *CWK* over time, facilitators and barriers to accomplishing goals, and likelihood of using *CWK* in the future were categorized by themes.

#### *Implementation Reports*

Descriptive statistics including means, frequencies and ranges were calculated for lesson length, class size, percent of lesson implemented, number of NE who implemented lessons, and number of *CWK* tasting lessons and series delivered. Qualitative responses

related to lesson adaptations, reasons for adaptations, and impressions of what went well and what could have gone better during lessons were categorized by themes.

### *Interviews*

Interview transcripts were coded inductively (Thomas, 2006) and deductively (Miles & Huberman, 1994) using directed content analysis (Hsieh & Shannon, 2005). Two coders independently coded six transcripts to assess reliability. Inter-coder reliability was calculated using percentage agreement methods (Neuendorf, 2002).

## **Results**

### *Demographics*

Training participant demographics are more fully described elsewhere (Diker et al., in press). Briefly, NE were female (100%), predominantly Hispanic (55%), and typically had less than two years of college education (60%). The EA were female (100%), held graduate degrees (80%), and were predominantly non-Hispanic (61%). Nine months post-training, a subset of NE (n=12) and EA (n=7) were interviewed. Interviewees were female (100%) and were predominantly non-Hispanic (58% of NE, 71% of EA). The NE who were interviewed typically had less than two years of college (58%), while EA interviewed held graduate degrees (100%). Interview coding reliability using percent agreement was 86% - 100%, indicating good agreement (Miles & Huberman, 1994; Neuendorf, 2002).

### *Changes in Attitudes, Knowledge, and Skills*

We previously reported significant improvement in NE and EA teaching attitudes, knowledge, and skills, and motivation to use *CWK* as a result of a targeted 3-hour training (Diker et al., in press). Increases in NE perceived knowledge about and

confidence in teaching a *CWK* tasting lesson, motivation to use *CWK* tasting lessons in the future, adequate information to teach a *CWK* tasting lesson, and communication skills to manage a 4<sup>th</sup> grade classroom were sustained over the eight months following the training (Figure 6-1). Perceived knowledge about teaching a *CWK* tasting lesson continued to increase significantly during the eight months post-training.

Increases in EA perceived knowledge about and adequate information to teach *CWK* tasting lessons were sustained over the eight months following the training (Figure 6-2). Confidence in teaching a *CWK* tasting lesson diminished during follow-up for EA but remained higher than at baseline. The increase in motivation to use *CWK* tasting lessons in the future that was experienced as a result of the training was not sustained during the eight months following the training (Figure 6-2).

### ***Adoption***

Thirty-three of 42 NE delivered *CWK* tasting lessons representing a 79% adoption rate. The NE delivered 191 *CWK* tasting lessons to 4<sup>th</sup> graders throughout New Mexico during the 2009-2010 academic year, representing 59 series that included three or more *CWK* tasting lessons. The average *CWK* lesson length was 58 minutes (range: 30-90 minutes) and the average class size was 19 students (range: 5-40 students). The NE reported following the lesson plan 93% of the time on average (range: 50-100%). Adopters did not significantly differ from non-adopters on any demographic element. Decisions to adopt were positively influenced by experiential and observational learning aspects of the training, compatibility with NE values and needs, and the expectation of implementation from EA and state-level program administrators. Reasons for non-

adoption included NE retirement/leaving the position, vacant EA position, training new NE, inability to recruit schools, and family/personal issues.

### ***Promoters and Challenges of Implementation***

#### ***Training Elements***

Nine months post-training, NE and EA remembered many aspects of the training including the Powerpoint overview of the CWK program, reviewing the CWK curriculum manual, and watching a DVD of CWK tasting lesson elements. The most often remembered aspect of the training was the hands-on demonstration of a lesson where NE and EA participated in a quasi-simulation of a CWK tasting lesson led by program developers. The quasi-simulation involved NE and EA participating in a CWK tasting lesson without pretending to act like the 4<sup>th</sup> grade target audience. This experiential and observational learning component was mentioned often as a promoter of implementation. The expectation from state-level program administrators that NE would implement two series of the blended six-lesson program positively impacted implementation.

Interviewees made several references to observational learning that occurred as a result of viewing CWK DVDs. Two DVDs were developed as part of the research project, a 10-minute video of lesson elements and a 49-minute step-by-step video guide of a tasting lesson. The 10-minute video was viewed at the training; both DVDs were sent to each county after the training. Viewing the DVD at training increased perceived simplicity of the CWK tasting curriculum. One NE stated “...*I felt that the [10-minute] DVD was extremely powerful because I was watching it in action. When I was hearing about it prior to watching it, I felt that it was going to be this humungous curriculum that I would have to study in such detail so that I would be comfortable with it. Seeing how*

*she did it, I realized that it was very doable... ”.* Some NE reported viewing the DVDs prior to starting their first lesson as reinforcement of lesson progression.

The NE and EA generally felt that the training prepared them well for *CWK* tasting lesson implementation. However, some felt less prepared to teach the lessons to children because the training was directed at adults; observation or practice with the target audience of 4<sup>th</sup> graders would have been ideal. In addition, some EA commented that NE experience may have impacted perceived simplicity of the curriculum. Those NE who were new to the position were also trying to learn various other aspects of the position whereas experienced NE only had to learn the new curriculum.

#### *Use of Goals*

At the conclusion of the training, participants wrote short-term (one month), medium-term (four month), and long-term (eight month) goals for implementing *CWK*. The NE short-term goals included becoming familiar with the curriculum and recruiting schools to participate. Typical NE medium-term goals included conducting at least one class series using *CWK*. Typical NE long-term goals included teaching at least two class series using *CWK*. Sixty percent of NE reported accomplishing their short-term goals; 59% and 70% reported accomplishing their medium-term and long-term goals, respectively. Factors that facilitated NE goal accomplishment included the curriculum itself, taking time to organize and plan, adapting to specific varieties of fruit/vegetable availability, and support for the program from school administration, teachers, and grocers. Barriers to goal accomplishment included difficulties scheduling classes and personal/family matters. During interviews, NE did not mention goal-setting as an element that impacted implementation.

Goals set by EA mirrored those set by NE at each time point. Seventy-one percent of EA reported accomplishing their short-term goals; 50% and 57% reported accomplishing their medium-term and long-term goals, respectively. Factors that facilitated EA goal accomplishment included planning efforts, NE adoption of *CWK*, and supportive relationships with school administrators and teachers. Barriers to EA goal accomplishment included personnel issues and difficulties scheduling classes.

### *Curriculum Attributes*

The NE and EA had varying views related to the *CWK* tasting curriculum's relative advantage. Some considered the curriculum to be advantageous due to its exploratory approach and alignment with academic standards. Others were concerned about learning a new curriculum, the lack of cooking and nutrient-related content in the tasting curriculum, and the increased amount of time needed in the classroom for the new curriculum (60 minutes) compared to the traditional curriculum (45 minutes).

The curriculum's simplicity and compatibility with existing programming were high. Both NE and EA thought the curriculum was well-organized, user-friendly, easy to understand, and provided resources and activities needed to conduct lessons. Simplicity also increased with teaching repetition. However, some curriculum elements, such as the farmer letter and bar graph, which aligned with language arts and math educational standards, were complex at times. The range of student reading levels varied which increased complexity for some NE in certain schools or classrooms. Some NE found it difficult to use the bar graph because students would vote for more than one favorite fruit or vegetable. The NE and EA felt that the *CWK* tasting curriculum would complement existing programming due to its experiential nature, simplicity, inclusion of food origins

and production, and integration with academic subjects. In addition to being compatible with current programming, the *CWK* curriculum appeared to be compatible with NE values and views. The NE with the highest levels of implementation had several interview comments related to compatibility, such as:

*“It really fit me to do a presentation like this, me personally, with my aspiration in life.”*

*“...I remember thinking ‘Oh my gosh, this is exactly up my aisle. This is the full experience of food. This is origin, history, geography, the universal interconnectedness of how we get our food, historically and currently. I was so happy to see that.’”*

*“In my opinion, it is so very, very important for today’s kids to get to taste things that they normally don’t taste.”*

Some NE noted that effects of implementing the *CWK* curriculum were visible to others, particularly to parents and teachers. Parents typically commented that children came home excited about trying new foods and asking for specific foods tried during *CWK*. Both parents and teachers noted the program’s effect on empowering students to express opinions. As one NE stated, *“...what I got from teachers was ‘I cannot believe how my children, how my students in this classroom, give opinions about things that never will say one thing otherwise’”*. Some teachers used the integrated curriculum to meet state academic benchmarks; others noted how the students’ vocabulary expanded due to adjective exploration during *CWK* lessons. Some NE plan to work on a recruitment letter for schools that explicitly state these types of observable outcomes.

The concept of trialability was occasionally mentioned. One county had NE pair up to teach the first series of blended lessons to help them feel more comfortable with the

new curriculum. Some NE taught their first series in a classroom where they knew the teacher and felt comfortable.

### *Environmental Factors*

Many NE reported support from classroom teachers and school administration as promoters of successful tasting lessons. The NE often credited teachers who assisted with lesson preparation, actively participated in the lesson, encouraged students to taste, and helped maintain order in the classroom. Some teachers informed students that the lesson activities would be included as a gradable item in a related subject or extended the lessons into other academic subjects which supported success. Familiarity with a particular teacher or school promoted implementation as it made it easier to schedule lessons and request additional time or assistance. It also aided recruitment of future classes as word spread among teachers.

Other promoters of implementation included support from EA and NE. Support from EA in the form of praise and assistance during lessons was important. Support from other NE typically involved lesson assistance or discussions to generate implementation ideas and problem-solving techniques. Some NE had support from the local grocer to procure specific varieties of fruits and vegetables for upcoming lessons. Others did not have this level of support which often led to fruit or vegetable substitutions.

The NE reported lessons went well when students were helpful, familiar with the lesson process, engaged, and enjoyed the material. Extra time to set up and get organized, being familiar with the lesson, having additional adult help during the lesson, and preparation of the produce before the lesson also helped with NE feelings of success.

When asked what would aid implementation, NE commonly responded that additional time in the classroom for each lesson would be helpful. Other comments to improve the tasting sessions included smaller class size, time between classes to prepare and organize for the next class, more attentive and motivated students, and additional teacher participation and support. Some NE and EA expressed concerns about long-term compatibility of the program as implemented during the intervention. During the intervention, the blended program was implemented by having NE teach three traditional lessons and three *CWK* tasting lessons for a total of six contact hours. However, the organizational standard for youth programming was four contact hours. Without a change in program implementation contact hours or the organizational standard for contact hours, long-term implementation of the curriculum may diminish. Financial resources were also a concern. Near the end of the fiscal year, NE are asked to suspend purchasing for budget reconciliation purposes. Typically, NE use shelf-stable foods during this time. However, this practice has implications for any curriculum that relies heavily on fresh produce.

### ***Curriculum Adaptations***

Lesson modifications and adaptations reported by NE included fruit and vegetable substitutions due to availability or to provide students with new tasting experiences. For example, purple carrots were not available in all areas so a NE might substitute another root vegetable such as beets. Other NE would find fruits or vegetables that were less commonly consumed such as kale, parsnips, or dried mango as substitutes to provide students with a new tasting experience.

Time constraints were the most common reason for other modifications and adaptations. Modifications made due to time typically included leaving out some of the

writing, reading, or drawing activities included in the curriculum. The NE would often encourage students to complete these activities at home; some classroom teachers elected to extend these activities into the academic curriculum and/or as homework for the students. To increase time for activities in the classroom, some NE washed and prepared the fruit and vegetable varieties for the lesson ahead of time.

Other adaptations included adding more information about the history or nutrient content of the fruit or vegetable, using a local map showing fruit/vegetable crop production, and adding a cooking component. Some NE extended the lesson beyond the classroom by leaving extra grapes in cheesecloth in the window to make raisins or distributing vegetable seeds for the students to plant at home. Other NE used *CWK* tasting components to adapt the existing curriculum's lessons for other age groups. For example, NE teaching younger students would incorporate the bar graph/math or sensory exploration components into the existing curriculum for younger grades.

### ***Future Use of Curriculum***

Post-training, NE and EA indicated they were very likely to use *CWK* in the future ( $M=5.57\pm0.67$  and  $M=5.11\pm0.94$ , respectively). The NE were significantly more likely to use the tasting lessons in the future as compared to EA,  $t(59)=2.22$ ,  $p=0.03$ ,  $d=2.22$ . This difference is a much larger than typical difference according to Cohen (1988). Qualitative responses post- and nine months post-training indicated that NE and EA were likely to use *CWK* in the future because they enjoyed the lessons, thought lessons enhanced current programming, and saw students benefit from the lessons. Some were hesitant about using *CWK* in the future due to the increased time commitment, food

cost for tasting lessons, and not knowing the expectation for implementation for the upcoming program year.

Summated scales of the four perceived attributes were calculated. Summated scales for relative advantage, simplicity, and trialability were significantly correlated with likelihood of using *CWK* tasting lessons in the future ( $r=0.57, p=0.002$ ;  $r=0.37, p=0.036$ ; and  $r=0.39, p=0.027$ , respectively). Respondents who had relatively high summated scores for relative advantage, simplicity, or trialability indicated a high likelihood of using tasting lessons in the future. The relative advantage correlation is considered to be medium to large; the simplicity and trialability correlations are considered to be small to medium (Cohen, 1988). Stepwise multiple regression was conducted to investigate the best predictors of likelihood of using *CWK* tasting lessons in the future and revealed that relative advantage predicted likelihood of using tasting lessons ( $p=0.003$ ). Summated scales for relative advantage were negatively correlated with the number of *CWK* tasting lessons delivered by NE ( $r=-0.39, p=0.027$ ) indicating that respondents who had relatively high summated scores for relative advantage implemented fewer tasting lessons. Stepwise multiple regression revealed no predicting factors for number of tasting lessons delivered by NE.

### ***Student Outcomes***

Student responses and general impressions recorded by NE often reflected individual- or classroom-level preferences for the various fruits and vegetables. Comments such as “*This class is so much fun, what are [you] bringing next time!?*” revealed the students’ enjoyment of the class. The NE noted that students appreciated learning about and trying new fruits and vegetables regardless of their taste preferences.

Some NE commented that the curriculum encouraged students to try new foods and allowed the students to explore a food's origins, production, and unique flavor. The experiences appeared to have an impact beyond the classroom as evidenced by NE impressions such as *"One student is going shopping with mom to let her know what kind of oranges to buy"* and *"They talk about fruit among themselves in the hallway"* as well as student comments such as *"I am teaching my family to taste dinner in another way"* and *"I can fix this [salad] myself"*.

The NE also described student progression with sharing opinions (*"the teacher said 'I see and hear participation from students who never had wanted to participate'."*), vocabulary (*"...their ability to find adjectives to describe their finding have greatly [im]proved. Words like 'good' or 'awesome' which were originally used by students have been replaced with 'tart', 'tangy', etc."*), and learning the scientific process (hypothesis, prediction, recording observations, and reporting).

## **Discussion**

The sustained change in NE attitudes, knowledge, and skills during the eight months following training and increase in knowledge post-training is likely due to high NE adoption rate (79%) and continued implementation. Relatively low adoption rates (35%) have been reported with passive dissemination plans (Harvey-Berino, Ewing, Flynn, & Wick, 1998). In contrast, our dissemination plan utilized observational learning, interpersonal channels, NE testimonials, and interactive training that have been reported as important factors (Hoelscher et al., 2001; Rohrbach, Graham, & Hansen, 1993). Motivation to use *CWK* returned to pre-training levels for EA, which were relatively high to begin with so there was limited room for improvement. Although EA confidence was

higher at eight months post-training, it was not statistically different from pre-training levels. These results may be attributed to the fact that EA did not teach tasting lessons.

Adoption in this study was also likely influenced by the expectation from state-level program administrators that NE implement at least two series of the blended six-lesson program and inclusion of experiential and observational learning elements in the training. During interviews, the hands-on lesson demonstration, DVDs, and curriculum were mentioned as the most helpful resources which supports findings from the post-training survey results (Diker et al., in press). In addition, the high perceived compatibility of the CWK curriculum likely affected adoption and implementation and plans for future use. Perceived compatibility with an organization's existing structure and individual teaching methods have been reported to impact adoption and implementation (Hannon, Bowen, Christensen, & Kuniyuki, 2008; Harvey-Berino et al., 1998; Rohrbach et al., 1993; Smith, Steckler, McCormick, & McLeroy, 1995). Although fidelity of implementation was quite high (93%), this finding is tempered due to the self-report nature of the measure (Davis et al., 2000; Resnicow et al., 1998).

Goal-setting is used as a strategy to influence program dissemination, implementation, and diffusion (Glanz & Bishop, 2010). However, goal-setting did not appear to have a significant impact in this study. The expectation for implementation set by state-level program administrators may have lessened the need for individual goal-setting for this audience.

Stepwise multiple regression identified relative advantage as a predictor of future curriculum use. Additionally, summated scales for relative advantage were negatively correlated with the number of CWK tasting lessons delivered suggesting that NE who

preferred the existing program implemented more of the *CWK* lessons. This contrary finding may be best explained by the fact that throughout the intervention *CWK* was framed as a compatible program with the existing NMSU CES program as opposed to being in competition with the existing program.

Time constraints were among the most common challenges encountered during the intervention which is consistent with reports from others (Gittelsohn et al., 2003; Levine et al., 2002; Owen, Glanz, Sallis, & Kelder, 2006; Parcel et al., 1989; Rohrbach et al., 1993; Sy & Glanz, 2008). Other challenges included environmental factors such as scheduling conflicts, competition with other programming and standardized testing, and personnel turnover which corroborates others' findings (Gittelsohn et al., 2003; Smith et al., 1995).

### **Conclusion**

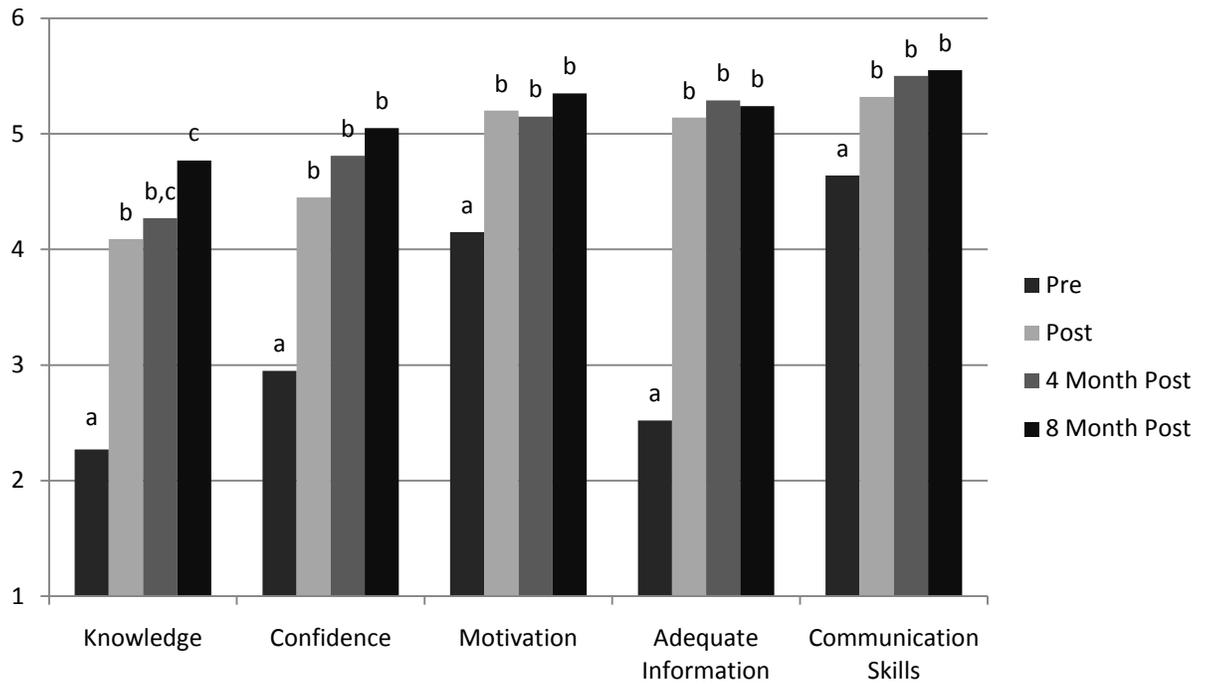
These results highlight the importance of using appropriate theory and learning techniques during training. In this study, SCT constructs of behavioral capability, self-efficacy, observational learning, and expectancy influenced adoption and implementation of the *CWK* curriculum. DOI perceived attributes of simplicity and compatibility also impacted adoption and implementation. Forethought about potential challenges and incorporation of problem-solving techniques for common challenges during training may minimize their effects during implementation.

Recommendations for practitioners wanting to enhance adoption and implementation of curricula by paraprofessional health or nutrition educators include:

- 1) Incorporate behavioral capability, observational learning, and expectancy elements into training. Guided role-playing, lesson practice, and observation

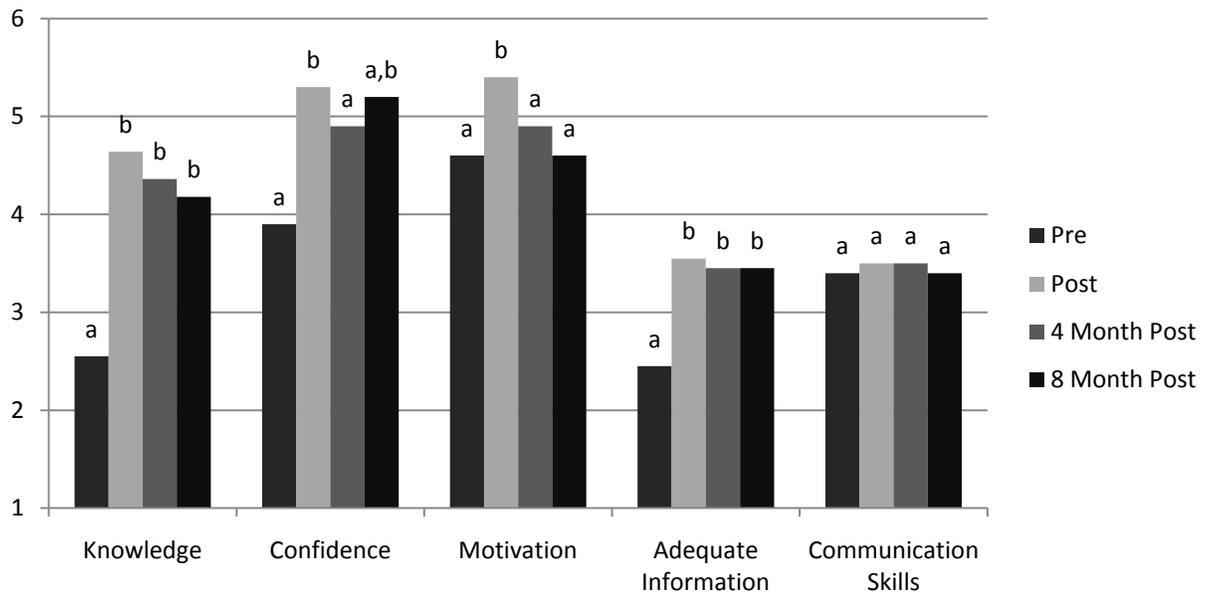
of implementation with the target audience in real time are strategies that may increase behavioral capability and self-efficacy. Continued observational learning in the form of DVDs available for program deliverers to view at any time may augment implementation. In addition, supervisor expectations appear to influence paraprofessional educator behavior.

- 2) Maximize perceived attributes of new curriculum prior to potential adoption and implementation. To the extent possible, new curriculum and any related reporting processes should be simplified. Framing the new curriculum as compatible with the existing organizational structure and/or existing curricula may be critical for successful adoption and implementation.
- 3) Supply implementers with potential adaptations and problem-solving techniques to minimize challenges. For example, furnish a list of adaptations for common challenges such as time limitations. Provide a recruitment letter detailing relative advantage, compatibility, and simplicity of the new curricula to assist in recruitment of the target audience.



**Figure 6-1:** Changes in Nutrition Educator perceived attitudes, knowledge, skills, and motivation from pre-training through eight months post-training

Note: Different letters denote significant differences over time



**Figure 6-2:** Changes in Extension Agent perceived attitudes, knowledge, skills, and motivation from pre-training through eight months post-training

Note: Different letters denote significant differences over time

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## CHAPTER 7

### DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter discusses the formative assessment and training intervention results of this investigation and offers conclusions based on those results. In addition, recommendations are provided for practitioners who develop nutrition education curricula. Recommendations are also presented for practitioners who design and conduct training sessions to enhance adoption and implementation of curricula by paraprofessional Nutrition Educators (NE).

#### **Discussion**

##### ***Formative Assessment***

Factor analysis of 35 formative assessment survey items measuring Diffusion of Innovations (DOI) perceived attributes (Rogers, 2003) revealed that a shorter 20-item survey could be used to measure attitudes relevant to nutrition education curriculum adoption and implementation. These 20 items related to DOI perceived attributes of compatibility, relative advantage, simplicity, and trialability. Summated scales for relative advantage, simplicity, and trialability were correlated with planned future use of *Cooking with Kids (CWK)* tasting lessons indicating the importance of these perceived attributes. However, stepwise multiple regression revealed that simplicity may be of paramount importance as it predicted future planned usage of tasting lessons.

Formative assessment survey respondents also indicated that free, easy to implement lessons tailored for different age groups were important features of the *CWK* tasting lessons. In addition to these characteristics, interviews with survey respondents revealed the importance of experiential learning and ability to adapt curricula to multiple situations and settings. These results support research from other groups regarding the importance of hands-on experiences (Hammerschmidt, Murphy, Youatt, Sawyer, & Andrews, 1994; J. Hoover, Martin, & Litchfield, 2009).

Limited resources were identified by survey respondents and interviewees as the predominant barrier to implementing the *CWK* tasting curriculum. These limited resources included time, funding, space, and volunteers which corroborate findings from other research (Gittelsohn et al., 2003; Lanigan & Power, 2008; Levine et al., 2002; Owen, Glanz, Sallis, & Kelder, 2006; Parcel et al., 1989; Rohrbach, Graham, & Hansen, 1993; Smith, Steckler, McCormick, & McLeroy, 1995; Sy & Glanz, 2008).

Lessons in Spanish were not overly important to survey respondents which supports findings by others (T. Hoover, Cooper, Tamplin, Osmond, & Edgell, 1996). However, interviews with survey respondents revealed the value of culturally relevant curricula which has been recommended (Espinosa, 2005). Formative assessment interviews with the training intervention target audience exposed the importance of bilingual (English/Spanish) and culturally relevant lessons for this group. These divergent findings highlight the importance of conducting formative needs assessment with the target audience.

Our assessment indicated active participation was critical to include when training paraprofessional NE, findings consistent with the literature (Contento et al., 1995; Norris

& Baker, 1998; Olson, 1994), DOI perceived attribute of simplicity, and Social Cognitive Theory (SCT) behavioral capability and self-efficacy constructs (Bandura, 1997; McAlister, Perry, & Parcel, 2008). Therefore, the developed training focused on active participation, such as participating in lessons and sharing NE pilot experiences with the larger group.

Formative assessment with the target audience also revealed lesson observation as essential for new curriculum training, consistent with the DOI perceived attribute of observability and SCT constructs of behavioral capability and observational learning. This component was incorporated into training by showing a 10-minute video of an educator teaching elements of a *CWK* tasting lesson to 4<sup>th</sup> graders. In addition, a 49-minute step-by-step video guide of a tasting lesson was developed. Both videos were disseminated to participants after the training as a way to offer continued application of theoretical constructs of observability, behavioral capability, and observational learning as well as provide training for newly hired NE. Formative assessment results also led to a pilot study prior to training as an application of the DOI trialability attribute. Incorporation of pilot county verbal reports during training modeled the DOI observability attribute and SCT expectancy construct.

The training intervention was designed using formative evaluation results to offer greater opportunity for success (Ayala et al., 2001). In addition, recommendations to guide training with theory that addresses behavior change were followed (Achterberg & Clark, 1992; Ayala et al., 2001; Contento et al., 1995; Townsend et al., 2003). Formative assessment data and relevant theoretical constructs from DOI and SCT helped inform training development and are likely key factors in the positive responses to training.

## ***Training Intervention***

### *Nutrition Educators*

Paraprofessional NE teaching attitudes, knowledge, skills, and motivation to use *CWK* improved from pre- to post-training. These changes, which were sustained during the eight months following training, and the increase in knowledge following training are likely due to the high NE adoption rate and continued implementation throughout the intervention period. Relatively low adoption rates have been reported with passive dissemination plans (Harvey-Berino, Ewing, Flynn, & Wick, 1998). In contrast, the dissemination plan for this study utilized observational learning, face-to-face training, NE testimonials, and interactive training that have been reported as important factors by others (Hoelscher et al., 2001; Rohrbach et al., 1993). Reasons for non-adoption in this study were related to personnel turnover and recruitment issues.

In this study, the high post-training likelihood that NE would use *CWK* in the future and high adoption rate by NE (79%) were likely influenced by the expectation from state-level program administrators that NE implement at least two series of the blended six-lesson program. Inclusion of experiential and observational learning elements in the training also likely had an effect. Survey and interview results indicated that the hands-on lesson demonstration, DVDs, and curriculum were perceived by NE as the most helpful resources for implementation of the *CWK* tasting curriculum. In addition, the high perceived compatibility of the *CWK* curriculum likely affected adoption and implementation. Perceived compatibility with an organization's existing structure and individual teaching methods have been reported to impact adoption and implementation

(Hannon, Bowen, Christensen, & Kuniyuki, 2008; Harvey-Berino et al., 1998; Rohrbach et al., 1993; Smith et al., 1995).

Time constraints were among the most common challenges encountered during the intervention which is consistent with reports from others (Gittelsohn et al., 2003; Levine et al., 2002; Owen et al., 2006; Parcel et al., 1989; Rohrbach et al., 1993; Sy & Glanz, 2008). Additional challenges included environmental factors such as scheduling conflicts, competition with other programming and standardized testing, and personnel turnover which corroborate others' findings (Gittelsohn et al., 2003; Smith et al., 1995).

Goal-setting is often used as a strategy to influence program dissemination, implementation, and diffusion (Contento et al., 1995; Perry, Baranowski, & Parcel, 1990). However, goal-setting did not appear to have a significant impact in this study. The expectation for implementation set by state-level program administrators may have lessened the need for goal-setting in this audience of paraprofessional NE.

#### *Extension Agents*

Results comparing post-training and pre-training surveys indicated improvement in the Family and Consumer Science Extension Agent supervisor (EA) teaching attitudes, knowledge, skills, and motivation to use *CWK*. However, EA motivation to use *CWK* and likelihood of future *CWK* use differed by training site. The lowest motivation levels and likelihood of future use were reported at Site C which was smallest in participant size and had a higher proportion of rural counties than other sites. The highest motivation levels and likelihood of future use were reported at Site B, which was largest in participant size and had a relatively high proportion of participants from urban counties. It is possible that training group size or composition affected motivation to use *CWK* in the future. Care

was taken to follow the same training schedule and provide the same content at each site, so training site order is not a likely explanation for differences. Motivation to use *CWK* returned to pre-training levels for EA, which were relatively high to begin with so there was limited room for improvement. Although EA confidence was higher at eight months post-training, it was not statistically different from pre-training levels. These results may be attributed to the fact that EA did not teach the tasting lessons.

### *Student Outcomes*

Paraprofessional NE perceptions of student-level outcomes included student willingness to try new foods and expansion of student knowledge including food origins, production, and unique flavor. The NE also described student progression with class participation, expression of opinions, vocabulary, and learning the scientific process.

### *Planned Future Curriculum Use*

Formative assessment work indicated relative advantage, simplicity, and trialability summed scales were significantly correlated with planned future use of *CWK*. However, in the training intervention study only summated scales for relative advantage and trialability were correlated with likelihood of NE using *CWK* in the future. The simplicity scale indicated a trend towards significance, but was not significantly correlated. Only the relative advantage scale was significantly correlated with likelihood of EA using *CWK* in the future. It is likely that correlations are group-dependent. For example, given the intervention study results, it is possible that relative advantage is important for both NE and EA when adopting a new nutrition education curriculum, but trialability is important for those who will be teaching or have less teaching experience.

Stepwise multiple regression during the formative assessment phase identified simplicity as a predictor of future tasting lesson use. However, during the intervention study, regression identified relative advantage as a predictor of future curriculum use. These divergent findings are likely due to audience differences; the formative assessment study consisted of a larger, more heterogeneous national audience compared to intervention study participants. Additionally, in the intervention study, summated scales for relative advantage were negatively correlated with the number of *CWK* tasting lessons delivered suggesting that NE who preferred the traditional program implemented more of the *CWK* lessons. This contrary finding may be best explained by the fact that throughout the intervention *CWK* was framed as a compatible program with the existing program as opposed to being in competition with the existing program. Due to these divergent findings, further testing is needed to determine the potential of this tool to predict future curriculum use.

### **Conclusions**

Results indicate that a 20-item survey could be used to measure attitudes relevant to nutrition education curriculum adoption and implementation. With further research, the survey has potential use for predicting adoption and implementation of nutrition education curricula. Perceived relative advantage, simplicity, compatibility, and trialability are important attributes that should be maximized when introducing new curricula to potential adopters. However, further testing is needed to determine the potential of these perceived attributes to predict curriculum use.

This study highlights several curriculum attributes desirable for nutrition education. Nutrition education curricula for use in schools should incorporate experiential

“hands-on” components such as food preparation or other participatory activities that engage students’ senses and incorporate learning opportunities in a variety of school subjects. User-friendly curricula that incorporate handouts, worksheets, and activities in an easy to use format such as in a three-ring binder for ease of copying are essential. In addition, barriers to implementation, such as limited resources, should be anticipated. Potential solutions to common barriers should be provided within curricula materials.

The results underscore the importance of combining theory and formative assessment for successful training development and implementation. DOI and SCT were used as the framework for training development and shaped the inclusion of many components including experiential learning, observational learning, and goal-setting. However, without information from formative assessment interviews and surveys, the training would likely have been less effective in achieving the reported results. Although it is perhaps expected that training would increase participant knowledge about a new curriculum and confidence to use it, this study also revealed significant improvement in motivation to use the curriculum. The increase in motivation may be attributed to both formative assessment and theory driven training components such as the user-friendly curriculum, DVDs, experiential lesson demonstration, and framing of the curriculum as compatible with the existing curriculum.

These results also highlight the importance of using appropriate learning techniques for the target audience. In this study, SCT constructs of behavioral capability, self-efficacy, observational learning, and expectancy influenced adoption and implementation of the *CWK* curriculum. DOI perceived attributes of simplicity and compatibility also impacted adoption and implementation. Forethought about potential

challenges and incorporation of problem-solving techniques for common challenges during training may minimize their effects during implementation.

### **Recommendations**

Results indicate that a 20-item DOI perceived attributes survey could be used to measure attitudes relevant to nutrition education curriculum adoption and implementation. However, further testing is needed to determine the potential of these perceived attributes to predict curriculum use.

Recommendations for practitioners who develop or adapt curricula for use in school settings include:

- 1) Aim to include easy to use curricula that offer either a perceived advantage over previous curricula or are perceived as compatible with existing curricula.
- 2) Provide avenues for the curriculum to be used on a trial or pilot basis prior to main implementation and revise the curriculum based on feedback.
- 3) Incorporate experiential components such as food preparation or other participatory activities that engage students' senses and incorporate learning opportunities in a variety of school subjects.
- 4) Include handouts, worksheets, and activities that are in a user-friendly format such as in a three-ring binder for ease of copying.
- 5) Anticipate challenges to implementing nutrition education curricula, including lack of adequate resources. Identify potential solutions, adequate information, and planning time for potential adopters to overcome such challenges.

Recommendations for practitioners who design and conduct training include:

- 1) Use formative assessment to identify target audience needs and strengths. Ask

trainees and their supervisors what an ideal training on the topic would look like, including content, format, length, and location. Incorporate findings into training design and implementation.

- 2) Ideally, pilot the new curriculum or program with a small sample of the target audience prior to the training. Interview pilot participants about their experiences, what went well, what didn't go well, and their suggestions for training. Include their feedback during training.
- 3) Use behavioral change theory or theories, as appropriate, to guide development and evaluation of training.

Recommendations for practitioners wanting to enhance adoption and implementation of curricula by paraprofessional NE include:

- 1) Incorporate behavioral capability, observational learning, and expectancy elements into training. Guided practice and observation of implementation with the target audience are strategies that may increase behavioral capability and self-efficacy. Continued observational learning in the form of DVDs available for NE to view at any time may augment implementation. In addition, supervisor expectations appear to influence paraprofessional NE behavior.
- 2) Maximize perceived attributes of new curricula prior to potential adoption and implementation. To the extent possible, curricula and any related reporting processes should be simplified. Framing the new curriculum as compatible with the existing organizational structure and/or existing curricula may be critical for successful adoption and implementation.

- 3) Supply implementers with potential adaptations and problem-solving techniques to minimize challenges. For example, furnish a list of adaptations for common challenges such as time limitations. Provide a recruitment letter detailing relative advantage, compatibility, and simplicity of new curricula to assist in target audience recruitment.
- 4) Track evidence of and reasons for non-adoption to assist with process evaluation of adoption and implementation strategies.

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**APPENDIX A**

**INSTITUTIONAL REVIEW BOARD APPROVAL LETTERS**

## Notice of Approval for Human Research

**Principal Investigator:** Leslie Cunningham-Sabo, FSHN, 1571  
**Co-PI:** Ann Diker, FSHN, 1571  
**Title:** Cooking with Kids Training and Dissemination  
**Protocol #:** 08-042H      **Funding Source:** USDA  
**Number of Participants/Records:** 313 secondary data records  
**Committee Action:** **Approval Date:** March 29, 2008      **Expires:** February 26, 2009  
**IRB Administrator:** Janell Barker *Janell Barker*

### **Consent Process:**

Because of the nature of this research, it will not be necessary to obtain a signed consent form. Consent is waived under § \_\_.116 (d) as data are anonymous.

### **Investigator Responsibilities:**

- It is the responsibility of the PI to immediately inform the Committee of any serious complications, unexpected risks, or injuries resulting from this research.
- It is also the PI's responsibility to notify the Committee of any changes in experimental design, participant population, consent procedures or documents. This can be done with a memo describing the changes and submitting any altered documents.
- Students serving as Co-Principal Investigators must obtain PI approval for any changes prior to submitting the proposed changes to the IRB for review and approval.
- The PI is ultimately responsible for the conduct of the project.
- A status report of this project will be required within a 12-month period from the date of review. Renewal is the PI's responsibility, but as a courtesy, a reminder will be sent approximately two months before the protocol expires. The PI will be asked to report on the numbers of subjects who have participated this year and project-to-date, problems encountered, and provide a verifying copy of the consent form or cover letter used. The necessary continuation form (H-101) is available from the RICRO web page <http://ricro.research.colostate.edu>.
- Upon completion of the project, an H-101 should be submitted as a close-out report.
- If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice. This approval is issued under Colorado State University's OHRP Federal Wide Assurance 00000647.
- **Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.**

Please direct any questions about the Committee's action on this project to me for routing to the Committee. Additional information is available from the Regulatory Compliance web site at <http://ricro.research.colostate.edu>.

Date of Correspondence: 4/8/08



Research Integrity & Compliance Review Office  
Office of Vice President for Research  
Fort Collins, CO 80523-2011  
(970) 491-1553  
FAX: (970) 491-2293

## Notice of Approval for Human Research

**Principal Investigator:** Leslie Cunningham-Sabo, FSHN, 1571  
**Co-PI:** Ann Diker, FSHN, 1571  
**Title:** Cooking with Kids Training & Dissemination  
**Protocol #:** 06-158H  
**Funding Source:** USDA

**Number of Participants/Records:** 130 interviews  
**Board Action:** **Approval Date:** July 9, 2008 **Expires:** June 30, 2009

**IRB Administrator:** Janell Barker *Janell Barker*

### **Consent Process:**

The above-referenced project was approved by the Institutional Review Board with the condition that the attached consent form is signed by the subjects and each subject is given a copy of the form. *NO changes may be made to this document without first obtaining the approval of the IRB.*

### **Condition:**

Approval is for the interview phase only; material for the survey portion must be submitted for review and approval prior to implementation.

### **Investigator Responsibilities:**

- It is the PI's responsibility to obtain this consent form from all subjects.
- It is the responsibility of the PI to immediately inform the IRB of any serious complications, unexpected risks, or injuries resulting from this research.
- It is also the PI's responsibility to notify the IRB of any changes in experimental design, participant population, consent procedures or documents. This can be done with a memo describing the changes and submitting any altered documents.
- Students serving as Co-Principal Investigators must obtain PI approval for any changes prior to submitting the proposed changes to the IRB for review and approval.
- The PI is ultimately responsible for the conduct of the project.
- A status report of this project will be required within a 12-month period from the date of review. Renewal is the PI's responsibility, but as a courtesy, a reminder will be sent approximately two months before the protocol expires. The PI will be asked to report on the numbers of subjects who have participated this year and project-to-date, problems encountered, and provide a verifying copy of the consent form or cover letter used. The necessary continuation form (H-101) is available from the RICRO web page <http://ricro.research.colostate.edu>.
- Upon completion of the project, an H-101 should be submitted as a close-out report.
- If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice.
- **Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.**

This approval is issued under Colorado State University's OHRP Federal Wide Assurance 00000647. Please direct any questions about the IRB's action on this project to me for routing to the IRB.

Attachment      Date of Correspondence: 7/16/08

Animal Care and Use · Drug Review · Human Research · Institutional Biosafety  
321 General Services Building · <http://ricro.research.colostate.edu>

Research Integrity & Compliance Review Office  
Office of the Vice President for Research  
321 General Services Building - Campus Delivery 2011  
Fort Collins, CO  
TEL: #(970) 491-1553  
FAX: #(970) 491-2233

**NOTICE OF APPROVAL FOR HUMAN RESEARCH**

**DATE:** May 19, 2009  
**TO:** Cunningham-Sabo, Leslie , Food Sci. & Human Nutrition  
Diker, Ann , Food Sci. & Human Nutrition, Melby, Christopher , Food Sci. & Human Nutrition, Swiss, Evelyn ,  
RICRO, Gutilla, Molly, RICRO  
**FROM:** Janell Barker, CSU IRB 1  
**PROTOCOL TITLE:** Cooking with Kids Training and Dissemination  
**FUNDING SOURCE:** US Department of Agriculture  
**PROTOCOL NUMBER:** 09-956H  
**APPROVAL PERIOD:** Approval Date: May 19, 2009 Expiration Date: June 30, 2009

The CSU Institutional Review Board (IRB) for the protection of human subjects has reviewed the protocol entitled: Cooking with Kids Training and Dissemination. The project has been approved for the procedures and subjects described in the protocol. This protocol must be reviewed for renewal on a yearly basis for as long as the research remains active. Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.

If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice.

This approval is issued under Colorado State University's Federal Wide Assurance 00000647 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under CSU's Assurance, please do not hesitate to contact us.

Please direct any questions about the IRB's actions on this project to:

Janell Barker, Senior IRB Coordinator - (970) 491-1655 [Janell.Barker@Research.Colostate.edu](mailto:Janell.Barker@Research.Colostate.edu)  
Evelyn Swiss, IRB Coordinator - (970) 491-1381 [Evelyn.Swiss@Research.Colostate.edu](mailto:Evelyn.Swiss@Research.Colostate.edu)

Janell Barker

Includes: Amendment includes adding a face validity group interview with 15 paraprofessional nutrition educators using the new recruitment script, survey, interview protocol and consent form.

---

**Approval Period:** May 19, 2009 through June 30, 2009  
**Review Type:** FULLBOARD  
**IRB Number:** 00000202  
**Funding:** US Department of Agriculture

Notes: Please use the consent form in eProtocol as it has the CSU approval date added.

Research Integrity & Compliance Review Office  
Office of the Vice President for Research  
321 General Services Building - Campus Delivery 2011  
Fort Collins, CO  
TEL: #(970) 491-1553  
FAX: #(970) 491-2233

#### NOTICE OF APPROVAL FOR HUMAN RESEARCH

**DATE:** June 02, 2009  
**TO:** Cunningham-Sabo, Leslie , Food Sci. & Human Nutrition  
Diker, Ann , Food Sci. & Human Nutrition, Melby, Christopher , Food Sci. & Human Nutrition, Swiss, Evelyn ,  
RICRO, Gullia, Molly, RICRO  
**FROM:** Janell Barker, CSU IRB 1  
**PROTOCOL TITLE:** Cooking with Kids Training and Dissemination  
**FUNDING SOURCE:** US Department of Agriculture  
**PROTOCOL NUMBER:** 09-956H  
**APPROVAL PERIOD:** Approval Date: June 02, 2009 Expiration Date: June 30, 2009

The CSU Institutional Review Board (IRB) for the protection of human subjects has reviewed the protocol entitled: Cooking with Kids Training and Dissemination. The project has been approved for the procedures and subjects described in the protocol. This protocol must be reviewed for renewal on a yearly basis for as long as the research remains active. Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.

If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice.

This approval is issued under Colorado State University's Federal Wide Assurance 00000647 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under CSU's Assurance, please do not hesitate to contact us.

Please direct any questions about the IRB's actions on this project to:

Janell Barker, Senior IRB Coordinator - (970) 491-1655 [Janell.Barker@Research.Colostate.edu](mailto:Janell.Barker@Research.Colostate.edu)  
Evelyn Swiss, IRB Coordinator - (970) 491-1381 [Evelyn.Swiss@Research.Colostate.edu](mailto:Evelyn.Swiss@Research.Colostate.edu)

Janell Barker

Includes: Amendment is to survey 60 paraprofessionals and 30 supervisors using the revised survey and electronic cover letter.

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**Approval Period:** June 02, 2009 through June 30, 2009

Page: 1

Research Integrity & Compliance Review Office  
Office of the Vice President for Research  
321 General Services Building - Campus Delivery 2011  
Fort Collins, CO  
TEL: # (970) 491-1553  
FAX: # (970) 491-2233

**NOTICE OF APPROVAL FOR HUMAN RESEARCH**

**DATE:** July 18, 2009  
**TO:** Cunningham-Sabo, Leslie, Food Sci. & Human Nutrition  
Diker, Ann, Food Sci. & Human Nutrition, Melby, Christopher, Food Sci. & Human Nutrition, Swiss, Evelyn,  
RICRO, Gutilla, Molly, RICRO  
**FROM:** Barker, Janell, CSU IRB 1  
**PROTOCOL TITLE:** Cooking with Kids Training and Dissemination  
**FUNDING SOURCE:** US Department of Agriculture  
**PROTOCOL NUMBER:** 09-956H  
**APPROVAL PERIOD:** Approval Date: June 30, 2009 Expiration Date: June 29, 2010

The CSU Institutional Review Board (IRB) for the protection of human subjects has reviewed the protocol entitled: Cooking with Kids Training and Dissemination. The project has been approved for the procedures and subjects described in the protocol. This protocol must be reviewed for renewal on a yearly basis for as long as the research remains active. Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.

If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice.

This approval is issued under Colorado State University's Federal Wide Assurance 00000647 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under CSU's Assurance, please do not hesitate to contact us.

Please direct any questions about the IRB's actions on this project to:

Janell Barker, Senior IRB Coordinator - (970) 491-1655 [Janell.Barker@Research.Colostate.edu](mailto:Janell.Barker@Research.Colostate.edu)  
Evelyn Swiss, IRB Coordinator - (970) 491-1381 [Evelyn.Swiss@Research.Colostate.edu](mailto:Evelyn.Swiss@Research.Colostate.edu)

Barker, Janell

Includes: Approval is for the remaining 166 participants. The above-referenced project was approved by the Institutional Review Board with the condition that the approved consent form is signed by the subjects and each subject is given a copy of the form. NO changes may be made to this document without first obtaining the approval of the IRB.

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**Approval Period:** June 30, 2009 through June 29, 2010  
**Review Type:** EXPEDITED  
**IRB Number:** 00000202  
**Funding:** US Department of Agriculture

Research Integrity & Compliance Review Office  
Office of the Vice President for Research  
321 General Services Building - Campus Delivery 2011  
Fort Collins, CO  
TEL: #(970) 491-1553  
FAX: #(970) 491-2233

#### NOTICE OF APPROVAL FOR HUMAN RESEARCH

**DATE:** August 06, 2009  
**TO:** Cunningham-Sabo, Leslie, Food Sci. & Human Nutrition  
Diker, Ann, Food Sci. & Human Nutrition, Melby, Christopher, Food Sci. & Human Nutrition, Swiss, Evelyn,  
RICRO, Gullia, Molly, RICRO  
**FROM:** Barker, Janell, CSU IRB 1  
**PROTOCOL TITLE:** Cooking with Kids Training and Dissemination  
**FUNDING SOURCE:** US Department of Agriculture  
**PROTOCOL NUMBER:** 09-956H  
**APPROVAL PERIOD:** Approval Date: August 06, 2009 Expiration Date: June 29, 2010

The CSU Institutional Review Board (IRB) for the protection of human subjects has reviewed the protocol entitled: Cooking with Kids Training and Dissemination. The project has been approved for the procedures and subjects described in the protocol. This protocol must be reviewed for renewal on a yearly basis for as long as the research remains active. Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.

If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice.

This approval is issued under Colorado State University's Federal Wide Assurance 00000647 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under CSU's Assurance, please do not hesitate to contact us.

Please direct any questions about the IRB's actions on this project to:

Janell Barker, Senior IRB Coordinator - (970) 491-1655 [Janell.Barker@Research.Colostate.edu](mailto:Janell.Barker@Research.Colostate.edu)  
Evelyn Swiss, IRB Coordinator - (970) 491-1381 [Evelyn.Swiss@Research.Colostate.edu](mailto:Evelyn.Swiss@Research.Colostate.edu)

Barker, Janell

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**Approval Period:** August 06, 2009 through June 29, 2010  
**Review Type:** EXPEDITED  
**IRB Number:** 00000202  
**Funding:** US Department of Agriculture

**NOTICE OF APPROVAL FOR HUMAN RESEARCH**

**DATE:** April 26, 2010  
**TO:** Cunningham-Sebo, Leslie, Food Sci. & Human Nutrition  
DiKar, Ann, Food Sci. & Human Nutrition, Malby, Christopher, Food Sci. & Human Nutrition, Swiss, Evelyn, RICRO,  
Gutilla, Molly, RICRO  
**FROM:** Barker, Janell, CSU IRB 1  
**PROTOCOL TITLE:** Cooking with Kids Training and Dissemination  
**FUNDING SOURCE:** US Department of Agriculture  
**PROTOCOL NUMBER:** 09-956H  
**APPROVAL PERIOD:** Approval Date: April 26, 2010 Expiration Date: June 29, 2010

The CSU Institutional Review Board (IRB) for the protection of human subjects has reviewed the protocol entitled: Cooking with Kids Training and Dissemination. The project has been approved for the procedures and subjects described in the protocol. This protocol must be reviewed for renewal on a yearly basis for as long as the research remains active. Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.

If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice.

This approval is issued under Colorado State University's Federal Wide Assurance 00000647 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under CSU's Assurance, please do not hesitate to contact us.

Please direct any questions about the IRB's actions on this project to:

Janell Barker, Senior IRB Coordinator - (970) 491-1655 [Janell.Barker@Research.Colostate.edu](mailto:Janell.Barker@Research.Colostate.edu)  
Evelyn Swiss, IRB Coordinator - (970) 491-1381 [Evelyn.Swiss@Research.Colostate.edu](mailto:Evelyn.Swiss@Research.Colostate.edu)

Barker, Janell

**Includes:**

The amendment is to add two interview guides for follow-up questions from 25 earlier participants who have consented to be contacted again for this portion of the research.

**NOTICE OF APPROVAL FOR HUMAN RESEARCH**

**DATE:** May 21, 2010  
**TO:** Cunningham-Sabo, Leslie, Food Sci. & Human Nutrition  
Diker, Ann, Food Sci. & Human Nutrition, Malby, Christopher, Food Sci. & Human Nutrition, Swiss, Evelyn, RICRO,  
Gutilla, Molly, RICRO  
**FROM:** Barker, Janell, CSU IRB 1  
**PROTOCOL TITLE:** Cooking with Kids Training and Dissemination  
**FUNDING SOURCE:** US Department of Agriculture  
**PROTOCOL NUMBER:** 09-956H  
**APPROVAL PERIOD:** Approval Date: May 20, 2010 Expiration Date: June 29, 2010

The CSU Institutional Review Board (IRB) for the protection of human subjects has reviewed the protocol entitled: Cooking with Kids Training and Dissemination. The project has been approved for the procedures and subjects described in the protocol. This protocol must be reviewed for renewal on a yearly basis for as long as the research remains active. Should the protocol not be renewed before expiration, all activities must cease until the protocol has been re-reviewed.

If approval did not accompany a proposal when it was submitted to a sponsor, it is the PI's responsibility to provide the sponsor with the approval notice.

This approval is issued under Colorado State University's Federal Wide Assurance 00000647 with the Office for Human Research Protections (OHRP). If you have any questions regarding your obligations under CSU's Assurance, please do not hesitate to contact us.

Please direct any questions about the IRB's actions on this project to:

Janell Barker, Senior IRB Coordinator - (970) 491-1655 [Janell.Barker@Research.Colostate.edu](mailto:Janell.Barker@Research.Colostate.edu)  
Evelyn Swiss, IRB Coordinator - (970) 491-1381 [Evelyn.Swiss@Research.Colostate.edu](mailto:Evelyn.Swiss@Research.Colostate.edu)

Barker, Janell

**Includes:**

The amendment approval is to analyze anonymous secondary data from the research partners, NMSU, to gain more information about the CWK curriculum.



**APPENDIX B**

**NUTRITION EDUCATION CURRICULUM SURVEY QUESTIONS**

1. How do you generally find out about new nutrition education curricula?
2. When I am considering new nutrition education materials, one important factor is seeing that they are designed for the intended audience.
3. Prior research is not important in determining if nutrition education materials are a good fit.
4. Before I adopt a new curriculum, it must be clear that the lessons are culturally appropriate.
5. The needs of the audience are key to determining if nutrition education curriculum will work.
6. Hands-on food preparation is important in curriculum designed to teach healthy eating habits.
7. Nutrition education curriculum for children must be aligned with Academic Standards for me to use them.
8. Nutrition education curricula do not need to be aimed at achieving specific behavior changes.
9. Nutrition education materials that are available in different languages are more useful than materials only available in English.
10. Hands-on activities work better in teaching nutrition education than didactic methods.
11. A series of nutrition education lessons is not necessarily better than one or two lessons.
12. Cooking activities that incorporate other kinds of learning into nutrition education are important to me.
13. The latest methods in nutrition education are better than old methods.
14. Hands-on activities work better in teaching nutrition education than lecturing.
15. Nutrition education curricula need to show positive outcomes.
16. Clear directions are important in good nutrition education lessons.
17. A teacher's manual is an important component of nutrition education curricula.
18. Nutrition education curriculum does not need to be easy to use.
19. It is important that nutrition education curriculum specify all of the materials needed for each lesson.
20. Lessons plans need to be easy to follow.
21. Asking another teacher to review new curriculum is a good way to see if it will be easy to implement.
22. Materials need to be readily available to implement nutrition education lessons.
23. An attractive format makes me want to try out a new curriculum.
24. I like nutrition education lessons that are downloadable from the internet.
25. It is helpful to be able to pilot new lessons before purchasing a whole curriculum.
26. Clear directions make new nutrition education curricula easy to try out.
27. It is fun to have a group of teachers trying out new curricula together.
28. Materials don't need to be easy to read for me to be interested in trying them out.

29. Sample units make nutrition education curricula easy to try out.
30. It is important for me to be able to see a nutrition education lesson in action.
31. A video demonstrating use of nutrition education lessons is a good way for me to learn about new curricula.
32. It is not important to see how a curriculum works before I try it.
33. Demonstrations of components of nutrition education curricula can show how a curriculum works.
34. Reading about a nutrition education curriculum is not the same as seeing it implemented.
35. Hearing from someone who uses a curriculum is just as good as seeing it in action.
36. Seeing nutrition education lessons implemented in a school is the only way that I can know that they work.
37. The internet is the best way for me to access new nutrition education curricula.
38. Cost is not one of the top considerations for choosing nutrition education curricula.
39. I would definitely try a curriculum if it were free.
40. I need to be able to talk with the people who developed the curriculum and be assured that they have time to answer my questions.
41. I am comfortable downloading lessons from the internet.
42. I would rather order a hard copy of nutrition education curriculum than have to download lessons.
43. School district policies are important to being able to access and implement nutrition education curricula.
44. I am generally cautious about accepting new ideas.
45. I rarely trust new ideas until I can see whether the vast majority of people around me accept them.
46. I am aware that I am usually one of the last people in my group to accept something new.
47. I am reluctant about adopting new ways of doing things until I see them working for people around me.
48. I find it stimulating to be original in my thinking and behavior.
49. I tend to feel that the old way of living and doing things is the best way.
50. I am challenged by ambiguities and unsolved problems.
51. I must see other people using new innovations before I will consider them.
52. I am challenged by unanswered questions.
53. I often find myself skeptical of new ideas.
54. I get nervous when I have to find information on the Internet.
55. New computer accessories such as scanners, web cameras or voice recognition are confusing and frightening to me.
56. I feel nervous and anxious about keeping up with new information technology.
57. I get irritated and restless learning about complicated, new information technology.

58. It makes me tense and agitated when people are discussion information technology.
59. I am terrified when using information technology that I have never used before.
60. I hate it that things are becoming so complex with technology.
61. I feel comfortable and confident in my ability to deal with new, complex information technology.
62. It is annoying that I am expected to understand and like computers just like everyone else.
63. It is frightening that everyone else is adapting to information technology better than I am.
64. When receiving complex technology-related information, I am afraid I will misinterpret it.
65. Which of the following best describes you?
66. Which state do you live in? If you do not live in the United States, please list your location.
67. What is your gender?
68. What is your age?
69. How did you learn about the Cooking with Kids' website?
70. How easy was it for you to register and access the free lessons on the website?
71. Please rate the importance of the following factors that led you to download the tasting lessons:
  - Lessons appeared easy to implement
  - Program had good reputation
  - Lessons tailored for different ages of students
  - Lessons in Spanish
  - No cost
  - Looking for nutrition education materials
  - Looking for hands-on nutrition education activity
72. Which lessons did you download? Please check all that apply.
73. Which grade levels did you download?
74. Have you implemented any of the lessons?
75. Which lessons did you use? Please check all that apply.
76. What was the age of most of the children who participated in your tasting lessons?
77. Which language did you use?
78. How many times did you use the lessons?
79. Where did you primarily use the lessons?
80. When did you primarily use the lessons?
81. How did you get the food for the tasting lessons? Please check all that apply.
82. How much effort did implementing the lessons require?
83. Did you use tasting lessons to meet Education Department Performance Standards?
84. If yes, which type of Standards or Benchmarks were met?

85. Please use this space for your comments about what worked and/or didn't work about the lessons:
86. Do you plan to use the lessons in the future?
87. How many people have you told about the Cooking with Kids website?
88. Who did you tell? Please check all that apply to answer this question.
89. How did you communicate information about the lessons? Please check all that apply.
90. Do you believe that anyone else in your organization is planning to use the tasting lessons?
91. Would you be willing to be contacted for a follow-up telephone interview?
92. If you answered, "Yes", please provide your name, email address, preferred telephone number, and time of day you wish to be contacted.

**APPENDIX C**

**FRUIT AND VEGETABLE TASTING SURVEY QUESTIONS**

1. Which of the following best describes you?
2. Which state do you live in? If you do not live in the United States, please list your location.
3. What is your gender?
4. How old are you?
5. How did you hear about the Cooking with Kids' website?
6. What three words would you use to describe the website?
7. How easy was it for you to register and access the free Tasting lessons on the website?
8. Please rate the importance of the following factors in your choosing to download the tasting lessons:
  - Lessons appeared easy to implement
  - Program had good reputation
  - Lessons tailored for different ages of students
  - Lessons in Spanish
  - Free cost
  - I was looking for nutrition education materials
9. Which lessons did you download?
10. Which grade levels did you download?
11. Have you used any of the Tasting lessons?
12. Which lessons have you used?
13. How old were the children who participated in the Tasting lessons?
14. Which language did you use?
15. What size groups did you use the lessons with?
16. How many times did you use the lessons?
17. Where did you use the lessons?
18. When did you use the lessons?
19. How did you get the food for the tasting lessons?
20. How long did you spend doing a Tasting lesson?
21. Did you use Tasting lessons to meet Education Department academic standards?
22. If yes, which type of Standards or Benchmarks were met?
23. Please use this space for your comments about what worked and/or didn't work about the lessons:
24. How would you rate the lessons overall?
25. How many people have you told about the Cooking with Kids website?
26. Who did you tell about the website?
27. Please comment on the ease of use of the website or any aspect of the curriculum.
28. Would you be willing to be contacted for a follow-up telephone interview?
29. If you answered, "Yes", please provide your email address, preferred telephone number, and time of day you wish to be contacted.

**APPENDIX D**

**FORMATIVE ASSESSMENT INTERVIEW GUIDE – CWK USERS**

## Other CWK Users Interview Guide

Date of Interview: \_\_\_\_\_ Interviewer: \_\_\_\_\_

School/Org.: \_\_\_\_\_ Geographic Location: \_\_\_\_\_

Interviewee's Name: \_\_\_\_\_ Race/Ethnicity: \_\_\_\_\_

Interviewee's Position: \_\_\_\_\_ Length of time in position: \_\_\_\_\_

Age: \_\_\_\_\_ Gender: \_\_\_\_\_ Highest level of education: \_\_\_\_\_

Type of Interview (circle one): Telephone Face-to-face

### A. Introduction/Background

My name is Ann Diker and I am a graduate student in Nutrition at Colorado State University. We are working with Cooking with Kids to learn more about how nutrition education curricula are implemented in new settings. You responded to an on-line survey about Cooking with Kids and you indicated that you would be willing to participate in a follow-up telephone interview. (We are interested in speaking with you because you purchased a Cooking with Kids Curriculum Guide.) In order to improve the distribution and training of the curriculum in new settings, we are interested in hearing about your experiences with the curriculum and any suggestions that you may have for dissemination and training.

The interview will take about 15-20 minutes. I would like to know if you would be willing to be interviewed. Even if you agree, you will not have to answer a question if you do not want to. You may also choose to stop the interview at any time.

Would you like to participate in this telephone interview?

*If no, thank participant for their time.*

*If yes, continue asking the following questions:*

May I tape record the interview? It is not a requirement, but it would help make sure that I do not forget anything you say. Your name will not be recorded or used in any reports. The interview data will be destroyed within 3 years of the study being completed.

Do you have any questions before we begin the interview?

If you have questions about the study you can contact Leslie Cunningham-Sabo at (970) 491-6791 or Ann Diker at (970) 412-8198. If you have questions about your rights as a volunteer in this research contact Janell Barker at (970) 491-1655.

## B. Interview Questions

1. Could you briefly describe your current position and major job duties?
2. How did you hear about the Cooking with Kids curriculum and program? (probe to understand why they thought this program would meet their needs)
3. How have you used Cooking with Kids since you obtained the tasting lessons and/or curriculum? (probe to understand the processes/meetings that have occurred and how much of the curriculum has been used, probe those that took the tasting survey to see if they went on to buy the CWK curriculum and why/why not)

If you have not actually started using the curriculum, do you have any plans to use it in the future? (probe for whether participant has set a date to begin using it)  
*(skip to question #7 if the respondent has not used the curriculum)*

4. Please tell me about any changes that you have made to the curriculum as you have used it (or changes that you anticipate making). (probe to understand whether changes were to make it easier for the teacher/school or more effective for the students)
5. What pieces of CWK do you find to be essential? (probe for both content and processes)
6. What do you think CWK has accomplished (or will accomplish) in your school? (probe to find out if they are conducting a formal evaluation of the project)
7. Based on what you've said so far, would you categorize yourself/your organization as a frequent or infrequent user of CWK?
8. What barriers or concerns about doing Cooking with Kids have you experienced? (probe for school- and community-level barriers)
9. What things have helped you (or could help you) do Cooking with Kids? (probe for training – individual vs. team training, technical assistance)
10. Do you have any recommendations for improving Cooking with Kids?
11. Do you have any recommendations for improving how CWK is shared with other people? (probe for entire programs vs. parts of program disseminated, challenges to dissemination)
12. If you are currently using CWK, what do you think it will take to make the program long-standing in your setting? (probe for any community partnerships, funding, volunteers, etc.)
13. Is there anything else you would like to share?

Thank you, this has been very helpful!

**APPENDIX E**

**FORMATIVE ASSESSMENT INTERVIEW GUIDE – NMCE CES STAFF**

## New Mexico Cooperative Extension Interview Guide

Date of Interview: \_\_\_\_\_ Interviewer: \_\_\_\_\_

County: \_\_\_\_\_ Interviewee's Name: \_\_\_\_\_

Interviewee's Position: \_\_\_\_\_ Race/Ethnicity: \_\_\_\_\_

Length of time in position: \_\_\_\_\_ Age: \_\_\_\_\_

Gender: \_\_\_\_\_ Highest level of education: \_\_\_\_\_

Type of Interview (circle one): Telephone                      Face-to-face

### A. Introduction/Background

My name is Ann Diker and I am a graduate student in Nutrition at Colorado State University. We are trying to learn more about how nutrition education curricula are disseminated and implemented in new settings. We are interested in speaking with you because you provide or supervise nutrition education efforts in New Mexico through Cooperative Extension. In order to improve the distribution and training of nutrition education curricula in new settings, we are interested in hearing about your experiences with the training and implementation of nutrition education curricula.

The interview will take about 15-20 minutes. I would like to know if you would be willing to be interviewed. Even if you agree, you will not have to answer a question if you do not want to. You may also choose to stop the interview at any time.

Would you like to participate in this telephone interview?

*If no, thank participant for their time.*

*If yes, continue asking the following questions:*

May I tape record the interview? It is not a requirement, but it would help make sure that I do not forget anything you say. Your name will not be recorded or used in any reports. The interview data will be destroyed within 3 years of the study being completed.

Do you have any questions before we begin the interview?

If you have questions about the study you can contact Leslie Cunningham-Sabo at (970) 491-6791 or Ann Diker at (970) 412-8198. If you have questions about your rights as a volunteer in this research contact Janell Barker at (970) 491-1655.

## B. Interview Questions

1. Tell me about a training or workshop that you found helpful/useful. (probe for effective elements – interactivity, discussion, practice, role-playing, etc.)
  - a. Were you able to use all, some or none of the information you were trained on? Tell me more about that. (probe for reasons for level of implementation)
2. Tell me about a nutrition education curriculum that you currently use.
  - a. What made you decide to use it over a different curriculum? (probe for name of curriculum, amount of training received, type of training – didactic vs. interactive, support available from community, work, curriculum developer, cost of curriculum materials, cost of supplies to supplement curriculum)
  - b. What are its pros and cons?
3. Tell me about a nutrition education curriculum that you recently decided to not use. What made you decide to not use it?
4. Have you ever modified/adapted a curriculum to better fit your needs? Tell me about the changes you made and why you made them.
5. What would an ideal training on a new curriculum look like?
  - a. What would be covered? (probe for overview of program, lesson content, how curriculum fits with NM Content Standards and/or FSNE goals, value of program, evaluation component, technical support)
  - b. What format would the training follow? (face-to-face, desktop training, CD that could be done at own pace, combination of formats, other)
  - c. Would a team approach be useful or not useful? (nutrition educator + classroom teacher + food service manager)
  - d. How long would training last?
  - e. What day(s) of the week would the training be?
  - f. Where would the training be?
6. Is there anything else you would like to share?

Thank you, this has been very helpful!

**APPENDIX F**

**INFORMED CONSENT – TRAINING INTERVENTION**

**Consent to Participate in a Research Study  
Colorado State University**

**TITLE OF STUDY:** Cooking with Kids Training and Dissemination

**PRINCIPAL INVESTIGATOR:** LESLIE CUNNINGHAM-SABO,  
[LCSABO@CAHS.COLOSTATE.EDU](mailto:LCSABO@CAHS.COLOSTATE.EDU), (970) 491-6791

**CO-PRINCIPAL INVESTIGATOR:** ANN DIKER, [DIKER@MSCD.EDU](mailto:DIKER@MSCD.EDU), (970) 412-8198

**WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH?** We are interested in your opinions about the *Cooking with Kids (CWK)* portion of the Regional Meeting and how the process of implementing *CWK* tasting lessons works for you in your county over the next 9 months. You are being asked to participate because you are attending a Regional Meeting where *CWK* tasting lessons are being introduced.

**WHO IS DOING THE STUDY?** The study is being done by Colorado State University (CSU) with money provided by the United States Department of Agriculture (USDA).

**WHAT IS THE PURPOSE OF THIS STUDY?** The purpose of the study is to evaluate the *CWK* training and identify strategies and practices that help paraprofessional nutrition educators and their supervisors implement a new nutrition education program.

**WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?** The study will take place at the Regional Meeting as well as your office. The study will last 9 months, but the total amount of time spent by you for this study is expected to be about 2 hours.

**WHAT WILL I BE ASKED TO DO?** You will be asked to take a total of 3 surveys over the next 9 months. The first survey will be taken at the end of the Regional Meeting, the second survey will be emailed to you in December, 2009, and the 3<sup>rd</sup> survey will be emailed to you in April, 2010. You will also be asked to fill out a *CWK* Tasting Report every time you teach a *CWK* tasting lesson. Some people may also be asked to participate in a telephone interview in May, 2010.

**ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY?** None that are known to us.

**WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?** There are no known risks to participating in this study. It is not possible to identify all potential risks in research procedures, but the researchers have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

**ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY?** There are no direct benefits to participating in this study. However, the information gathered during this study will help improve training sessions which may benefit you in the future. The information gathered will also identify strategies that help nutrition educators implement a new program which may benefit nutrition educators and their supervisors throughout the United States.

**DO I HAVE TO TAKE PART IN THE STUDY?** Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

Page 1 of 2 Participant's initials \_\_\_\_\_ Date \_\_\_\_\_



**APPENDIX G**

**TRAINING INTERVENTION AGENDA**

# Cooking with Kids

*hands-on food and nutrition education for a healthy future*

## **2009 CWK Tasting Training for NM Extension Home Economists & Educators**

*Set up room in groups ready for tastings*

- |                   |  |
|-------------------|--|
| 9:00am — 9:15am   | Introduction: Linda Wells and Kari Bachman –<br>How CWK fits into kldsCAN  |
| 9:15am — 9:35am   | PowerPoint overview of CWK program and Tasting lessons:<br>Lynn and Jane, with Linda & Kari talking about their slides at the end of<br>the presentation                   |
| 9:35am — 9:50am   | NM Pilot Counties report (5 minutes each)  |
| 9:50am — 10:15am  | Ann Diker – overview of research and provide consent forms   |
| 10:15am — 10:30am | Break<br>Hand out Binders & Implementation Guide   |
| 10:30am — 11:45am | Review Binder and Handouts: Jane<br>View 10 minute video<br>Hands-on Tastings in groups: Lynn & Jane<br>– encourage pilot educators to take leadership role in their group |
| 11:45am — noon    | Debrief: Lynn & Jane – share how tastings worked   |
| Noon — 12:15pm    | Post-training survey: Ann Diker  |
| 12:15pm — 12:30   | Questions and Wrap Up: Linda, Kari, Jane, Ann, Lynn (as needed)  |

**APPENDIX H**

**INFORMED CONSENT – FACE VALIDITY**

**Consent to Participate in a Research Study  
Colorado State University**

**TITLE OF STUDY:** Cooking with Kids Training and Dissemination

**PRINCIPAL INVESTIGATOR:** LESLIE CUNNINGHAM-SABO,  
[LCSABO@CAHS.COLOSTATE.EDU](mailto:LCSABO@CAHS.COLOSTATE.EDU), (970) 491-6791

**CO-PRINCIPAL INVESTIGATOR:** ANN DIKER, [DIKER@MSCD.EDU](mailto:DIKER@MSCD.EDU), (970) 412-8198

**WHY AM I BEING INVITED TO TAKE PART IN THIS RESEARCH?** We are interested in speaking with you about how clear and understandable some questions are on a survey we developed. You are being asked about the survey questions because you have a similar job to the people who will take the survey later.

**WHO IS DOING THE STUDY?** The study is being done by Colorado State University (CSU) with money provided by the United States Department of Agriculture (USDA).

**WHAT IS THE PURPOSE OF THIS STUDY?** The purpose of the study is to find out how clear the survey questions are and change questions that are unclear.

**WHERE IS THE STUDY GOING TO TAKE PLACE AND HOW LONG WILL IT LAST?** The study will take place during your staff training meeting at CSU and is expected to last about 60 minutes.

**WHAT WILL I BE ASKED TO DO?** You will be asked questions about what some survey questions mean to you and what parts of the questions were confusing to you.

**ARE THERE REASONS WHY I SHOULD NOT TAKE PART IN THIS STUDY?** None that are known to us.

**WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?** Individuals may experience discomfort when answering some questions. It is not possible to identify all potential risks in research procedures, but the researchers have taken reasonable safeguards to minimize any known and potential, but unknown, risks.

**ARE THERE ANY BENEFITS FROM TAKING PART IN THIS STUDY?** There are no direct benefits to participating in this study.

**DO I HAVE TO TAKE PART IN THE STUDY?** Your participation in this research is voluntary. If you decide to participate in the study, you may withdraw your consent and stop participating at any time without penalty or loss of benefits to which you are otherwise entitled.

**WHO WILL SEE THE INFORMATION THAT I GIVE?** Notes that we take about the survey questions will not include your name. We will make every effort to prevent anyone who is not on the research team from knowing that you gave us information, or what that information is. We will keep private all research records that identify you, to the extent allowed by law. Your information will be combined with information from other people taking part in the study. When we write about the study to share it with other researchers, we will write about the combined information we have gathered. You will not be identified in these written materials. We may publish the results of this study; however, we will keep your name and other identifying information private.

Page 1 of 2 Participant's initials \_\_\_\_\_ Date \_\_\_\_\_

**WILL I RECEIVE ANY COMPENSATION FOR TAKING PART IN THIS STUDY?** No

**WHAT HAPPENS IF I AM INJURED BECAUSE OF THE RESEARCH?** The Colorado Governmental Immunity Act determines and may limit Colorado State University's legal responsibility if an injury happens because of this study. Claims against the University must be filed within 180 days of the injury.

**WHAT IF I HAVE QUESTIONS?** Before you decide whether to accept this invitation to take part in the study, please ask any questions that might come to mind now. Later, if you have questions about the study, you can contact the investigator, Leslie Cunningham-Sabo at 970-491-6791 or the co-investigator, Ann Diker at 970-412-8198. If you have any questions about your rights as a volunteer in this research, contact Janell Barker, Human Research Administrator at 970-491-1655. We will give you a copy of this consent form to take with you.

This consent form was approved by the CSU Institutional Review Board for the protection of human subjects in research on May 19, 2009.

Your signature acknowledges that you have read the information stated and willingly sign this consent form. Your signature also acknowledges that you have received, on the date signed, a copy of this document containing  2  pages.

\_\_\_\_\_  
Signature of person agreeing to take part in the study

\_\_\_\_\_  
Date

\_\_\_\_\_  
Printed name of person agreeing to take part in the study

\_\_\_\_\_  
Name of person providing information to participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Research Staff

## **APPENDIX I**

### **FACE VALIDITY PROTOCOL AND INTERVIEW QUESTIONS**

## **Regional Training Survey Face Validity Protocol and Sample Face Validity Questions**

1. Read recruitment script to group.
2. Hand out consent form.
3. Review consent form and answer any questions.
4. Obtain signed consent from those interested.
5. Hand out Regional Training Survey.
6. Read survey introduction and background.
7. Explain that we're interested in finding out which questions they find confusing or are unsure how to answer.
8. Briefly describe the kidsCAN and CWK curricula. The kidsCAN curriculum is the name of the youth curriculum in New Mexico. Cooking with Kids is a program that does fruit and vegetable tasting classes with kids in schools.
9. Have educators review and complete survey.

Now that you've had a chance to review and complete the survey, let's go through each section. (Ask these questions about items in each section.)

1. Which questions on the survey were you unsure how to answer? Why?
2. Which questions/words were confusing? Why?
3. How well do the response options fit with this question?
4. What does the phrase "Cooking activities that incorporate other kinds of learning" (question #37) mean to you?
5. How could this question be made clearer? (question #4)

**APPENDIX J**

**PRE-TRAINING SURVEY – NUTRITION EDUCATOR**

## Introduction and Background

The purpose of this survey is to learn more about you and your experiences with the *kIdsCAN* and *Cooking with Kids* programs to help us better prepare for the Regional Training in August, 2009. Your answers are important to us and will be kept confidential.

### 1. Which part of your job is most enjoyable to you?

- Delivering nutrition information
- Doing hands-on food preparation activities
- Comment:

### 2. Which part of your job is most enjoyable to you?

- Working with adults
- Working with kids
- Comment:

### 3. If you teach children as part of your current job, please rank the following grade levels from least enjoyable (1) to most enjoyable (6).

	1 (least enjoyable)	2	3	4	5	6 (most enjoyable)
Pre-kindergarten	<input type="radio"/>					
Kindergarten	<input type="radio"/>					
Lower elementary (grades 1-3)	<input type="radio"/>					
Upper elementary (grades 4-5 or 4-6 depending on the school district)	<input type="radio"/>					
Middle school/Junior high (grades 6-8 or 7-8 depending on the school district)	<input type="radio"/>					
High school	<input type="radio"/>					

### 4. In what percentage (%) of your nutrition classes do you teach children?

### 5. In what percentage (%) of your nutrition classes taught to children do the children taste food without doing any hands-on food preparation?

**6. In what percentage (%) of your nutrition classes taught to children do the children prepare and taste food?**

**7. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable),**

	1 (Not at all comfortable)	2	3	4	5	6 (Extremely comfortable)	N/A
How comfortable are you with your own food preparation skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How comfortable are you doing hands-on food preparation activities when teaching nutrition education classes to children?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**8. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot),**

	1 (Do not enjoy at all)	2	3	4	5	6 (Enjoy a lot)	N/A
How much do you enjoy preparing food at home?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy preparing food as part of your job?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy doing hands-on food preparation activities when teaching nutrition education classes to children?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**9. What are your current thoughts/feelings about *kIdsCAN* lessons? Please be as specific as possible.**

**10. What are your current thoughts/feelings about *Cooking with Kids* tasting lessons? Please be as specific as possible.**

**11. What are your biggest concerns about teaching children in a 4th grade classroom?**

**12. What are your biggest concerns about teaching *Cooking with Kids* tasting lessons?**

**13. On a scale of 1 (not at all) to 6 (extremely),**

	1 (Not at all)	2	3	4	5	6 (Extremely)
How <u>knowledgeable</u> are you about teaching a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <u>confident</u> are you with conducting a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <u>motivated</u> are you to use the <i>Cooking with Kids</i> tasting lessons for future classes?	<input type="radio"/>					

**14. When thinking about the information and skills you need to teach a *Cooking with Kids* tasting lesson, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
I have enough information right now to teach a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I have the appropriate communication/language skills needed to effectively manage a classroom full of 4th graders.	<input type="radio"/>					
I feel confident that I can adjust the activities in a <i>Cooking with Kids</i> tasting lesson to fit the amount of time allowed to teach the lesson.	<input type="radio"/>					
I am able to purchase and transport different fruits and vegetables that are part of a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I feel confident that I can wash and prepare different fruits and vegetables in a variety of settings for a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I really think <i>Cooking with Kids</i> matters. I see kids learning a lot with this program.	<input type="radio"/>					

**15. When deciding which curricula to use to teach nutrition education classes for children, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Clear directions make new nutrition education curricula easy to try out.	<input type="radio"/>				
An attractive format makes me want to try out a new curriculum.	<input type="radio"/>				
It is helpful to be able to pilot new lessons before using a whole curriculum.	<input type="radio"/>				
Demonstrations of nutrition education curricula can show how a curriculum works.	<input type="radio"/>				
It is important that nutrition education curricula specify all of the materials needed for each lesson.	<input type="radio"/>				

**16. When deciding which curricula to use to teach nutrition education classes for children, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Nutrition education curriculum needs to be easy to use.	<input type="radio"/>				
When considering new nutrition education materials, one important factor is seeing that they are designed for the intended audience.	<input type="radio"/>				
A nutrition education curriculum for children must be aligned with the state's Department of Education Academic Standards for me to use it.	<input type="radio"/>				
Before I adopt a new curriculum, it must be clear that the lessons are culturally appropriate.	<input type="radio"/>				
Nutrition education curricula need to be aimed at achieving specific behavior changes.	<input type="radio"/>				

**17. When deciding which curricula to use to teach nutrition education classes for children, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Seeing nutrition education lessons implemented in the appropriate setting (classroom, after school, etc.) is the only way that I can know that they work.	<input type="radio"/>				
Nutrition education materials that are available in different languages that are appropriate for the audience are more useful than materials only available in English.	<input type="radio"/>				
Hands-on activities work better in teaching nutrition education than lecturing.	<input type="radio"/>				
Cooking activities that incorporate other kinds of learning into nutrition education are important for me.	<input type="radio"/>				
It is important to see how a curriculum works before I try it.	<input type="radio"/>				

**18. How many years have you been a Nutrition Educator in New Mexico?**

---

**19. How many years have you been a Nutrition Educator anywhere?**

---

**20. Please indicate your highest level of education:**

- High school/GED
- Some college (< 2 years)
- Associate's degree (2 year degree)
- Bachelor's degree (4 year degree)
- Some graduate school
- Graduate degree
- Other (please specify):

\_\_\_\_\_

**21. With what ethnic group do you identify?**

- Hispanic or Latino
- Not Hispanic or Latino

**22. With what race do you identify? (you may mark more than one response)**

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Other (please specify):

\_\_\_\_\_

**23. What is your gender?**

- Female
- Male

**24. What is your age?**

\_\_\_\_\_

**APPENDIX K**

**PRE-TRAINING SURVEY – EXTENSION AGENT**

## Introduction and Background

The purpose of this survey is to learn more about you and your experiences with the *kIdsCAN* and *Cooking with Kids* programs to help us better prepare for the Regional Training in August, 2009. Your answers are important to us and will be kept confidential.

### 1. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable),

	1 (Not at all comfortable)	2	3	4	5	6 (Extremely comfortable)	N/A
How comfortable are you with your own food preparation skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 2. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot),

	1 (Do not enjoy at all)	2	3	4	5	6 (Enjoy a lot)	N/A
How much do you enjoy preparing food at home?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy preparing food as part of your job?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 3. What are your current thoughts/feelings about *kIdsCAN* lessons? Please be as specific as possible.

### 4. What are your current thoughts/feelings about *Cooking with Kids* tasting lessons? Please be as specific as possible.

### 5. What are your biggest concerns about supervising a Nutrition Educator who is teaching children in a 4th grade classroom?

### 6. What are your biggest concerns about supervising a Nutrition Educator who is teaching *Cooking with Kids* tasting lessons?

**7. On a scale of 1 (not at all) to 6 (extremely),**

	1 (Not at all)	2	3	4	5	6 (Extremely)
How <u>knowledgeable</u> are you about teaching a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <u>confident</u> are you with supervising a Nutrition Educator who is conducting a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <u>motivated</u> is your county to use the <i>Cooking with Kids</i> tasting lessons for future classes?	<input type="radio"/>					

**8. When thinking about the information and skills you need to teach a *Cooking with Kids* tasting lesson, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
I have enough information right now to teach a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I have the appropriate communication/language skills needed to effectively manage a classroom full of 4th graders.	<input type="radio"/>					
I feel confident that I can adjust the activities in a <i>Cooking with Kids</i> tasting lesson to fit the amount of time allowed to teach the lesson.	<input type="radio"/>					
I am able to purchase and transport different fruits and vegetables that are part of a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I feel confident that I can wash and prepare different fruits and vegetables in a variety of settings for a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I really think <i>Cooking with Kids</i> matters. I see kids learning a lot with this program.	<input type="radio"/>					

**9. When deciding which curricula to use to teach nutrition education classes for children, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Clear directions make new nutrition education curricula easy to try out.	<input type="radio"/>				
An attractive format makes me want to try out a new curriculum.	<input type="radio"/>				
It is helpful to be able to pilot new lessons before using a whole curriculum.	<input type="radio"/>				
Demonstrations of nutrition education curricula can show how a curriculum works.	<input type="radio"/>				
It is important that nutrition education curricula specify all of the materials needed for each lesson.	<input type="radio"/>				

**10. When deciding which curricula to use to teach nutrition education classes for children, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Nutrition education curriculum needs to be easy to use.	<input type="radio"/>				
When considering new nutrition education materials, one important factor is seeing that they are designed for the intended audience.	<input type="radio"/>				
A nutrition education curriculum for children must be aligned with the state's Department of Education Academic Standards for me to use it.	<input type="radio"/>				
Before I adopt a new curriculum, it must be clear that the lessons are culturally appropriate.	<input type="radio"/>				
Nutrition education curricula need to be aimed at achieving specific behavior changes.	<input type="radio"/>				

**11. When deciding which curricula to use to teach nutrition education classes for children, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
Seeing nutrition education lessons implemented in the appropriate setting (classroom, after school, etc.) is the only way that I can know that they work.	<input type="radio"/>				
Nutrition education materials that are available in different languages that are appropriate for the audience are more useful than materials only available in English.	<input type="radio"/>				
Hands-on activities work better in teaching nutrition education than lecturing.	<input type="radio"/>				
Cooking activities that incorporate other kinds of learning into nutrition education are important for me.	<input type="radio"/>				
It is important to see how a curriculum works before I try it.	<input type="radio"/>				

**12. How many years have you been a Home Economist in New Mexico?**

---

**13. How many years have you been a Home Economist anywhere?**

---

**14. Please indicate your highest level of education:**

- High school/GED
- Some college (< 2 years)
- Associate's degree (2 year degree)
- Bachelor's degree (4 year degree)
- Some graduate school
- Graduate degree
- Other (please specify):

\_\_\_\_\_

**15. With what ethnic group do you identify?**

- Hispanic or Latino
- Not Hispanic or Latino

**16. With what race do you identify? (you may mark more than one response)**

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- White
- Other (please specify):

\_\_\_\_\_

**17. What is your gender?**

- Female
- Male

**18. What is your age?**

\_\_\_\_\_

**APPENDIX L**

**POST-TRAINING SURVEY – NUTRITION EDUCATOR**

**Regional Meeting Post-Survey  
For Nutrition Educators  
August, 2009**

**Introduction and Background**

The purpose of this survey is to learn how well the *Cooking with Kids (CWK)* portion of the Regional Meeting met your needs to teach CWK tasting lessons. Your answers are important to us and will be kept confidential.

1. Overall, the CWK portion of the Regional Meeting was:

Unacceptable						Excellent
1	2	3	4	5		6

*Comments:*

2. The CWK portion of the Regional Meeting will benefit me in my job:

Not at all					A lot
1	2	3	4	5	6

*Comments:*

3. The CWK portion of the Regional Meeting was:

Very Unclear					Extremely Clear
1	2	3	4	5	6

*Comments:*

4. Please rank each of the resources listed below in order of how helpful you think each resource will be to you when you implement CWK. Put a "1" in the space next to the resource that you think will be the most helpful, put a "2" next to the resource that will be the next most helpful, and so on. Please put a number next to each resource.

_____	Participating in the Regional Meeting	_____	Home Economist
_____	CWK video	_____	Another Nutrition Educator
_____	CWK binder	_____	Other: _____

5. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable), how comfortable are you with your own food preparation skills?

Not at all Comfortable						Extremely Comfortable
1	2	3	4	5	6	

6. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable), how comfortable are you doing hands-on food preparation activities when teaching nutrition education classes to children?

Not at all Comfortable						Extremely Comfortable
1	2	3	4	5	6	

7. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot), how much do you enjoy preparing food at home?

Do not enjoy at all						Enjoy a lot
1	2	3	4	5	6	

8. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot), how much do you enjoy preparing food as part of your job?

Do not enjoy at all						Enjoy a lot
1	2	3	4	5	6	

9. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot), how much do you enjoy doing hands-on food preparation activities when teaching nutrition education classes to children?

Do not enjoy  
at all

Enjoy  
a lot

1

2

3

4

5

6

10. What are your current thoughts/feelings about *kidsCAN* lessons? Please be as specific as possible.

11. What are your current thoughts/feelings about *Cooking with Kids* tasting lessons? Please be as specific as possible.

12. What are your biggest concerns about teaching *Cooking with Kids* tasting lessons?

13. On a scale of 1 (not at all knowledgeable) to 6 (extremely knowledgeable), how knowledgeable are you about teaching a *Cooking with Kids* tasting lesson right now?

Not at all  
Knowledgeable

Extremely  
Knowledgeable

1                      2                      3                      4                      5                      6

14. On a scale of 1 (not at all confident) to 6 (extremely confident), how confident are you with conducting a *Cooking with Kids* tasting lesson right now?

Not at all  
Confident

Extremely  
Confident

1                      2                      3                      4                      5                      6

15. On a scale of 1 (not at all motivated) to 6 (extremely motivated), how motivated are you to use the *Cooking with Kids* tasting lessons for future classes?

Not at all  
Motivated

Extremely  
Motivated

1                      2                      3                      4                      5                      6

16. How likely are you to use *Cooking with Kids* tasting lessons for future classes?

Not at all  
Likely

Extremely  
Likely

1                      2                      3                      4                      5                      6

17. Please comment on why you selected the number you chose in #16.

**Instructions:** When thinking about the information and skills you need to teach a *Cooking with Kids* tasting lesson, please indicate how much you agree or disagree with each of the following statements:

18. I have enough information right now to teach a *Cooking with Kids* tasting lesson.

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6

19. I have the appropriate communication/language skills needed to effectively manage a classroom full of 4<sup>th</sup> graders.

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6

20. I feel confident that I can adjust the activities in a *Cooking with Kids* tasting lesson to fit the amount of time allowed to teach the lesson.

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6

21. I am able to purchase and transport different fruits and vegetables that are part of a *Cooking with Kids* tasting lesson.

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6

22. I feel confident that I can wash and prepare different fruits and vegetables in a variety of settings for a *Cooking with Kids* tasting lesson.

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6

23. I really think *Cooking with Kids* matters. I see kids learning a lot with this program.

Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6

**Instructions:** Think about how you will incorporate *CWK* tasting lessons into the *kidsCAN* lesson series when you return to your county. In the spaces below, write down a goal for the next month, next 4 months, and next 8 months related to teaching *CWK* tasting lessons in your county.

**Short-term goal (to work toward in the next month):**

**Medium-term goal (to work toward between now and December 31, 2009):**

**Long-term goal (to work toward between January 1, 2010 and April 30, 2010):**

**Instructions:** When deciding which curricula to use to teach nutrition education classes for children, please indicate how much you agree or disagree with each of the following statements:

24. Sample lessons make nutrition education curricula easy to try out.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

25. Lesson plans need to be easy to follow.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

26. Materials need to be readily available to implement nutrition education lessons.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

27. I like nutrition education lessons that are downloadable from the internet.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

**Thank you for taking this survey! Your time and effort is really appreciated!**

**APPENDIX M**

**POST-TRAINING SURVEY – EXTENSION AGENT**

**Regional Meeting Post-Survey  
For Home Economists  
August, 2009**

**Introduction and Background**

The purpose of this survey is to learn how well the *Cooking with Kids (CWK)* portion of the Regional Meeting met your needs to supervise a Nutrition Educator who will teach *CWK* tasting lessons. Your answers are important to us and will be kept confidential.

1. Overall, the *CWK* portion of the Regional Meeting was:

Unacceptable						Excellent
1	2	3	4	5		6

*Comments:*

2. The *CWK* portion of the Regional Meeting will benefit me in my job:

Not at all						A lot
1	2	3	4	5		6

*Comments:*

3. The *CWK* portion of the Regional Meeting was:

Very Unclear						Extremely Clear
1	2	3	4	5		6

*Comments:*

4. Please rank each of the resources listed below in order of how helpful you think each resource will be to you when your county implements *CWK*. Put a “1” in the space next to the resource that you think will be the most helpful, put a “2” next to the resource that will be the next most helpful, and so on. Please put a number next to each resource.

_____	Participating in the Regional Meeting	_____	Another Home Economist
_____	<i>CWK</i> video	_____	A Nutrition Educator
_____	<i>CWK</i> binder	_____	Other: _____

5. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable), how comfortable are with your own food preparation skills? Please circle one.

Not at all Comfortable						Extremely Comfortable
1	2	3	4	5	6	

6. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot), how much do you enjoy preparing food at home? Please circle one.

Do not enjoy at all						Enjoy a lot
1	2	3	4	5	6	

7. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot), how much do you enjoy preparing food as part of your job? Please circle one.

Do not enjoy at all						Enjoy a lot
1	2	3	4	5	6	

8. What are your current thoughts/feelings about *kldsCAN* lessons? Please be as specific as possible.

9. What are your current thoughts/feelings about *Cooking with Kids* tasting lessons? Please be as specific as possible.

10. What are your biggest concerns about supervising a Nutrition Educator who is teaching *Cooking with Kids* tasting lessons?

11. On a scale of 1 (not at all knowledgeable) to 6 (extremely knowledgeable), how knowledgeable are you about teaching a *Cooking with Kids* tasting lesson right now?

Not at all Knowledgeable Extremely Knowledgeable

1                      2                      3                      4                      5                      6

12. On a scale of 1 (not at all confident) to 6 (extremely confident), how confident are you with supervising a NE who is conducting a *Cooking with Kids* tasting lesson right now?

Not at all Confident Extremely Confident

1                      2                      3                      4                      5                      6

13. On a scale of 1 (not at all motivated) to 6 (extremely motivated), how motivated is your county to use the *Cooking with Kids* tasting lessons for future classes?

Not at all  
Motivated

Extremely  
Motivated

1                      2                      3                      4                      5                      6

14. How likely is your county to use *Cooking with Kids* tasting lessons for future classes?

Not at all  
Likely

Extremely  
Likely

1                      2                      3                      4                      5                      6

15. Please comment on why you selected the number you chose in #14.

**Instructions:** When thinking about the skills you need to teach a *Cooking with Kids* tasting lesson, please indicate how much you agree or disagree with each of the following statements:

16. I have enough information right now to teach a *Cooking with Kids* tasting lesson.

Strongly  
Disagree

Somewhat  
Disagree

Disagree

Agree

Somewhat  
Agree

Strongly  
Agree

1                      2                      3                      4                      5                      6

17. I have appropriate communication/language skills needed to get the attention of a classroom full of 4<sup>th</sup> graders.

Strongly Disagree	Somewhat Disagree	Disagree	Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6

18. I feel confident that I can adjust the activities in a *Cooking with Kids* tasting lesson to fit the amount of time allowed to teach the lesson.

Strongly Disagree	Somewhat Disagree	Disagree	Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6

19. I am able to purchase and transport different fruits and vegetables that are part of a *Cooking with Kids* tasting lesson.

Strongly Disagree	Somewhat Disagree	Disagree	Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6

20. I feel confident that I can wash and prepare different fruits and vegetables in a variety of settings for a *Cooking with Kids* tasting lesson.

Strongly Disagree	Somewhat Disagree	Disagree	Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6

21. I really think *Cooking with Kids* matters. I see kids learning a lot with this program.

Strongly Disagree	Somewhat Disagree	Disagree	Agree	Somewhat Agree	Strongly Agree
1	2	3	4	5	6

**Instructions:** Think about how your county will incorporate *CWK* tasting lessons into the *kidsCAN* lesson series when you return to your county. In the spaces below, write down a goal for your county for the next month, next 4 months, and next 8 months related to implementing *CWK* tasting lessons in your county.

**Short-term goal (to work toward in the next month):**

**Medium-term goal (to work toward between now and December 31, 2009):**

**Long-term goal (to work toward between January 1, 2010 and April 30, 2010):**

**Instructions:** When deciding which curricula to use to teach nutrition education classes for children, please indicate how much you agree or disagree with each of the following statements:

22. Sample lessons make nutrition education curricula easy to try out.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

23. Lesson plans need to be easy to follow.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

24. Materials need to be readily available to implement nutrition education lessons.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

25. I like nutrition education lessons that are downloadable from the internet.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	2	3	4	5

**Thank you for taking this survey! Your time and effort is really appreciated!**

**APPENDIX N**

**FOUR MONTH POST-TRAINING SURVEY – NUTRITION EDUCATOR**

## 4-Month Follow-Up Survey - Nutrition Educator

### Introduction and Background

The purpose of this survey is to learn how the process of teaching *Cooking with Kids (CWK)* tasting lessons works for you. Your answers are important to us and will be kept confidential.

**1. In what percentage (%) of your nutrition classes do you teach children?**

**2. In what percentage (%) of your nutrition classes taught to children do the children taste food without doing any hands-on food preparation?**

**3. In what percentage (%) of your nutrition classes taught to children do the children prepare and taste food?**

**4. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable),**

	1 (Not at all comfortable)	2	3	4	5	6 (Extremely comfortable)	N/A
How comfortable are you with your own food preparation skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How comfortable are you doing hands-on food preparation activities when teaching nutrition education classes to children?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**5. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot),**

	1 (Do not enjoy at all)	2	3	4	5	6 (Enjoy a lot)	N/A
How much do you enjoy preparing food at home?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy preparing food as part of your job?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy doing hands-on food preparation activities when teaching nutrition education classes to children?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**6. What are your current thoughts/feelings about *Cooking with Kids* tasting lessons? Please be as specific as possible.**

## 4-Month Follow-Up Survey - Nutrition Educator

### 7. What are your biggest concerns about teaching *Cooking with Kids* tasting lessons?

### 8. On a scale of 1 (not at all) to 6 (extremely),

	1 (Not at all)	2	3	4	5	6 (Extremely)
How <b>knowledgeable</b> are you about teaching a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <b>confident</b> are you with conducting a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <b>motivated</b> are you to use the <i>Cooking with Kids</i> tasting lessons for future classes?	<input type="radio"/>					

### 9. When thinking about the information and skills you need to teach a *Cooking with Kids* tasting lesson, please indicate how much you agree or disagree with each of the following statements:

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
I have enough information right now to teach a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I have the appropriate communication/language skills needed to effectively manage a classroom full of 4th graders.	<input type="radio"/>					
I feel confident that I can adjust the activities in a <i>Cooking with Kids</i> tasting lesson to fit the amount of time allowed to teach the lesson.	<input type="radio"/>					
I am able to purchase and transport different fruits and vegetables that are part of a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I feel confident that I can wash and prepare different fruits and vegetables in a variety of settings for a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I really think <i>Cooking with Kids</i> matters. I see kids learning a lot with this program.	<input type="radio"/>					

### 10. Have you used the *Cooking with Kids* tasting lessons since the August Regional Meeting?

- Yes
- No

## 4-Month Follow-Up Survey - Nutrition Educator

### 11. Why/why not?



At the Regional Meeting, **your short term goal** to work on during the month following the training was to **[insert goal]**. The following questions relate to that goal.

### 12. Have you accomplished that goal?

- Yes  
 No

### 13. Please comment on your response above. What helped you in (or prevented you from) accomplishing your goal?



At the Regional Meeting, **your medium term goal** to work on between the training and December 31, 2009 was to **[insert goal]**. The following questions relate to that goal.

### 14. Have you accomplished that goal?

- Yes  
 No

### 15. Please comment on your response above. What helped you in (or prevented you from) accomplishing your goal?



## 4-Month Follow-Up Survey - Nutrition Educator

16. Please rank each of the resources listed below in order of how helpful each resource was to you when working toward your goals. Mark "1" for the resource that was the most helpful, "2" for the resource that was the next most helpful, and so on. Please rank each resource.

	1 (most helpful)	2	3	4	5 (least helpful)
Participating in the Regional Meeting	<input type="radio"/>				
CWK video	<input type="radio"/>				
CWK binder	<input type="radio"/>				
Home Economist	<input type="radio"/>				
Another Nutrition Educator	<input type="radio"/>				

Thank you for taking this survey! Your time and effort is really appreciated!

**APPENDIX O**

**FOUR MONTH POST-TRAINING SURVEY – EXTENSION AGENT**

## 4-Month Follow-Up Survey - Home Economist

### Introduction and Background

The purpose of this survey is to learn how the process of supervising and teaching *Cooking with Kids* (CWK) tasting lessons works for you and your county. Your answers are important to us and will be kept confidential.

#### 1. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable),

	1 (Not at all comfortable)	2	3	4	5	6 (Extremely comfortable)	N/A
How comfortable are you with your own food preparation skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

#### 2. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot),

	1 (Do not enjoy at all)	2	3	4	5	6 (Enjoy a lot)	N/A
How much do you enjoy preparing food at home?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy preparing food as part of your job?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

#### 3. What are your current thoughts/feelings about *Cooking with Kids* tasting lessons? Please be as specific as possible.

#### 4. What are your biggest concerns about supervising a Nutrition Educator who is teaching *Cooking with Kids* tasting lessons?

#### 5. On a scale of 1 (not at all) to 6 (extremely),

	1 (Not at all)	2	3	4	5	6 (Extremely)
How <u>knowledgeable</u> are you about teaching a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <u>confident</u> are you with supervising a Nutrition Educator who is conducting a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <u>motivated</u> is your county to use the <i>Cooking with Kids</i> tasting lessons for future classes?	<input type="radio"/>					

## 4-Month Follow-Up Survey - Home Economist

**6. When thinking about the information and skills you need to teach a *Cooking with Kids* tasting lesson, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
I have enough information right now to teach a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I have the appropriate communication/language skills needed to effectively manage a classroom full of 4th graders.	<input type="radio"/>					
I feel confident that I can adjust the activities in a <i>Cooking with Kids</i> tasting lesson to fit the amount of time allowed to teach the lesson.	<input type="radio"/>					
I am able to purchase and transport different fruits and vegetables that are part of a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I feel confident that I can wash and prepare different fruits and vegetables in a variety of settings for a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I really think <i>Cooking with Kids</i> matters. I see kids learning a lot with this program.	<input type="radio"/>					

**7. Has your county used the *Cooking with Kids* tasting lessons since the August Regional Meeting?**

- Yes
- No

**8. Why/why not?**

At the Regional Meeting, **your short term goal** to work on during the month following the training was to **[insert goal]**. The following questions relate to that goal.

**9. Have you accomplished that goal?**

- Yes
- No

**10. Please comment on your response above. What helped you in (or prevented you from) accomplishing your goal?**

## 4-Month Follow-Up Survey - Home Economist

At the Regional Meeting, **your medium term goal** to work on between the training and December 31, 2009 was to [insert goal]. The following questions relate to that goal.

### 11. Have you accomplished that goal?

- Yes  
 No

### 12. Please comment on your response above. What helped you in (or prevented you from) accomplishing your goal?

### 13. Please rank each of the resources listed below in order of how helpful each resource was to you when working toward your goals. Mark "1" for the resource that was the most helpful, "2" for the resource that was the next most helpful, and so on. Please rank each resource.

	1 (most helpful)	2	3	4	5 (least helpful)
Participating in the Regional Meeting	<input type="radio"/>				
CWK video	<input type="radio"/>				
CWK binder	<input type="radio"/>				
Another Home Economist	<input type="radio"/>				
A Nutrition Educator	<input type="radio"/>				

**Thank you for taking this survey! Your time and effort is really appreciated!**

**APPENDIX P**

**EIGHT MONTH POST-TRAINING SURVEY – NUTRITION EDUCATOR**

## 8-Month Follow-Up Survey - Nutrition Educator

### Introduction and Background

The purpose of this survey is to learn how the process of teaching *Cooking with Kids (CWK)* tasting lessons works for you. Your answers are important to us and will be kept confidential.

**1. In what percentage (%) of your nutrition classes do you teach children?**

**2. In what percentage (%) of your nutrition classes taught to children do the children taste food without doing any hands-on food preparation?**

**3. In what percentage (%) of your nutrition classes taught to children do the children prepare and taste food?**

**4. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable),**

	1 (Not at all comfortable)	2	3	4	5	6 (Extremely comfortable)	N/A
How comfortable are you with your own food preparation skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How comfortable are you doing hands-on food preparation activities when teaching nutrition education classes to children?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**5. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot),**

	1 (Do not enjoy at all)	2	3	4	5	6 (Enjoy a lot)	N/A
How much do you enjoy preparing food at home?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy preparing food as part of your job?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy doing hands-on food preparation activities when teaching nutrition education classes to children?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**6. What are your current thoughts/feelings about *Cooking with Kids* tasting lessons? Please be as specific as possible.**

## 8-Month Follow-Up Survey - Nutrition Educator

7. What are your biggest concerns about teaching *Cooking with Kids* tasting lessons?

8. On a scale of 1 (not at all) to 6 (extremely),

	1 (Not at all)	2	3	4	5	6 (Extremely)
How <b>knowledgeable</b> are you about teaching a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <b>confident</b> are you with conducting a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <b>motivated</b> are you to use the <i>Cooking with Kids</i> tasting lessons for future classes?	<input type="radio"/>					

9. When thinking about the information and skills you need to teach a *Cooking with Kids* tasting lesson, please indicate how much you agree or disagree with each of the following statements:

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
I have enough information right now to teach a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I have the appropriate communication/language skills needed to effectively manage a classroom full of 4th graders.	<input type="radio"/>					
I feel confident that I can adjust the activities in a <i>Cooking with Kids</i> tasting lesson to fit the amount of time allowed to teach the lesson.	<input type="radio"/>					
I am able to purchase and transport different fruits and vegetables that are part of a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I feel confident that I can wash and prepare different fruits and vegetables in a variety of settings for a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I really think <i>Cooking with Kids</i> matters. I see kids learning a lot with this program.	<input type="radio"/>					

10. Have you used the *Cooking with Kids* tasting lessons since January 1, 2010?

- Yes
- No

## 8-Month Follow-Up Survey - Nutrition Educator

### 11. Why/why not?

At the Regional Meeting, **your long term goal** to work on from January 1, 2010 to April 30, 2010 was to **[insert goal]**. The following questions relate to that goal.

### 12. Have you accomplished that goal?

- Yes  
 No

### 13. Please comment on your response above. What helped you in (or prevented you from) accomplishing your goal?

### 14. Please rank each of the resources listed below in order of how helpful each resource was to you when working toward your long term goal. Mark "1" for the resource that was the most helpful, "2" for the resource that was the next most helpful, and so on. Please rank each resource.

	1 (most helpful)	2	3	4	5 (least helpful)
Participating in the Regional Meeting	<input type="radio"/>				
CWK video	<input type="radio"/>				
CWK binder	<input type="radio"/>				
Home Economist	<input type="radio"/>				
Another Nutrition Educator	<input type="radio"/>				

**Thank you for taking this survey! Your time and effort is really appreciated!**

**APPENDIX Q**

**EIGHT MONTH POST-TRAINING SURVEY – EXTENSION AGENT**

## 8-Month Follow-Up Survey - Home Economist

### Introduction and Background

The purpose of this survey is to learn how the process of supervising and teaching *Cooking with Kids* (CWK) tasting lessons works for you and your county. Your answers are important to us and will be kept confidential.

#### 1. On a scale of 1 (not at all comfortable) to 6 (extremely comfortable),

	1 (Not at all comfortable)	2	3	4	5	6 (Extremely comfortable)	N/A
How comfortable are you with your own food preparation skills?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

#### 2. On a scale of 1 (do not enjoy at all) to 6 (enjoy a lot),

	1 (Do not enjoy at all)	2	3	4	5	6 (Enjoy a lot)	N/A
How much do you enjoy preparing food at home?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How much do you enjoy preparing food as part of your job?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

#### 3. What are your current thoughts/feelings about *Cooking with Kids* tasting lessons? Please be as specific as possible.

#### 4. What are your biggest concerns about supervising a Nutrition Educator who is teaching *Cooking with Kids* tasting lessons?

#### 5. On a scale of 1 (not at all) to 6 (extremely),

	1 (Not at all)	2	3	4	5	6 (Extremely)
How <u>knowledgeable</u> are you about teaching a <i>Cooking with Kids</i> tasting lesson right now?	<input type="radio"/>					
How <u>confident</u> are you with supervising a Nutrition Educator who is conducting a <i>Cooking with Kids</i> tasting lesson now?	<input type="radio"/>					
How <u>motivated</u> is your county to use the <i>Cooking with Kids</i> tasting lessons for future classes?	<input type="radio"/>					

## 8-Month Follow-Up Survey - Home Economist

**6. When thinking about the information and skills you need to teach a *Cooking with Kids* tasting lesson, please indicate how much you agree or disagree with each of the following statements:**

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
I have enough information right now to teach a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I have the appropriate communication/language skills needed to effectively manage a classroom full of 4th graders.	<input type="radio"/>					
I feel confident that I can adjust the activities in a <i>Cooking with Kids</i> tasting lesson to fit the amount of time allowed to teach the lesson.	<input type="radio"/>					
I am able to purchase and transport different fruits and vegetables that are part of a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I feel confident that I can wash and prepare different fruits and vegetables in a variety of settings for a <i>Cooking with Kids</i> tasting lesson.	<input type="radio"/>					
I really think <i>Cooking with Kids</i> matters. I see kids learning a lot with this program.	<input type="radio"/>					

**7. Has your county used the *Cooking with Kids* tasting lessons since January 1, 2010?**

- Yes
- No

**8. Why/why not?**

At the Regional Meeting, **your long term goal** to work on between January 1, 2010 and April 30, 2010 was to **[insert goal]**. The following questions relate to that goal.

**9. Have you accomplished that goal?**

- Yes
- No

**10. Please comment on your response above. What helped you in (or prevented you from) accomplishing your goal?**

## 8-Month Follow-Up Survey - Home Economist

**11. Please rank each of the resources listed below in order of how helpful each resource was to you when working toward your long term goal. Mark "1" for the resource that was the most helpful, "2" for the resource that was the next most helpful, and so on. Please rank each resource.**

	1 (most helpful)	2	3	4	5 (least helpful)
Participating in the Regional Meeting	<input type="radio"/>				
CWK video	<input type="radio"/>				
CWK binder	<input type="radio"/>				
Another Home Economist	<input type="radio"/>				
A Nutrition Educator	<input type="radio"/>				

**Thank you for taking this survey! Your time and effort is really appreciated!**

**APPENDIX R**

**CWK TASTING LESSON IMPLEMENTATION REPORT**



## Cooking with Kids Tasting Report

Nutrition Educator:	Teacher Name:
Number of Students:	School:
Lesson Name:	Date:
Start Time:	List the 4 foods tasted:
End Time:	

### STUDENT RESPONSES:

Record any student comments or reactions to the lesson.

### NUTRITION EDUCATOR OBSERVATIONS:

What percent of the tasting lesson plan did you follow? (0-100%) \_\_\_\_\_%

When teaching today's lesson, what did you **add, leave out, or change** from the lesson plan? Why?

What went well today? What helped to make it go well?

What do you wish would have gone better today? What would have helped make it go better?



**APPENDIX S**

**FOLLOW-UP INTERVIEW GUIDE – NUTRITION EDUCATOR**

**CWK Training Follow-Up Interview Guide**  
**Nutrition Educator**

Date of Interview: \_\_\_\_\_ Interviewer: \_\_\_\_\_

Interviewee's Name: \_\_\_\_\_

Interviewee's Position: \_\_\_\_\_ Length of time in position: \_\_\_\_\_

County: \_\_\_\_\_ Race/Ethnicity: \_\_\_\_\_

Age: \_\_\_\_\_ Gender: \_\_\_\_\_ Highest level of education: \_\_\_\_\_

**A. Introduction/Background**

My name is Ann Diker and I am a graduate student in Nutrition at Colorado State University. I'm following up on your experiences with the *Cooking with Kids (CWK)* tasting lessons since the Regional Meeting in August, 2009 so we can learn more about how nutrition education curricula are implemented in new settings. I am interested in speaking with you because you did (did not) implement *CWK* tasting lessons.

The interview will take about 15-20 minutes. I would like to know if you would be willing to be interviewed. Even if you agree, you will not have to answer any questions you do not want to. You may also choose to stop the interview at any time.

Would you like to participate in this telephone interview?

*If no, thank participant for their time.*

*If yes, continue asking the following questions:*

May I tape record the interview? It is not a requirement, but it would help make sure that I do not forget anything you say. Your name will not be recorded or used in any reports. The interview data will be destroyed after the study is completed.

Do you have any questions before we begin the interview?

If you have questions about the study you can contact Leslie Cunningham-Sabo at (970) 491-6791 or Ann Diker at (970) 412-8198. If you have questions about your rights as a volunteer in this research contact Janell Barker at (970) 491-1655.

## B. Interview Questions

1. Think back to August, 2009 and the ICAN Regional Meeting in \_\_\_\_\_. What do you remember about the CWK portion of the training?
  - a. What do you remember about the content of the training?
  - b. What do you remember about the style of the training?
  - c. How well did the training prepare you for teaching CWK in the classroom?
2. Tell me about your experiences using the CWK tasting lessons.
  - a. How did you use the CWK tasting lessons?
    - i. If used lessons: What helped you decide to use the CWK tasting lessons?
      1. Training?
      2. State NMSU expectations to do 2 “3+3” class series?
      3. Supervisor/Home Economist?
      4. Another Nutrition Educator?
    - ii. If didn't use lessons: What made you decide to not use the CWK tasting lessons? (then skip to 2e)
  - b. Did you adapt/modify/change the CWK tasting lessons in any way?
    - i. How?
    - ii. Why?
  - c. What helped you implement/use the CWK tasting lessons?
    - i. Training?
    - ii. Nutrition Educator support?
    - iii. Supervisor/Home Economist support?
    - iv. School/Principal/Teacher support?
    - v. Expectations from Home Economist?
    - vi. State-level support?
    - vii. CWK staff support?
  - d. What challenges did you encounter?
    - i. Personnel challenges?
    - ii. Work/support challenges?
    - iii. School/Principal/Teacher challenges?
  - e. What would have helped you implement/use the CWK tasting lessons (more)?
    - i. More training?
    - ii. More support?
    - iii. Supervisor/Home Economist support?
    - iv. School/Principal/Teacher support?
    - v. Expectations from Home Economist?
3. What do you think CWK has accomplished, if anything?
  - a. With students?
  - b. With students' families?
  - c. With schools/principals/teachers?
  - d. How are these accomplishments the same/different from accomplishments last year?
4. Are you planning on using the CWK lessons in the future?
  - a. Tell me more about that.
5. Is there anything else you would like to share?

## C. Closing

Thank you very much for your time. Your responses have been very helpful!

**APPENDIX T**

**FOLLOW-UP INTERVIEW GUIDE – EXTENSION AGENT**

**CWK Training Follow-Up Interview Guide**  
**Extension Agent**

Date of Interview: \_\_\_\_\_ Interviewer: \_\_\_\_\_

Interviewee's Name: \_\_\_\_\_

Interviewee's Position: \_\_\_\_\_ Length of time in position: \_\_\_\_\_

County: \_\_\_\_\_ Race/Ethnicity: \_\_\_\_\_

Age: \_\_\_\_\_ Gender: \_\_\_\_\_ Highest level of education: \_\_\_\_\_

**A. Introduction/Background**

My name is Ann Diker and I am a graduate student in Nutrition at Colorado State University. I'm following up on your experiences with the *Cooking with Kids (CWK)* tasting lessons since the Regional Meeting in August, 2009 so we can learn more about how nutrition education curricula are implemented in new settings. I am interested in speaking with you because your county did (did not) implement *CWK* tasting lessons.

The interview will take about 15-20 minutes. I would like to know if you would be willing to be interviewed. Even if you agree, you will not have to answer any questions you do not want to. You may also choose to stop the interview at any time.

Would you like to participate in this telephone interview?

*If no, thank participant for their time.*

*If yes, continue asking the following questions:*

May I tape record the interview? It is not a requirement, but it would help make sure that I do not forget anything you say. Your name will not be recorded or used in any reports. The interview data will be destroyed after the study is completed.

Do you have any questions before we begin the interview?

If you have questions about the study you can contact Leslie Cunningham-Sabo at (970) 491-6791 or Ann Diker at (970) 412-8198. If you have questions about your rights as a volunteer in this research contact Janell Barker at (970) 491-1655.

## B. Interview Questions

1. Think back to August, 2009 and the ICAN Regional Meeting in \_\_\_\_\_. What do you remember about the CWK portion of the training?
  - a. What do you remember about the content of the training?
  - b. What do you remember about the style of the training?
  - c. How well did the training prepare you for teaching the CWK tasting lessons in the classroom?
2. Tell me about your county's experiences using the CWK tasting lessons.
  - a. What helped your county implement/use the CWK tasting lessons?
    - i. Training?
    - ii. Nutrition Educator support?
    - iii. School/Principal/Teacher support?
    - iv. Expectations from Home Economist?
    - v. Expectations from State level (Linda/Kari) to do "3+3" class series?
    - vi. State-level support?
    - vii. CWK staff support?
  - b. What challenges did you encounter?
    - i. Personnel challenges?
    - ii. Work/support challenges?
    - iii. School/Principal/Teacher challenges?
  - c. What would have helped your county implement/use the CWK tasting lessons (more)?
    - i. More training?
    - ii. More support?
    - iii. School/Principal/Teacher support?
    - iv. Expectations from Home Economist?
3. What do you think CWK has accomplished, if anything?
  - a. With students?
  - b. With students' families?
  - c. With schools/principals/teachers?
  - d. With the Nutrition Educator(s)?
  - e. How are these accomplishments the same/different from accomplishments last year?
4. Is your county planning on using the CWK lessons in the future?
  - a. Tell me more about that...
5. Is there anything else you would like to share?

## C. Closing

Thank you very much for your time. Your responses have been very helpful!

**APPENDIX U**

**NVIVO® CODING STRUCTURE AND OPERATIONAL DEFINITIONS –  
FORMATIVE ASSESSMENT**

### CWK Formative Assessment Nodes and Operational Definitions

NVivo Node	Operational Definition
NMCE Interview Guide Questions	
01_Effective Training Examples	NMCE Interview Guide Question 1 and all related probes
02_Curriculum Currently Using	NMCE Interview Guide Question 2 and all related probes
03_Curriculum Not Adopted	NMCE Interview Guide Question 3 and all related probes
04_Curriculum Adaptations	NMCE Interview Guide Question 4 and all related probes
05_Ideal Training Components	NMCE Interview Guide Question 5 and all related probes
06_Other	NMCE Interview Guide Question 6 and all related probes
Other CWK Users Interview Guide Questions	
01_Current Job Description	Other CWK Users Interview Guide Question 1 and probes
02_How Heard About CWK and How Meets Needs	Other CWK Users Interview Guide Question 2 and probes
03_How CWK Used	Other CWK Users Interview Guide Question 3 and probes
04_Changes Made to CWK	Other CWK Users Interview Guide Question 4 and probes
05_Essential Pieces of CWK	Other CWK Users Interview Guide Question 5 and probes
06_What CWK Accomplished	Other CWK Users Interview Guide Question 6 and probes
07_Frequency of Use	Other CWK Users Interview Guide Question 7 and probes
08_CWK Barriers and Concerns	Other CWK Users Interview Guide Question 8 and probes
09_CWK Assistance (Things that help do CWK)	Other CWK Users Interview Guide Question 9 and probes
10_Recommendations for Improving CWK	Other CWK Users Interview Guide Question 10 and probes
11_Recommendations for Dissemination	Other CWK Users Interview Guide Question 11 and probes
12_CWK Sustainability	Other CWK Users Interview Guide Question 12 and probes
13_Other	Other CWK Users Interview Guide Question 13 and probes

Adoption, Implementation, Adaptation	
Intention to Adopt CWK	Decisions involved in adoption CWK before use
Implementation of CWK	Interviewee experiences with implementation of CWK
Adaptation of CWK	How interviewees adapted CWK for their setting
Diffusion of Innovation Perceived Attributes	Adult/Interviewee perspective
Relative Advantage	The degree to which CWK is perceived as better than other curricula. Include comments where CWK is specifically compared to a named curricula, "other" unnamed curricula, or when CWK is used in conjunction with other curricula.
Compatibility	The degree to which CWK is perceived as being consistent with the existing values, past experiences and needs of the interviewees and/or their organization. Include comments related to the environment (organization, school district, standards, etc.)
Complexity	The degree to which CWK is perceived as difficult to understand and/or use. Include comments related specifically to lessons and other tangible aspects of CWK.
Trialability	The degree to which CWK may be experimented with on a limited basis.
Observability	The degree to which the results of CWK are visible to others.
Social Cognitive Theory Constructs	Student/Youth perspective
Outcome Expectations	Beliefs about anticipated outcomes from youth engaging in CWK including physical/health effects and social effects
Self-efficacy	Self-confidence
Reinforcement	External and internal responses to behavior that increase the likelihood of occurrence of that behavior
Behavioral Capabilities	Knowledge and skills gained through CWK

**APPENDIX V**

**NVIVO® CODING STRUCTURE AND OPERATIONAL DEFINITIONS –  
FOLLOW-UP INTERVIEWS**

### 8 Month Follow-Up Interviews - NVivo Nodes and Operational Definitions

NVivo Node	Operational Definition
Interview Guide Questions	
Q1a-b: Training Impressions	What is remembered re: content, style of training (Q1a-1b)
Q1c: Training Prepare for Implementation?	How well did the training prepare NE for implementation of CWK tasting lessons (Q1c)
Q2-2a: CWK Tasting Lesson Experiences	Details shared about individual lessons/classes (Q2-2a)
Q2ai: Adoption decision	What determined decision to adopt curriculum (Q2ai)
Q2aii: Rejection decision	What determined decision to reject curriculum (Q2aii)
Q2b: Lesson adaptation	Details of any adaptations/modifications to lessons (Q2b)
Q2c: Promoters of Implementation / SCT – Facilitation	Details of resources external to the interviewee (tools, people) that supported implementation (Q2c) What would've helped implement lessons more (Q2e)
Q2d: Implementation Challenges	Challenges encountered during implementation (Q2d)
Q3a: CWK Accomplishments – Student	What CWK accomplished with students (Q3a)
Q3b: CWK Accomplishments – Family	What CWK accomplished with family (Q3b)
Q3c: CWK Accomplishments – School	What CWK accomplished with school teachers, administrators (Q3c)
Q3e: CWK Accomplishments - Nutrition Educator	What CWK accomplished with Nutrition Educators (Q3e)
Q3d: CWK Accomplishments Different from last year?	How CWK accomplishments compare to previous year accomplishments (Q3d)
Q4: Future Use of CWK	Whether NE/county plans on using CWK in future (Q4)
Q5: Other	Other information shared that doesn't fit elsewhere (Q5)
Diffusion of Innovations Perceived Attributes	
Compatibility	The degree to which CWK is perceived as being consistent with the existing values, past experiences and needs of the interviewees and/or NMCE.
Complexity	The degree to which CWK is perceived as difficult to understand and/or use. Include comments related to lessons.
Observability	The degree to which the results of CWK are visible to others.
Relative Advantage	The degree to which CWK is perceived as better than kldsCAN. Include comments where CWK compared to kldsCAN.
Trialability	The degree to which CWK was experimented with on a limited basis – include comments about “pilot”.

Social Cognitive Theory Constructs	
Observational Learning	Behavioral acquisition through interpersonal or media displays of the behavior, particularly through peer modeling
Outcome Expectations	Beliefs about the perceived value of implementing CWK
Reinforcement	Responses to a person's behavior that increases (or decreases) the likelihood of reoccurrence
Self-Efficacy	Comments related to confidence in performing the behavior, taking action, and overcoming barriers
Self-Regulation	Comments about the use of self-monitoring, feedback, goal-setting, and self-reward