

THE EFFECTS OF KIDS' COOKING CAMPS ON NATIVE AMERICAN CHILDREN'S
KNOWLEDGE AND HABITS RELATED TO FOOD SAFETY, PREPARATION, AND
NUTRITION

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THE EFFECTS OF KIDS' COOKING CAMPS ON NATIVE AMERICAN
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SAFETY, PREPARATION, AND NUTRITION

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North Dakota State University's regulations and meets the accepted
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MASTER OF SCIENCE

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ABSTRACT

A pilot research study was conducted to determine if cooking camps could increase knowledge and improve habits of Native American children related to food safety, nutrition, and reported food and exercise habits. Forty Native American youth were recruited for participation in one of four kids' cooking camps. Each child took a pre-assessment upon their arrival at camp and a post-assessment on the last day of camp, as well as a pre- and post-test for each lesson. The children participated in lessons and food preparation activities during the six hours per day, four day camp. The thirty subjects taking both the pre- and post-assessment had significant increases in physical activity and food safety knowledge. Parents/guardians provided their input through focus groups and phone interviews. Parents reported their children increased consumption of fruits and vegetables after camp.

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LIST OF ABBREVIATIONS

BAC.....	Bacteria
FDPIR.....	Food Distribution Program on Indian Reservations
Parents.....	Throughout this text, the term “parents” will apply to parents, guardians, caregivers, and other individuals who brought a child to camp.
SCT.....	Social Cognitive Theory
SNAP.....	Supplemental Nutrition Assistance Program
USDA.....	United States Department of Agriculture
WIC.....	Supplemental Nutrition Program for Women, Infants, and Children

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CHAPTER 1. INTRODUCTION

Native American children often do not have sufficient cooking experience or nutritional knowledge to make healthful food choices. Evidence shows that Native American youth are at significantly greater risk of obesity, diabetes and other health complications than other children of similar ages across the nation and in North Dakota (La Duke, Brown, Kennedy, Reed, Warner, & Keller, 2012; Health, 2013). Nutrition and physical activity education are of key importance in addressing the large health and educational disparities in this population. Constructs of Social Cognitive Theory (SCT), the Theory of Planned Behavior (TPB), and the Precede/Proceed Model provide a framework from which to work in addressing health issues in communities, including Native American reservations. Children shape communities as they grow up and begin families of their own. Therefore, teaching children key concepts about food preparation, food safety, and nutrition can lead to dramatic changes in a community's health over the course of the children's lives. This study examines the effects of kids' cooking camps on Native American children's knowledge and habits related to food safety, cooking, and nutrition.

CHAPTER 2. LITERATURE REVIEW

The Native American Community has battled many health problems through the years. The Indian Health Service lists these problems: substance use disorders, mental health disorders, and various behavior-related chronic diseases (*Behavioral Health*, n.d.). While it is true that many of the health problems are behavior-related, some are not. Many problems are associated with the colonization of North America by white settlers and the trade of goods that were either contaminated with “diseases” (bacteria) or that the natives had not experienced (Patterson, & Runge, 2002). The new experience of these goods led to over-indulgence and addiction when the indigenous people did not know the consequences of eating and drinking freely. Time and experience have not reduced the health problems that were introduced into these communities along with refined grain products and alcohol, though when precisely these products were introduced is not agreed upon (Mihsuah, 2005). The deviation from traditional culture and life has led to obesity and diabetes rates that are higher than the national average (La Duke, Brown, Kennedy, Reed, Warner, & Keller, 2012). Some have attributed the increased disease prevalence to a lack of access to healthcare, because of the lack of transportation and the distance between clinics and housing (Noren, Kindig, & Sprenger, 1998). Other challenges facing the American Indian community that likely affect the obesity and diabetes rates are: unemployment, poverty, lack of access to grocery stores, unavailability of fruits and vegetables, and perception of the expense of a fruit and vegetable-rich diet (Morris, Neuhauser, & Campbell, 1992; Giskes, Van Lenthe, Brug, Mackenbach, & Turrel, 2007; Health 2013).

The issues found in the Native American community are similar to the conditions faced by any group in poverty. The conditions actually may be worse in Native American communities, particularly those that are situated in rural areas on reservations. Rurality adds

another dimension and additional risk to these communities because of the increased distance between grocery stores and places of work. An Academy of Nutrition and Dietetics (AND, formerly American Dietetic Association [ADA]) study found that rural shoppers who were isolated from grocery stores and relied on convenience stores and nontraditional food stores did not have access to fresh fruits and vegetables or a variety of healthful food choices (Bustillos, Sharkey, Anding, & McIntosh, 2009). Healthful food choices include vegetables, fruits, whole grains, and lean proteins. In urban areas, the healthfulness of grocery items seems to be indicated by racial demographics, with healthier items being found in areas with a greater proportion of white Americans (Krukowski, West, Harvey-Berino, & Prewitt, 2010).

Perhaps the healthfulness of available food items indicates the healthiness of the community. If this is true, then the food environment is crucial to the well-being of the community. Liese, Weis, Pluto, Smith, and Lawson (2007) stated that a larger variety of healthful foods were readily available in grocery stores and supermarkets as compared to convenience stores or restaurants in a rural environment, which often lacked a variety of nutritious foods. Liese et al. (2007) also noted that healthful items were more expensive in convenience stores than in grocery stores. Several studies have found fruit and vegetable intake to be inversely related to the number of fast-food restaurants and directly related to the number of supermarkets (Edmonds, Baranowski, Baranowski, Cullen, & Myres, 2001; Morland, Diez-Roux, & Pool, 2002). Furthermore, lower-income pregnant women who live closer to grocery stores have a better quality diet than women who live farther from the grocery stores (Laraia, Siega-Riz, Kaufman, & Jones, 2004; Liese et al., 2007).

If the food environment is so important to the health of the community, there must be indicators that food-rich environments have in common. Indeed, Morland's study gives a clear

picture of what can be expected in a food oasis. The clearest difference between food-rich environments and food deserts is wealth. Poor areas tend to have fewer grocery stores and lower access to transportation, either public or private (Morland et al., 2002). Morland found racial segregation among the food-rich and food-poor environments, which is likely related to the wealth of the areas. Wealthier neighborhoods had fewer bars and taverns and more specialty and full-service dining establishments, whereas poor neighborhoods had more fast food establishments and bars. Supermarkets were most often found in neighborhoods that were racially mixed or predominantly white and middle to upper-class. Smaller stores and convenience stores were more often found in poorer areas and predominantly black neighborhoods (Morland et al., 2002).

While it comes as no surprise that lower-income families will likely have less access to transportation, the implications of this are not always immediately considered. Taking care of basic chores such as grocery shopping and carrying home the food items is an ordeal when transportation is unavailable or unreliable (Treuhaft & Karpyn, 2009). Ignoring the other problems of unreliable transportation, such as reliance on friends and neighbors for the use of a vehicle or a ride to work, the issue of coordinating additional transportation for weekly or bimonthly grocery runs becomes an almost insurmountable barrier. This issue is compounded in rural areas, where the nearest grocery store may be a few hours away (Morris et al., 1992). In addition to the distance to the store and the difficulty of getting reliable transportation, there is the added hassle of getting foodstuffs home safely, particularly cold or frozen items that may spoil or become unsafe if left out for extended periods. As a result of the ongoing barriers to acquiring healthful food, people are choosing to purchase their food from stores that are conveniently located, even though they are somewhat more expensive, and the healthful options

are limited. This appears to be a usual trend in poor food environments, especially given the very limited transportation currently available on the reservation (Tribal Programs, 2015).

Given the difficulties of purchasing or otherwise acquiring food in a poor, rural area, food security and insecurity issues present themselves forcefully. Those who are unable to purchase enough food for themselves and their families, and also unable to grow sufficient quantities of food to meet their needs are at increased risk for nutrition-related disorders. Families who report having “reduced quality, variety, or desirability of diet” or “disrupted eating patterns and reduced food intake” are food insecure (Coleman-Jensen & Nord, 2013). The United States Department of Agriculture’s (USDA) definition of food security is, “access by all people at all times to enough food for an active, healthy life.” Families who are food insecure are more likely to be overweight or obese according to the Food Research and Action Center (Why low-income and food insecure people are vulnerable to overweight and obesity, 2010). The Children’s Defense Fund (Policy Priorities, 2012) states that children who are food insecure are more likely to “suffer from problems like anxiety,” are “four times more likely than their peers to require mental health counseling, seven times more likely to be classified as clinically dysfunctional, and seven times more likely to get into fights frequently,” as well as being more likely to suffer from nutrient deficiencies, and have a poor immune response (p. 1). Adults who are food insecure are more likely to suffer from depression and diabetes according to Price’s (2013) review for the American Society for Nutrition. The Food Research and Action Center (2010) also notes that those who are food insecure “may face high levels of stress due to the financial and emotional pressures of food insecurity” among other issues including the cycle of food deprivation and overeating. These nutrition-related problems are compounded in poor, rural areas where access

to nutritious food is low because of distance to supermarkets and lack of transportation (Morris et al., 1992).

The health problems associated with poverty are not surprising considering the food groups that are underrepresented in the diets of the poor. Stewart and Blisard (2006) found that low-income households in the United States were most likely to consume too few fruits and vegetables. Households that are wealthier tend to spend more of their money on fruits and vegetables, as well as dairy, whereas homes that are low-income tend to spend their money on meats and bakery products, which are considered “more basic, and thus desirable” (Stewart & Blisard, 2006, p. 472). Low-income households also tend to consume too few calcium-rich dairy foods, depriving them of needed calcium (Stewart & Blisard, 2006). Cassady, Jetter, and Culp (2007) found that lower costs for fruits and vegetables typically were found in bulk supermarkets. This conclusion is similar to Jetter and Cassady’s (2006) study, which found that smaller grocery stores were more likely to be located in low-income neighborhoods than larger stores. The more important finding from Cassady, et al.’s (2007) study was the suggestion that “the budgetary cost of increasing fruit and vegetable consumption to levels recommended in the 2005 Dietary Guidelines may be more of a barrier to healthful eating than the price per serving of fruits and vegetables(Cassady, et al., 2007, p. 1914).” Jetter and Cassady (2006) found that smaller grocery stores were less likely to carry a healthful alternative for food items and they were typically at a higher cost, increasing food expenses for those in low-income families.

Latham and Moffat (2007) noticed that people tend to shop in convenience stores when there are no grocery stores carrying fruits and vegetables nearby. Larsen and Gilliland (2009) found that in a food desert, the introduction of a farmers’ market “increased the availability of health[ful] food and lowered the overall food costs for households in the neighbourhood” (p.

1160). Farmers' markets often are not readily available in many rural areas, and smaller mom and pop stores and convenience stores are the predominant source of food (Treuhaft & Karpyn, 2009).

The irony of having smaller stores as the sole source of goods for rural areas, particularly on the reservations of the Northwest, can be matched only by the fact that the majority of the food produced in that region is shipped out (LaDuke et al., 2012). Thus, the difficulties of obtaining food for Native Americans who live on reservations are increased, making their situation similar to that of people living in urban food deserts. For example, Bauer (2012) reports that 40% of families living on the Pine Ridge Reservation in South Dakota experienced food insecurity within the past year. The author states that food insecurity is associated with "perceptions of barriers to obtaining healthful food for their families" (p. 1349).

North Dakota's Standing Rock Sioux Tribe, located in Sioux County, is a picture of low food security. Nearly 41% of the residents of Sioux county have low access to a grocery store containing all the major food departments found in a larger supermarket (Health, 2013). On the other hand, 30.6% of all North Dakotans and 32.0% of the poor have low access to a grocery store (Health, 2013).

Vantrease (2013) points out that much of the food ingested by Native Americans is not native to North America or to Native American tribes. The author also claims, "The rations the US government supplied were, without exception, foreign to the American Indians and foreign to North America" (p. 57). The claim is backed up by the history of many tribes, which Vantrease summarizes by listing some general foods that were common in different Native tribes, such as corn, squash, beans, and bison (2013). Nutrition-related health issues therefore have become prevalent. This is unsurprising when you consider the non-nativity of "native" foods and

combine it with the lack of access to healthy, affordable foods on reservations. Brown (1971) states that some of the food that was sent to reservations was considered “unfit for soldiers.”

Even today, the foods supplied through the Food Distribution Program on Indian Reservations (FDPIR) program are not necessarily the most healthful based on the USDA’s dietary guidelines for Americans (FDPIR, 2012). Vantrease (2013) notes, “most commodity foods are shelf-stable and preservative-heavy to endure storage and delivery” (p. 57). Current foods include canned fruit, baking mix, canned or dry beans, canned vegetables, canned or frozen meats, some fresh or frozen vegetables, and a great many pastas (FDPIR, 2012).

Vantrease (2013) also found that the FDPIR benefits are used as the primary source of food. More traditional foods would include pemmican (a mixture of dried meat and berries that is mixed with melted fat to form a concentrated food similar to jerky), berries, bison, corn, and other unprocessed foods that were common in North America before settlers arrived (Kittler, Gucher, & Nelms, 2012). These would not necessarily be readily available, especially if cultural knowledge has declined in recent years. Even so, the FDPIR program on the Standing Rock Reservation has made great strides in improving the healthfulness of the foods it provides to residents and shows promise for the future (Charles “Red” Gates, Personal Communication, March 2014).

The food security problem on the reservations has not declined in recent years. One in four adult Native Americans is food insecure and one in three Native American children is food insecure (Simms-Hipp, A-dae Romero, & Racine, 2013). The researchers also make the point that Supplemental Nutrition Assistance Program (SNAP) benefits are not helpful if you do not have access to a grocery store where you can redeem them (Simms-Hipp et al., 2013). The FDPIR, which is accessible only to those living on reservations, served about 80,000 individuals

per month in fiscal year 2011 (Simms-Hipp et al., 2013). These numbers make it very clear that food security is a major issue to be addressed within Native American tribes, and many problems arise from a cycle of food insecurity.

Seligman, Tschann, Jacobs, Fernandez, and Lopez (2012) found that food insecurity was associated with increased difficulty following a diabetic diet, lower self-efficacy, and higher emotional distress. Thus, “food insecurity is an independent predictor of glycemic control” (p. 235, Seligman et al., 2012). The authors also stated that food insecurity may be “an important contributor to inequities in diabetes-related microvascular complications” (complications of small blood vessels including neuropathy, retinopathy, etc.) and recommends that “nutrition education for this population should focus on cost-neutral strategies for improving glycemic control, such as reducing carbohydrate portions” (p. 236). This could be associated with the fact that minority and medically underserved populations are more likely to participate in unhealthy behaviors such as: smoking, drinking to excess, and consumption of calorically dense, nutrient poor foods (Ward et al., 2004).

Duncan et al. (2012) found that “Integrating behavior change interventions into activities for which participants have already committed their time may be an effective strategy for facilitating adherence to the intervention” (p. 958). Duncan (2012) speculates that the increased rates of diabetes could be due to chronic stress related to food insecurity. A similar study in Canada found that females, particularly single mothers, were at higher risk for food insecurity and had higher rates of diabetes than the rest of the population (Gucciardi, DeMelo, Vogt, & Stewart, 2009). Possibly because of this stress, more individuals who were food insecure had diabetes than those who were food secure (Duncan et al., 2012). Gucciardi et al. (2009) also

found that among food insecure households, individuals “were only half as likely to consume at least five daily servings” of fruits and vegetables.

The diabetes rate in Sioux County North Dakota is nearly 12%, the second highest rate for any county in North Dakota (Health, 2013). Looking at the diabetes rates broken down by income, households with less than \$15,000/year are nearly twice as likely to have diabetes as the rest of the state, though it is not certain which comes first (Health, 2013). Additionally, 44.3% of Sioux county residents are overweight, a major risk factor for diabetes (Health, 2013). While there is no health or diabetes information available specific to children, the general trend likely remains.

Traditionally, Native Americans hunted bison, gathered berries and wild vegetables, and (in river and coastal areas) fished for their food, but many of these practices are no longer being used as a result of being moved to new locations, being provided with previously unknown foods, and expected to assimilate into “White” culture (Native American Food, 2015). With the use of commodity goods being so widespread, many Native ways have been lost (LaDuke et al., 2012). Because of the rural location of the reservation, and the poverty of its inhabitants, access to fruits, vegetables, and whole grains is very limited (Bauer et al., 2012; Cassady et al., 2007; Food Environment Statistics, 2014; Jetter & Cassaddy, 2006; Krukowski, 2010; Latham & Moffat, 2007; Let’s Move, 2015; Liese et al., 2007; Morris et al., 1992; Simms-Hipp et al, 2013; Treuhaft & Karpyn, 2009).

Commodity goods are not always the healthiest choices, and lack of knowledge related to healthful food preparation methods does not improve nutritional value. The nutrient quality of commodity goods has improved in recent years. All canned vegetables provided by FDPIR are now required to be lower in sodium. However, much remains to be done: fruits are not required

to be packed in water or fruit juice and may be canned in heavy syrup, grains often are refined and rarely whole grain, and very little dairy is available and none of it is fresh because of the short shelf-life and limited refrigeration facilities. Meats often are canned and are likely high in sodium and possibly fat. Additionally, there are few nutrition education opportunities to teach healthy food preparation techniques (Mary Jean Hunter, Personal Communication, March 2014; Teachers, 2015).

Culinary Nutrition

Hersch, Perdue, Ambroz, and Boucher (2014), “suggest that cooking programs may positively influence children’s food-related preferences, attitudes, and behaviors (p. 1).” Other researchers have taught cooking interventions in the classroom and used the experience to emphasize other topics taught in the classroom such as mathematics skills and fractions, reading ability as children read recipes, and social skills as the children interact to cook and eat together (Lukas & Cunningham-Sabo, 2011). The *Cooking with Kids* curriculum was developed to improve school meals and eventually became a full food preparation and nutrition curriculum for elementary-aged children (Walters & Stacey, 2009). The curriculum has been used in elementary schools since 1995 in a predominantly Hispanic population and has seen success in improving knowledge and preferences of children for targeted foods such as vegetables, however there is a gender difference (Walters & Stacey, 2009; Cunningham-Sabo & Lohse, 2014). A similar program that focuses more on gardening, *LA Sprouts*, showed higher fiber consumption and improved anthropometric measurements of health such as lower blood pressure and weight in all children involved in its intervention (Davis, Ventura, Cook, & Gyllenhammer, 2011). However, the researchers noted that there is likely some gender bias among their youth indicating that males feel cooking is a female activity whereas gardening is for both genders (Davis et al.,

2011). Hersch et al. (2014, p. 5) states, “Longer programs can incorporate more cooking skills, provide in-depth nutrition education, and better incorporate a culture of wellness into the school, the community, or both.” An intervention that combines adequate time, nutrition education, and native values is needed to promote improved health in Native American youth.

A camp experience can contribute to the overall learning and self-efficacy of children in a fun environment and a short time period. Beets, Swanger, Wilcox, and Cardinal (2007) found that a culinary camp improved food preparation skills, cooking knowledge, and perceived cooking ability. The camp’s main purpose was to increase home food preparation, improve attitudes, self-efficacy, and other life skills that seem to be dwindling in the home setting. As with other interventions with kids, the culinary camp used an experiential learning framework, teaching by doing. The cooking camps lasted just over a week and ran for four hours each day, yet participants showed statistically significant improvement in perceived cooking ability and knowledge of food preparation techniques (Beets et al., 2007). Similarly, a review of studies examining the effects of cooking classes on school-aged children found that children were “more willing to try new foods if they had cooked or grown” them, and each program covered in the review showed a “significant effect on [one] or more of its participants’ food-related preferences, attitudes, and behaviors” (Hersch et al., 2014, pg p 3-4).

Both school-based and summer-camp interventions see improved outcomes with parental involvement, possibly because parents are more able to reinforce the concepts at home after seeing them used in the classroom and camp settings (Beets et al., 2007; Cunningham-Sabo & Lohse, 2014; Walters & Stacey, 2009). However, it is not always possible to involve parents in a curriculum due to work and other time commitments. Cunningham-Sabo, Groth, and Lohse (2011) found that children and teachers in an experiential foods program showed strongest

engagement during food preparation and tasting experiences, signifying the importance of a hands-on learning experience, even among primarily Caucasian children. The same study found that “a relatively brief experiential foods curriculum significantly improved fourth-grade student’s fruit and vegetable preferences, cooking attitudes, and cooking self-efficacy for students with no cooking experience (p. S11).” Programs with an emphasis on nutrition and physical activity can provide supplemental instruction for children whose schools may be unable to provide education and resources for health and wellness. Valenzuela et al. (2011, pg 190) reported that a children’s marathon and nutrition education program “filled an important gap in health education and physical education programming that did not exist” or had been cut in some schools.

Teaching kids’ cooking programs as a voluntary summer program provides an extra opportunity for children to participate in physical activities while gaining valuable life skills and knowledge such as: safe food handling techniques, kitchen safety, proper use of kitchen tools, gardening, traditional food production methods, the movement of food from farm to plate, and basic cooking skills for home food preparation. The overall goal of the present project was to create and evaluate a curriculum that incorporated food preparation techniques, nutrition information, and physical activity in a culturally acceptable, fun-filled day camp for Native American youth.

Objectives

1. Increase knowledge of MyPlate in Native American children, with an emphasis on making half the plate fruits and vegetables at every meal.
2. Increase participants' willingness to try new foods, especially fruits and vegetables.
3. Increase reported food and kitchen safety behaviors in Native American children.

CHAPTER 3. METHODOLOGY

Because there are so many factors related to nutrition, food security, and the food environment around Standing Rock Reservation, located in rural, southwestern Sioux county of North Dakota, research is needed that will promote healthy food habits, cooking, gardening, and the traditional and cultural food environment among children and families. Social Cognitive Theory (SCT) states that people, environment, and behaviors are all constantly affecting one another, and SCT emphasizes self-efficacy and self-regulation (Bandura, 1997, 2001, 2004; Contento, 2011). Thus, not only knowledge, but also behaviors and the environment must be addressed to make a lasting change (Figure A1).

As SCT states, individuals (the people of Standing Rock) affect their environment (other individuals, policies of local government, the land, etc.) and their behaviors (through conscious change, daily choices, and habits). Therefore, knowledge and skills were addressed to improve the personal factors that play a role in the diet and lifestyle of residents. Children were chosen for this work because as they mature, they will affect the environment in which they live, whether to its improvement or detriment. Because personal factors and environmental factors affect behavior, addressing what the children knew before beginning the camp will influence how they behave as they get older. Improving their knowledge of what a healthy diet looks like and teaching skills to enable them to prepare a healthy meal will influence their parents and siblings as the children discuss what they learned at camp.

Model

The Precede/Proceed Model states that “health-promoting behaviors and activities that individuals engage in are almost always voluntary, [therefore] carrying out health promotion has to involve those whose behavior or actions you want to change,” that “health is, by its very

nature, a community issue,” and “an integral part of a larger context” and therefore is also “more than physical well-being” more “than the absence of disease, illness or injury” (Section 2. Precede/Proceed, 2013, para 6). The Precede/Proceed model has eight phases, four for each part. Figures A2 and A3 shows the steps of the Precede/Proceed model as it would apply to the Renewal at Standing Rock project. Though not every phase of the model was used in this intervention, the general premise of identifying the end desired result, and proceeding from there was used to address the issues of low food security and nutrition knowledge. In order to increase food security and nutritional knowledge, the desirable outcomes were identified, as well as factors that contribute to the issues in the environment: low access to grocery stores, transportation, predisposing medical histories, ready access to fast food and convenience food items that are not as healthful (as many choices that aren’t available). Policies were not addressed as a whole because of the time constraint, and the support of policies that are already in place that both help and hinder the project in their implementation (offerings of food, but not all as healthful as possible, offerings of SNAP and WIC benefits, but poor access to a grocery store). Current resources were addressed, and the program was organized around what was already available. The process and the impact were evaluated, but the time required to evaluate the end goals was not available.

Another useful logic model is the Pathways to Independence, which considers inputs, activities, evaluation methods, short-term outcomes, intermediate outcomes, and then long-term outcomes (Taylor-Powell, Steele, & Douglass, 1996). The process stopped short because of the time frame of this intervention, ending at short-term outcomes, such as temporary increase in self-efficacy for planning of meals, increased skills for preparing snacks and meals, and increase in knowledge, attitudes, and beliefs related to nutrition and food preparation. There was little

time for follow-up; therefore intermediate outcomes were not completely evaluated. The distance from Fargo to Standing Rock prevented the researcher from building on relationships and establishing new relationships in person, the most effective method of evaluating the intervention. However, participants had the opportunity to speak for themselves in focus groups and phone interviews that enabled them to advocate for themselves and their families, providing some guidance for future interventions and conveying some short and intermediate outcomes of the camps. There also is a known nutrition educator who remains on site with the Extension Service. Long-term outcomes can be hoped for and hinted at, but the end goals of a completely sustainable and secure food source for the population were not observed in such a short time. Because the model could not be used in its entirety, it was merged with the precede/proceed model to create a more complete view of change on the reservation.

The combination of these models addressed the various components of a necessary intervention (phases of activity, inputs, activities, evaluation, outcomes, and factors), but allowed circumvention of unnecessary parts (long-term outcomes, and factors that we cannot change in a short time). Using SCT allowed the researcher to address an issue from multiple angles to promote a healthier food environment and self-efficacy through increased knowledge, using educational lessons with hands-on applications. SCT also has the ability to affect the environment in the long-term if the individuals continue to apply the learned knowledge of gardening and food preparation to their daily lives. Use of the Precede/Proceed Model allowed the researcher to form an effective strategy by creating a timeline of events that were necessary for the ideal implementation of the new program, paving the way for more in-depth work that can address barriers to change and address the gaps between the planning process and what actually happened, as well as any unintended consequences of the program's impact (Section 2.

Precede/Proceed, 2013). The outcome was evaluated using a logic model, because it divides the targets into expected time frames and simplifies the planning and evaluation processes.

Camp

Children who had completed grades two through six (ages 7 to 13 years old) were invited to attend Kids' Cooking Camp at one of four locations on the Standing Rock Reservation in southwest North Dakota. Participants were predominantly Native American, although assessments did not request participants to identify their race in a desire to be fully integrated in the culture. Each child signed a Child Assent form and parents/guardians were asked to sign a Parent Permission slip indicating informed consent and a media release. These forms allowed the children to participate in surveys, though camp participation did not require these forms, in accordance with IRB protocol and approval, and for photos to be taken at camp to be used in research publications and news releases. Forty children participated in the four camps at some point in time, though only twenty completed every survey administered during the camp. All children spoke English fluently, but reading and writing ability varied.

The intervention was added to ongoing children's cooking camps held during the summer at Standing Rock Reservation with camp sites in Fort Yates, Selfridge, Porcupine, and Cannon Ball communities. Previously, camps focused solely on food preparation, kitchen safety, and MyPlate. Each camp ran four days, six hours per day. The majority of camps were held Tuesday morning through Friday at lunch time, though one camp was held from mid-afternoon to evening (2:30 to 8 p.m.) due to a scheduling conflict. The camps focused on nutrition, food preparation and food safety, as well as food security and production. Using a semi-structured series of peer-reviewed lessons, the camps' schedule allowed children to return home after camp each day for rest and family time.

Each day of the camp, participants had the opportunity to take part in a new lesson that progressed in complexity from day to day. Topics included: utensil knowledge, kitchen and food safety on day one; MyPlate knowledge and balancing a healthy plate, preparing snacks and meals, and label reading on day two; basic gardening techniques and food preservation on day three; and traditional food systems, farm to plate, eating on the run, and eating right while eating out on day four. Each lesson included messages from MyPlate to re-emphasize the value of nutrition and physical activity throughout the week. The lessons encouraged children to read food labels for fat, sugar, and sodium information, and to prepare their own snacks and meals from foods that are available at home, whether through their parents' individual purchasing power, commodity goods, or SNAP benefits that increase their food-buying abilities. The lessons reinforced traditional, cultural values such as care for the earth and the community, as well as taking care of the body and mind. Much of the information was based on NDSU Extension Service publications and reformatted to be culturally-centered and age-appropriate. A camp schedule, assessment tools, and a lesson outline can be found in Appendix B, D, E, and G. However, the order of lessons varied from camp to camp with participants' interests and abilities.

The food preparation lessons were reinforced each day as children prepared their own lunch or dinner at the camp with provided foods. Safe food handling concepts were reinforced in each lesson, because food safety was a primary concern. Participants washed their hands, safely carried and used knives and other kitchen equipment, and measured food temperatures using a food thermometer before eating. Recipe difficulty increased as the week progressed, and children learned how to read a recipe and use measuring cups and spoons more efficiently. Older students frequently helped younger students, particularly their siblings and close relatives, to prepare

more difficult items. Foods from each MyPlate food group were prepared every day. See Appendix G for a menu.

To encourage participation in the camp, lunch was prepared by the participants with ingredients from the camp. The children received small incentives, such as take-home coloring and activity worksheets, a small container garden (strawberries, squash, or herbs), a food thermometer to encourage safe food preparation methods, and a set of measuring cups and spoons. The camp had several games and activities each day to keep it fun and encourage children to keep coming back for the duration of the camp. The games included a “fishing pond” where each paper fish had a number with a corresponding question related to the food groups, kitchen equipment, and/or food safety concept; in order to earn a point, the student had to answer the question correctly. In another game, colored rings were laid out on the ground and children moved around the rings with different body movements as instructed by a fellow student or camp counselor. When landing in a ring they answered a question about the food group with a matching MyPlate color, answered a question about food safety/security/preparation, and children stopping outside of the rings performed a physical activity on a “fun spot” for 10 seconds.

Curriculum Evaluation

The curriculum’s effectiveness was evaluated by administering pre- and post-tests each day and a survey at the beginning and end of camp, in accordance with IRB approval HE 14282. Questions assessed the participant’s reported ability to prepare healthful food, his/her feelings and attitudes about healthful foods, and knowledge of traditional food gathering practices (See Appendix D). The pre- and post-survey at the beginning and end of camp also asked participants about their interest in various food and nutrition-related topics. Before and after each lesson, a

brief test was administered to assess knowledge of the concepts in the lesson. Questions asked in each lesson, as well as a lesson plan outline, are provided in Appendix B and D.

Statistical Analysis

To analyze the data from camp, each student was assigned a code composed of four to six numbers. These numbers replaced the participants' names on each pre- and post-test. If a participant refused to write their name on the survey, a code of "0" was assigned. The descriptive statistics were analyzed with SPSS 22.0, and all further tests were run using SAS statistical software (IBM Corp, 2013; SAS Institute Inc., 2008). A *t*-test for each pre/post-test question pair was used to compare the means, and a series of Fisher's exact tests to check for differences on each question pre/post-intervention. Correlations of the combined pre- and post-assessment data were run for each of the assessment questions to show any relationships and can be found in Appendix F.

Focus Groups and Phone Interviews. Focus groups have been shown to be an effective means of evaluating the opinions of participants and their families in a qualitative manner, by pulling themes from the data (Bradley, Curry, & Devers, 2007). In order to evaluate the attitudes and thoughts of families about the camps, participants and their families were invited to take part in a series of focus groups in the autumn of 2014. Posters were placed around the community, a flier was sent out to parents who had provided a mailing address, and phone calls were made and messages left for parents providing a phone number. The focus groups were held on the reservation at least two months after the end of camp to allow as many people as possible to attend. The focus groups were held as an addition to the pre- and post-tests and surveys, which evaluated short-term outcomes. Due to lack of participation, only one focus group was held with two individuals present. To gather additional qualitative data, phone interviews were held at a

later date, addressing the same questions as the focus groups. The focus group and phone interviews addressed issues related to food security and nutrition, as well as the attitudes of parents and families toward the cooking camps. Parents had the opportunity to express their opinions of the camp, including what pieces of the camp were most helpful for their families. The focus group lasted approximately 20 minutes, and asked several questions about the camps (found in Appendix E). Participants were thanked for their time and participation and a \$20 gift card drawing held. The gift cards were an incentive to stay the full time of the focus group. Small prizes (ground beef, recipe booklets, and small cooking gadgets) were provided to everyone participating in the focus groups.

Qualitative Analysis

The recorded focus group and phone interviews were transcribed and then coded for themes. A Ph.D. student and M.S. student coded the interviews. Quotes from the transcripts were then copied into a table containing all of the thematic elements identified in the coding process.

CHAPTER 4. RESULTS AND DISCUSSION

Results

This section will first present the results of the evaluation related to the children, followed by the focus group and interview results with parents. Overall, Native American youth showed improvements in several healthy lifestyle choices and in knowledge about camp topics. Parents indicated that the cooking camps were helpful for their children in several ways.

Assessments. Subjects participating in this study completed 40 pre-assessments (each with 31 questions). The 4 sections in the pre-assessment were: 1) general questions about dietary habits, 2) questions about feelings of self-efficacy related to preparing food, 3) questions about food safety habits and beliefs, and 4) questions about desire to learn the different lesson topics. A few other questions were included to evaluate participants' willingness to request healthy food items of their parents, their beliefs about physical activity, whether their families grew or purchased most of their food, and how often the participants' families ate out. Appendix F shows the results of subjects' responses to each question on the pre- and post-assessments as well as the results of each pre- and post-test, and the correlations between each question on the assessment.

General questions about dietary habits. Questions about dietary habits included questions about typical, weekly fruit and vegetable intake, the frequency of choosing whole grains and healthy snacks, and the amount of low-fat dairy consumed each day. As expected in such a short period of time, dietary habits did not change from pre- to post-assessment. However, the amount of vegetables and non-fat or low-fat milk consumed increased almost to significance ($p = 0.0741$ and $p = 0.0599$, respectively). This result is surprising, as another study with sixth-grade children showed a clear decrease of fruits and vegetables from day 1 to day 7 of a food diary (Andersen, Bere, Kolbjornsen, & Klepp, 2004). However, children who displayed healthful

behavior in one area (such as eating vegetables) also tended to display healthful behaviors in other areas (such as eating fruit) as shown by combined pre/post correlations, which can be found in Appendix F. Andersen et al. (2004) notes that measuring food intake is challenging, “perhaps especially challenging among children when parents are not involved.” They also stated that “pupils may have over-reported the intake [of fruits and vegetables initially] in the 24-h recall because they are aware that fruit and vegetable are healthy and socially desirable.”

Table 1. *t*-test Values for Dietary Questions from Pre- to Post-Assessment (Pre-test *n* = 30, post-test *n* = 40)

Question	<i>t</i>-value	Probability
I eat vegetables	1.81	0.0741
I eat green, leafy vegetables	1.06	0.2913
I eat fruit	1.54	0.1279
I drink 100% juice	-0.03	0.9793
Do you eat enough fruits and vegetables?	-0.07	0.9459
I choose healthy snacks	1.32	0.1919
I eat breakfast	-0.28	0.7832
I do physical activities	2.19	0.0318*
I drink non-fat or low-fat milk	1.91	0.0599
I choose whole grains instead of refined grains	-0.29	0.7744
I drink sweetened drinks	-0.42	0.6767

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Questions about feelings of self-efficacy. Questions about feelings of self-efficacy focused on the child’s confidence in following a recipe and using measuring cups and spoons. Reported feelings of self-efficacy did not significantly change from pre- to post-assessment.

Questions about food safety habits and beliefs. In the pre-assessment, 75% children reported washing their hands before making something to eat “most of the time” or “always”. As seen in Table 2, this decreased slightly on the post-assessment to 73.3%. Though this was not a significant change ($t = 0.13$, $p = 0.8975$), it shows that more education is needed to promote safe food handling in elementary-aged children. It is also important to note that the mean score

increased from pre- to post-assessment, indicating that slightly more children indicated washing their hands sometimes rather than never or almost never.

Table 2. *t*-test Values for Questions about Food Safety Habits and Beliefs (Pre-assessment n = 30, post-assessment n = 40)

Question	<i>t</i>-value	Probability
A pizza has been left out of the refrigerator all night. What should you do?	2.74	0.0092*
A chicken and rice dish has been in the refrigerator for over a week. What should you do?	1.85	0.0692
I wash my hands before making something to eat	0.13	0.8975

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Two questions asked about participants' typical behavior when food is left out or stored for long periods of time. These questions included: "A chicken and rice dish has been in the refrigerator for over a week, what do you do?" and "A pizza has been left out overnight. What do you do?" On the pre-assessment, 75% of children reported that they would not eat a chicken and rice dish that had been stored in the refrigerator for more than a week. The post-assessment showed 63.3% of children responding in the same fashion. However, the positive *t*-score corresponds with a higher average score, indicating that more children would not eat the chicken and rice dish or smell the dish and then decide if it is okay to eat ($t = 1.85$, $p = 0.0692$). On the pre-assessment, 62.5% of children reported that they would not eat a pizza that had been left out overnight. This increased to 70% of children on the post test, indicating that a higher proportion of children were following safe food behaviors after camp lessons than before attending camp ($t = 2.74$, $p = 0.0092$).

Questions about desire to learn. A positive correlation was shown between children desiring to learn about various topics in the combined pre- and post-assessments. Children who desired to learn about preparing healthful meals and snacks also desired to learn about fast, easy meals, how to eat healthy when eating out, balancing a plate, and each of the other lesson topics,

though not all of the correlations were significant. A table showing all of the significant correlations for all questions in the combined pre- and post-assessments can be found in Appendix F.

Physical activity and food acquisition questions. On the post-assessment, not all questions about physical activities and food acquisition were significant. However, participants reported being physically active more often on the post-assessment than on the pre-assessment ($t = 2.19, p = 0.0318$). Worries about having enough food to eat did not change ($t = 0.00, p = 1.00$). Other questions that did not change significantly included: I read food labels ($t = 0.69, p = 0.4954$), How often does your family gather or grow food instead of purchasing it ($t = 0.67, p = 0.5075$), How often does your family eat food prepared at home (not at a restaurant) ($t = -0.61, p = 0.5468$), Being active is good for me ($t = 0.71, p = 0.4834$), Will you ask your family to buy your favorite fruit or vegetable ($t = 1.03, p = 0.3053$), Will you ask your family to buy non-fat or low-fat milk, instead of regular whole milk ($t = 1.69, p = 0.0968$), Will you ask your family to have fruits where you can reach them ($t = 1.76, p = 0.0859$), and Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them ($t = 1.50, p = 0.1402$).

Lesson Tests and Knowledge Scores. As seen in Table 3, seven lessons were tested for effectiveness. Participants increased their overall knowledge scores, pre- to post-test, on five of the seven tests. The tests showing significant improvement include: “Balancing a Plate,” “Eating on the Run,” “Get Started Gardening,” “Food Preservation,” and “Eating Right While Eating Out.” “Preparing Snacks and Meals/Label Reading,” and “Traditional Food Systems/Farm to Plate” test scores did not show significant improvement.

Table 3. *t*-test Values for Knowledge Scores as Shown by Number of Correct Responses Pre-Survey to Post-Survey (Post-test minus Pre-test)

Difference	Pre Sample size	Post Sample Size	<i>t</i>-value	Probability
Balancing a Plate	30	28	2.87	0.0058*
Eating on the Run	29	19	3.38	0.0015*
Preparing Snacks and Meals/ Label Reading	32	33	0.44	0.6640
Get Started Gardening	27	27	2.85	0.0063*
Food Preservation	25	26	5.16	<0.0001*
Eating Right While Eating Out	22	23	2.11	0.0419*
Traditional Food Systems/ Farm to Plate	20	20	1.36	0.1806

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Balancing a Plate. Children responding to the Balancing a Plate surveys showed improved knowledge for most questions relating to the plate proportions recommended by the MyPlate guidelines. However, student recognition of the correct portion of a plate for vegetables and the presence of dairy did not significantly improve from pre- to post-test. Children also were unable to recognize the correct number of servings of dairy they should consume each day and the recommended portion sizes for various food items and what object would be a similar size. The Fisher's exact test probability and percentage of correct responses for each question can be found in Appendix F.

Eating on the Run. Children attending the Eating On the Run lesson showed improved recognition of quinoa as a whole grain ($p = 0.0319$), that make-ahead meals can be prepared in several ways ($p = 0.0239$), and that television dinners can be more expensive than homemade meals ($p = 0.0394$). The Fisher's exact test probability and percentage of correct responses for each question can be found in Appendix F. However, the participants showed little interest in fast meal preparation during the lesson, and the lack of change in knowledge scores could indicate a lack of interest in the topic.

Preparing Snacks and Meals/Label Reading. The results of Fisher's exact test indicated that children learned that perishable foods should be refrigerated or frozen within two hours if they weren't going to be consumed right away ($p = 0.0219$) and that table sugar is an added sugar ($p = 0.0268$). No other questions on the Preparing Snacks and Meals/Label Reading survey showed a significant improvement. The Fisher's exact test probability and percentage of correct responses for each question can be found in Appendix F.

Get Started Gardening. Participants learned that plants can grow without dirt ($p = 0.0023$). Participants also learned that it is good for the Earth to plant where the sun and water can reach plants naturally ($p = 0.0276$) and that raised bed gardens are above the ground with walls, but no bottom ($p = 0.0308$). The Fisher's exact test probability and percentage of correct responses for each question can be found in Appendix F.

Food Preservation. Participants were able to recognize canning and drying as good ways to preserve food ($p = 0.0483$). Participants also learned that the USDA website can provide information about preserving food safely ($p = 0.0115$), that memory is not to be trusted to tell you about preserving food safely ($p = 0.0337$), that canned goods should be stored safely, out of extreme temperatures and away from light ($p = 0.0399$), and that a freezer must be kept below 0°F to store frozen foods properly ($p = 0.0007$). The Fisher's exact test probability and percentage of correct responses for each question can be found in Appendix F.

Eating Right While Eating Out. Children who participated in the Eating Right While Eating Out lesson did not show significant improvement in any one test question. However, the overall score for the Eating Right While Eating Out test improved significantly ($t = 2.11$, $p = 0.0419$). The percentage of children who recognized that a grilled item was not as likely to be high in fat as objects that were listed as crispy, deep-fried, or battered approached significance (p

= 0.0515). Given the response distribution, children probably gleaned information that was pertinent to their personal eating habits, which are highly varied based on preferences, leading to an insignificant change in knowledge for any specific question. Eating out is most likely a luxury for many of these families, occurring infrequently enough that the number of calories these children consume from meals away from home is negligible in the grand scheme of these children's lives.

Traditional Food Systems and Farm to Plate. The overall knowledge scores for this test did not improve from pre- to post-test. However, one individual question improved significantly from pre- to post-test: "Which of these are traditional food practices and good for the Earth: Using every part of an animal." The correct response increased from 35% to 75% ($p = 0.0248$). This question was asked to evaluate whether participants understood the traditional values of conservation and avoiding waste.

Focus Group and Phone Interviews. On the day of the scheduled interviews, two individuals came to a focus group to discuss the camp. No other families attended the focus groups scheduled on this day. As shown in Table 4, themes uncovered during the focus group included: education, teamwork, cooking in various ways and places, healthy eating, safety in the kitchen, new foods such as fruits and vegetables, food safety, gardening problems and desires, and shared stories from camp.

Three individuals agreed to participate in phone interviews and share their thoughts about the camp, because of the low attendance at the focus group. Themes that emerged from the phone interviews included: reasons for not making changes, cooking camp preferred activities, suggestions for future camps, changing eating habits in camp participants, kitchen safety, sharing information with others, food safety, gardening problems, resources, and desires, helpful parts of

cooking camp, and outcomes of the cooking camp as seen by the parents and relatives of the participants. The results of this qualitative research are in line with previous studies that showed fruit and vegetable preferences improving with growing, preparing, and tasting foods (Cunningham-Sabo & Lohse, 2014).

Table 4. Themes and Direct Quotes from the Focus Group and Phone Interviews

Theme	Sub-theme	Quote
Reasons for not making changes	Camp not long enough	“I would make them longer”... “I would say that it would be a good idea to have more days”... “my oldest one is already asking, ‘well, when are they going to do it again, mom?’”
	Too busy/other concerns	“you know, after the camp is school, and now there’s homework, for...so, they’re not really concerned” “there’s only a certain amount of time between school and bed”
Camp	Lack of access	“He, well, he actually enjoyed the cooking camp because it was something new...and it was something that they don’t have access to on a regular basis, other than helping me on occasion.” “The fact that [the kids] were so interested in [cooking camp] was good. There aren’t many things for kids to do around here. Food is always interesting to them.”
Camp	Favorite Activities	“She really enjoyed cooking” “making the food” “I’d say [the child] actually had a plate that was sectioned off. Just this much, for...you know?” “My favorite thing? Was cooking and helping out.”
Changing Habits	Excitement about foods from camp	(In reference to a child sharing a camp recipe with his siblings) “His younger sisters looked at it like, ‘EWW!’ and then he said ‘Try it’ and they took a bite, and he spent the next half an hour cooking peanut, grilled peanut butter and jelly sandwiches” “I always have this habit where I ask them ‘what should we cook?’ or ‘what should we make?’ and a lot of the things that he did here he wanted to try again. And then we looked at that recipe book several times”
	Eating more fruits and vegetables/ willingness to try new foods	“I think [camp] made him more willing to try different things...he’s more willing to try different fruits and vegetables, more than he was before.” “They’re eating more vegetables, um, and they’ve pulled away from the sweets”... “my oldest son has asked to try the broccoli, um, and he’s actually decided that he likes, he’s wanting to try more of the vegetables...he even has me get squash!”
	Desire to help with kitchen duties at home	“She just always wants to like help when they start to cook something. She says, ‘yeah, yeah, I know how to cook this’ and stuff like that” “the kids are learning how to...are working more with me and helping me in the kitchen to prepare meals”

Table 4. Themes and Direct Quotes from the Focus Group and Phone Interviews (continued)

Theme	Sub-theme	Quote
Safety	Kitchen safety	<p>“I remember that what stuck out in his mind was when you do dishes, you don’t put sharp objects in the water, you put them on the counter”</p> <p>“like in baking, baking cookies or cake, or whatever, how she’s got to use the um, the pot holders”</p>
	Food safety	<p>“I have a spray bottle with bleach and water...it’s mixed together. So, um. Like after handling the chicken or the meat, or you know? How we spray down the counter and the sink and wash your hands”</p> <p>“what about putting the cold foods back in the refrigerator right away?... He reminds me to do that”</p> <p>“She washes all her vegetables over...if she doesn’t eat them, she’ll wash them again”</p>
Gardening	Problems	<p>“...this was the first summer I didn’t put in a garden, because of the snake problem around here. I just didn’t want to deal with it anymore.”</p> <p>“we planted [the plants the kids took home], but we had two little puppies that got into them”</p> <p>“we didn’t have a good spot to put them in the yard, so we were keeping them inside.... Well, I’m not very good with gardens, so I think I might have killed them off.”</p>
	Resources	<p>“my wife is uh, kind of a green thumb. She does a lot of gardening.”</p> <p>“I tend to go to my sister-in-law who does a lot of gardening...and when there is something she don’t know, we tend to just kind of do a random search on the internet.”</p> <p>“here on the reservation, there is a program that is run by, you know, one of the members from out here actually. You know, you can call there and if you wanted a piece of your um, property or whatever, tilled and they give you seeds and all that so that’s pretty cool. Like, I use that program.”</p>
	Things to grow/reasons for growing a garden	<p>“The children love corn, pumpkins are great for Halloween, they love strawberries, we use cucumbers for pickles, we use squash, and just a whole variety of fruits and vegetables that my kids can help grow and my kids will eat!”</p> <p>“The reason that I did the garden was so that they could watch things grow.”</p> <p>“the kids like carrots and stuff...”</p>

Parent Comments on Lessons. Although parents' comments on individual lesson plans were not asked for, many parents shared their thoughts about various lessons while answering questions during the focus groups. Their responses are below.

Balancing a Plate. One parent stated that her child had kept an activity sheet covered in camp that showed "this much for dairy and that much for fruit and this much for vegetables." Several parents and parents noted that their children were trying to watch what they ate, eating healthier snacks, and wanting to try new foods, especially vegetables. This finding aligns with other studies that showed younger children requiring repeated tastings of foods before they're accepted (Lakkakula, Brown, Kennedy, Reed, Warner, & Keller, 2010; Kaiser et al., 2012; Cirignano, Fitzgerald, Hughes, Savoca, Morgan & Greci, 2014).

Eating on the Run. One guardian stated that the reasons for not making changes after camp was largely caused by busy-ness, not having enough time to focus on food preparation and meal planning when trying to get the children to school, to finish their homework, and to bed in order to have enough rest. These comments could indicate that fast and easy meals that feature fruits and vegetables could be the subject of a lesson plan geared toward adults in the future.

Preparing Snacks and Meals/Label Reading. Although this test showed no improvement in overall knowledge score, many parents commented that their child was helping cook and plan meals more often, as would be expected from the participants' eagerness to help prepare foods and cook at camp. They also mentioned that the children had learned to be safer in the kitchen by: waiting and washing knives one at a time and not submerging them in the dishwasher, thereby preventing cuts, not touching heating elements, and using pot holders to remove items from the stove or oven. Parents also talked about some of the food safety themes that children had learned at camp: BAC (an abbreviation for bacteria) and the "Clean, Separate, Cook, Chill" theme, to

wash hands before making food items and before eating, to keep cold foods cold and refrigerate perishable food items right away, to wash fruits and vegetables before eating them, to cook foods to the proper temperature and test the temperature with a food thermometer, and to sanitize counters, sinks, and tables to avoid cross-contamination when preparing meats. Two parents specifically mentioned that their family was using the food safety toolkit provided by the camp.

Get Started Gardening. None of the families completing phone interviews or focus groups were able to eat food from the plants provided at camp. The families cited problems such as lack of space, skills, or resources to keep the plants healthy. Other problems included the short summer, family dogs eating or otherwise destroying the plants, and the danger of snakes and other pests. This same group of individuals mentioned that there were resources they could acquire if they wanted to try to grow more of their own food. Many of the mentioned resources were family members such as grandparents, spouses, or in-laws. Only one individual mentioned the internet, and another mentioned a local organization (that was later found to be a program developed under a separate grant for the Native Gardens diabetes program) that will put in a garden for members of the tribe and provide seeds and supplies to care for it. However, many individuals stated that it would be fun to grow carrots, watermelon, corn, potatoes, pumpkins, strawberries, cucumbers, squash, or even grapes. Carrots and corn were particularly popular items, each being mentioned at least twice by two individuals. Reasons for gardening included giving the children something to care for, that helping to grow food would make the kids more likely to eat the food, that the garden was for a spouse or family member, and that watching things grow would be a good learning experience for the children. Parents indicated that extra produce would be given to family members first, generally, and then taken to the elderly, the community centers, and other community members they would ask. The topic of gardening

could be developed into a separate curriculum, which could provide families with the needed knowledge and skills to grow more of their own food.

Food Preservation. Two parents mentioned that they would like their children to learn more about Native ways, that nothing goes to waste, how to save something to use later, and how to can and preserve food. These comments suggest that Native ways are still important and future camps should place more emphasis on maintaining healthy traditions.

Eating Right While Eating Out. No parents mentioned eating habits away from home during the interviews, which could indicate that meals away from home are of either infrequent occurrence or little importance to these individuals. The information from this lesson plan could be adjusted to a separate meal preparation lesson, so as to be more applicable to this audience's eating habits.

Traditional Food Systems and Farm to Plate. One parent mentioned that nothing goes to waste when they grow and prepare food. At least two individuals overtly or covertly referenced Native ways as being important for their children to learn.

Discussion

Walking the lines of Native, traditional culture with hands-on learning and the world of 9 a.m. 5 p.m. jobs and a world of information at their fingertips at the click of the mouse is difficult for Native American children (Today's Challenges, 2006). Native culture is important to the elders, parents, and community members of the Standing Rock Reservation. With the changing times bringing automotive transportation, internet, and desk jobs, the difficulty is making traditions and culture a priority, while embracing the benefits of change.

Estimates for the number of individuals living in poverty vary ranging from 39 to 47% on the reservation (U.S. Census Bureau 2010; U.S. Census Bureau 2013). Of all the individuals

living in Sioux county, City-Data estimates that 12.7% have diabetes and the obesity rate is 36.0%, while the North Dakota rate is 7.6% and 27.6% respectively (Food environment statistics, 2014). Thus far, successful diabetes, nutritional, and physical fitness interventions have not been successful in reducing the rate of diabetes in adults. However, Kids' Cooking Camp results indicate that children improved their knowledge of healthy choices and behaviors, and a sample of parents reported increased willingness to try new foods as well as fruit and vegetable intake in their children. This finding is in line with other studies that show food preparation and cooking education can lead to "positive changes in children's food-related preferences, attitudes, and behaviors (Hersch et al., 2014). Similar studies have shown that "children's involvement in cooking and meal preparation and tasting will affect attitudes toward cooking, cooking self-efficacy, and preferences for vegetables" (Cunningham-Sabo & Lohse, 2014).

Children also require repeated exposure to new foods before accepting the foods (Cirignano et al., 2014). Cirignano's (2014) study indicated that many younger children have not been introduced to a wide variety of fruits and vegetables, but those children who were exposed to new foods at a young age were more likely to be willing to try those foods later. Parents commented that children attending the camp were more willing to try new fruits and vegetables after the end of camp. This finding corresponds with Cirignano's research as well as many other researchers, as the camp enabled children to try a wide variety of fruits and vegetables (Lakkakula et al., 2010; Kaiser et al., 2012).

Each community is different. Lessons that worked very well in one community were not always welcomed in another, and the importance of catering the lessons to the children present became evident quickly. Engaged children are alert, participating, asking questions, and more importantly (for a camp setting, at least) enjoying themselves. While this method of changing

plans and the complexity of lessons to suit the learning stage and style of a community's children is advantageous for the child, it makes standardized testing and quantitative data more difficult to gather. The varying lesson plans is a limitation, but also a strength in this study.

Learning styles vary among children (Learning Styles, 2015). Some children may learn better with the hands-on activities provided by the camp, and lectures may be considered dull or uninteresting. Other children may learn best by reading and hearing, or simply by watching a demonstration of the material. While the camp made every effort to use multiple learning styles, it was not possible to use all learning styles for all lessons. In addition to these learning style differences, different schools teach differently so children may be adapted to their school's learning style, as well as how much exposure they had to the information being taught before coming to camp through helping their parents or relatives at home. Children who help their parents cook at home likely knew the necessary skills to help teach the camp, whereas children who hadn't had the opportunity or desire to help their parents previously lacked experience and needed to be taught simple skills and principles before participating.

Another limitation is the broad age range of the children who were invited to participate in order to have adequate numbers for this pilot study. Though only second through sixth grades were invited to participate, a great deal of growth, development, and maturing occurs during this short stage. A range of ages provides insights and allows older children to teach the younger children, but it also makes it more difficult to teach both groups simultaneously. To teach the younger children the basics means ignoring the older children, and teaching the older children more complex material requires leaving the younger ones to fend for themselves. Future camps should break children into closer age ranges, perhaps teaching the older children in the morning and the younger ones in the afternoon or vice versa.

Curriculum

The designed curriculum is currently being revised based on the results of this pilot study. The finished curriculum will be available for others to use in other locations for four day cooking camps or for shorter lessons about food preparation, gardening, traditional food systems, farm to plate, and food preservation.

CHAPTER 5. CONCLUSIONS AND RECOMMENDATIONS

Cooking camps show promise to improve cooking skills and nutrition knowledge in Native American youth. Future camps should continue to incorporate cultural values and hands-on activities to improve knowledge and behavior gains in participants. Camp leaders should talk to key informants to find out what lessons are of most interest to the children and parents in a community and design the cooking camp based on this input. Because of the nature of cooking and teaching young children how to be safe in the kitchen, smaller groups are best suited for this type of camp, and the number of children to counselors should not be greater than 5:1, though it would be better to be closer to 3:1. A system of small awards and privileges should be included to reward children who are well-behaved and actively participating, and to provide a means of leverage when children are disruptive. Multiple parents and children expressed their enjoyment of the camp, and their changed short-term habits are promoting longer-lasting change, as the focus group and phone interviews show. Incorporating these camps as an afterschool activity or hosting mini-camps throughout the year would provide a means of continuing and building upon the foundation that was laid during the summer, and provide an activity for children outside of school.

Although participants in the camps showed improvements in knowledge in multiple areas, further testing is needed to validate these results. Surveys and lesson plans should flow together with activities and food preparation to increase and hold children's interest in the camp each day. Kids' Cooking Camps show promise for promoting behavior change in Native American youth.

Potential outcomes of this research include improved knowledge of nutrition guidelines, safe food practices, traditional food practices, and increased self-efficacy related to food

preparation among Native American children. Eventually, these short-term changes can promote a long-term cultural change toward a healthier view of food, and decreased health disparities in factors such as diabetes and cardiovascular disease. By combatting the effects of poor diet and inadequate nutrition, as well as the stress related to traumatic culture change, it is possible to begin to reverse the negative health consequences this group has experienced.

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**APPENDIX A. FIGURES OF MODELS USED IN DEVELOPING THE
INTERVENTION AND CURRICULUM**

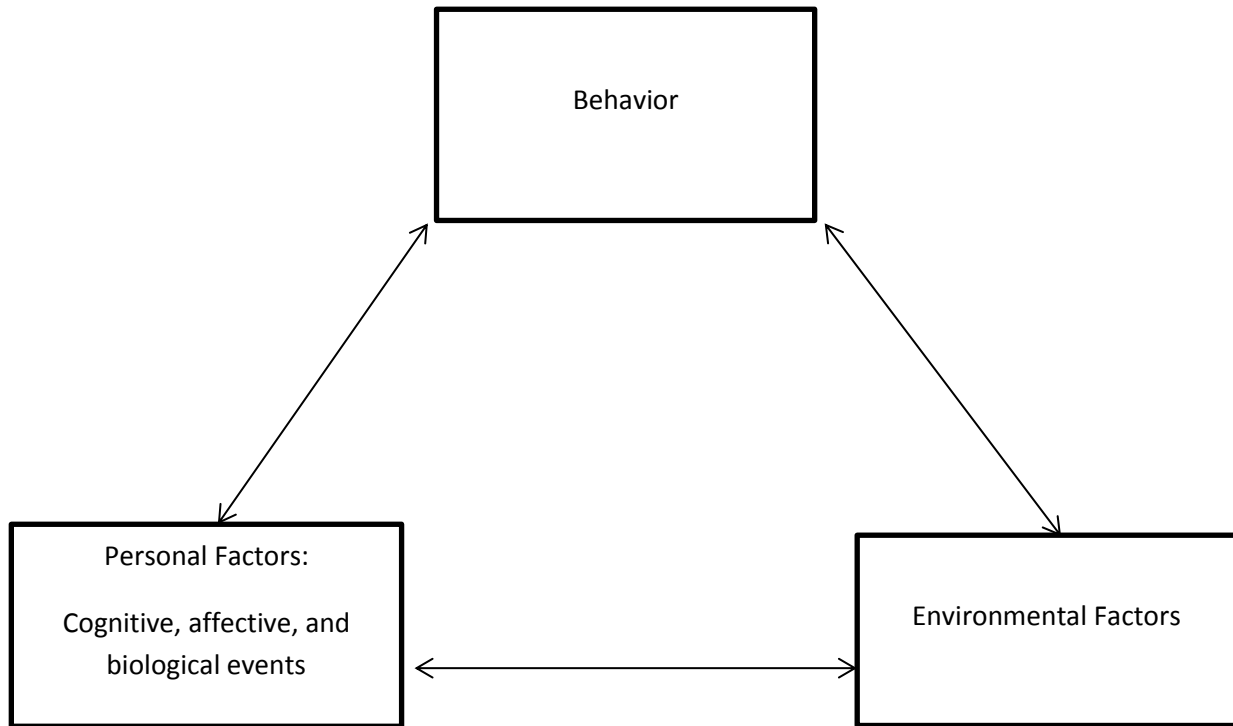
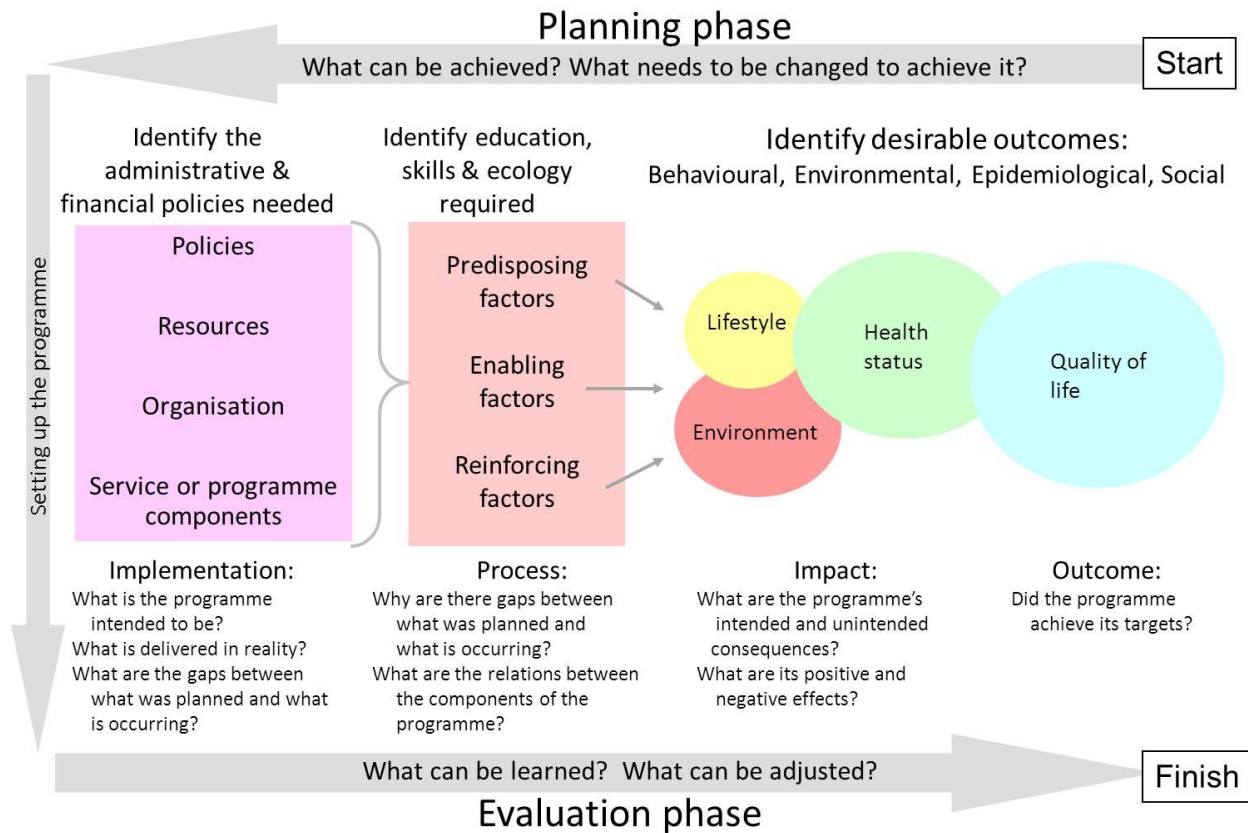


Figure A1. Overview of Social Cognitive Theory



Adapted from: Green L. <http://www.lgreen.net/precede.htm> (Accessed May, 2009)

Figure A2. The Precede/Proceed Model (Green & Kreuter, 2005)

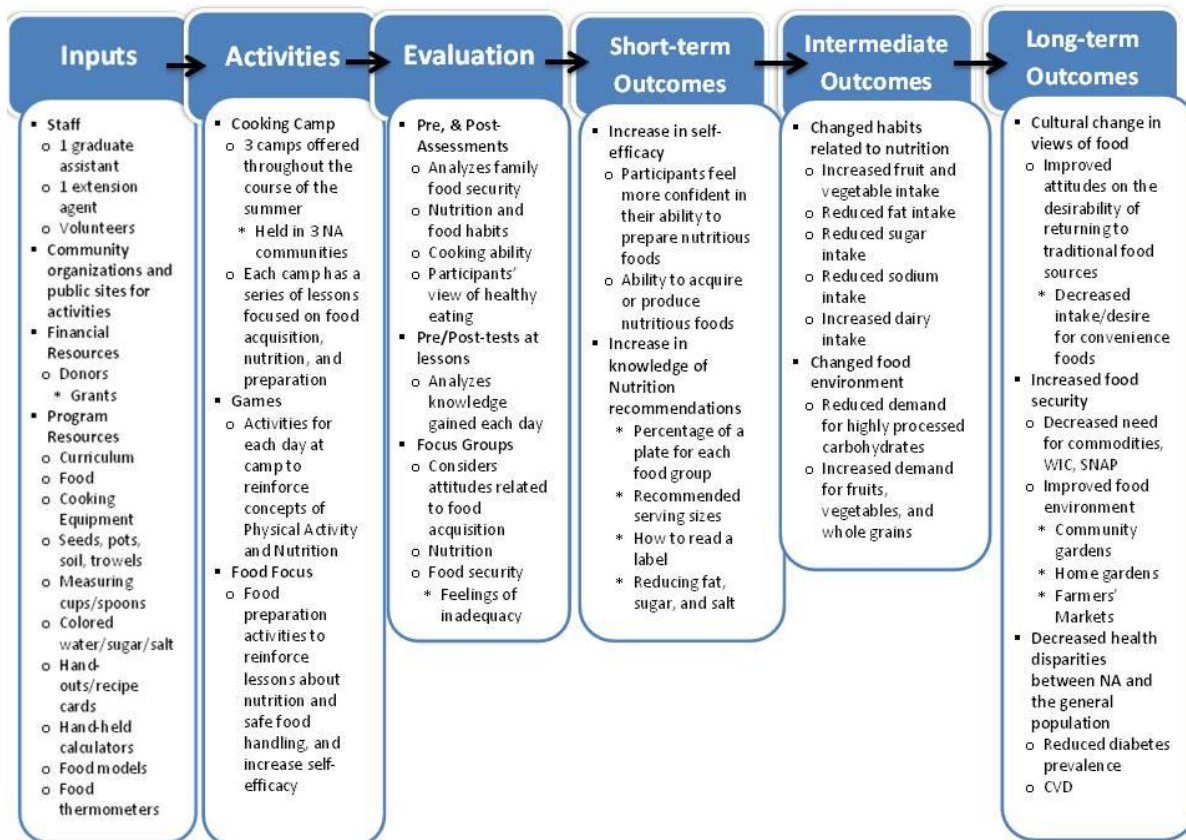


Figure A3. Logic Model for the Renewal at Standing Rock Nutrition Curriculum

APPENDIX B. LESSON PLAN TEMPLATE

Lesson Title—Lesson Plan

Target Group:

Time Needed:

Overall Goal:

Objectives:

- Participants will
- Participants will
- Participants will
- Participants will
- Participants will

Key Concepts:

Opening statement

- Concept 1
- Concept 2

Lesson Prep

This class will focus on...

Supplies Needed

List supplies

Take-home incentives

Will incentives be given to participants? If so, what?

Optional Activities

List optional activities

Note to instructor: Know your audience and its cultural food ways

Talking Points

Today we will be talking about...

Subcategory 1

- Subcategory 1 talking points
- Ditto

Subcategory 2

- Subcategory 2 talking points
- Ditto

Activity

Describe activity, invite participants to take part

Optional Activities

Talking points

- What needs to be covered still?
- What can help participants through the activities they are working on?
- What will be helpful to know if they have questions later?

APPENDIX C. IRB APPROVAL AND DOCUMENTS



May 27, 2014

FederalWide Assurance FWA00002439

Julie Garden-Robinson
Department of Health, Nutrition & Exercise Sciences
EML 351

IRB Approval of Protocol #HE14282, "Renewal at Standing Rock: Nutrition Education - Kids Cooking Camps"

Co-investigator(s) and research team: Kelly Burdett, Mary Jean Hunter

Approval period: 5/27/14 to 5/26/15

Continuing Review Report Due: 4/1/15

Research site(s): Standing Rock

Funding agency: USDA (FAR0021557)

Review Type: Expedited category # 6, 7

IRB approval is based on original submission, with revised: protocol, informed consent and parent permission (received 5/23/14).

Additional approval is required:

- o prior to implementation of any proposed changes to the protocol (*Protocol Amendment Request Form*).
- o for continuation of the project beyond the approval period (*Continuing Review/Completion Report Form*). A reminder is typically sent two months prior to the expiration date; timely submission of the report is your responsibility. To avoid a lapse in approval, suspension of recruitment, and/or data collection, a report must be received, and the protocol reviewed and approved prior to the expiration date.

A report is required for:

- o any research-related injuries, adverse events, or other unanticipated problems involving risks to participants or others within 72 hours of known occurrence (*Report of Unanticipated Problem or Serious Adverse Event Form*).
- o any significant new findings that may affect risks to participants.
- o closure of the project (*Continuing Review/Completion Report Form*).

Research records are subject to random or directed audits at any time to verify compliance with IRB regulations and NDSU policies.

Thank you for cooperating with NDSU IRB procedures, and best wishes for a successful study.

Sincerely,

Kristy Shirley, CIP

Research Compliance Administrator

INSTITUTIONAL REVIEW BOARD

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Date Received

10/10/14

IRB Protocol #: HE14282

Protocol Amendment Request Form

Changes to approved research may not be initiated without prior IRB review and approval, except where necessary to eliminate apparent immediate hazards to participants. Reference: SOP 7.5 Protocol Amendments.

Examples of changes requiring IRB review include, but are not limited to changes in: investigators or research team members, purpose/scope of research, recruitment procedures, compensation strategy, participant population, research setting, interventions involving participants, data collection procedures, or surveys, measures or other data forms.

Protocol Information:

Protocol #: HE14282 Title: Renewal at Standing Rock: Nutrition Education - Kids Cooking

Review category: [] Exempt [X] Expedited [] Full board

Principal investigator: Julie Garden-Robinson Email address: julie.garden-robinson@ndsu.edu
Dept: HNES

Co-investigator: Kelly Burdett Email address: kelly.burdett@ndsu.edu
Dept:

Principal investigator signature, Date: Julie Garden Robinson 10/10/14

In lieu of a written signature, submission via the Principal Investigator's NDSU email constitutes an acceptable electronic signature.

Description of proposed changes:

- 1. Date of proposed implementation of change(s)*: October 17, 2014
* Cannot be implemented prior to IRB approval unless the IRB Chair has determined that the change is necessary to eliminate apparent immediate hazards to participants.
2. Describe proposed change(s), including justification:
We are proposing to change the focus group questions for a parent-child discussion of the topics covered at the cooking camps held during the summer of 2014. Initially, we were only planning to include the parents, but the children are out of school and available to participate if they are interested. The updated focus group questions and a new child assent are included with this document, along with the parent consent. In addition, a handout to recruit the families is attached.

3. Will the change involve a change in principal or co- investigator?

No - skip to Question 4

Yes:

- *Include an Investigator's Assurance (last page of protocol form), signed by the new PI or co-investigator*
- *Conflict of Interest disclosure. Does any investigator responsible for the design, conduct or reporting of the project (including their immediate family members) have a financial, personal or political interest that may conflict with their responsibility for protecting human participants in NDSU research? (SOP 6.2 Conflict of Interest in Human Research, Investigator and Research Team)*

No - As PI, I attest that I have conferred with my co-investigators and key personnel and confirmed that no financial, personal or political interests currently exist related to this research.

Yes - Describe the related financial, personal or political interests, and **attach documentation of COI disclosure and review (as applicable).**

Financial, personal or political interests related to the research (the sponsor, product or service being tested, or a competing product or service) may include:

- compensation (e.g., salary, payment for services, consulting fees)
- intellectual property rights or equity interests
- board memberships or executive positions
- enrollment or recruitment bonus payments

(Refer to NDSU Policy 151.1, *External Activities and Conflicts of Interest*, and NDSU Policy 823, *Financial Disclosure – Sponsored Projects* for specific disclosure requirements.)

Note: If the change is limited to addition/change in research team members, skip the rest of this form.

4. Will the change(s) increase any risks, or present new risks (*physical, economic, psychological, or sociological*) to participants?

No

Yes: *In the appropriate section of the protocol form, describe new or altered risks and how they will be minimized.*

5. Does the proposed change involve the addition of a vulnerable group of participants?

Children: no yes - include the *Children in Research* attachment form

Prisoners: no yes - include the *Prisoners in Research* attachment form

Cognitively impaired individuals: no yes*

Economically or educationally disadvantaged individuals: no yes*

**Provide additional information where applicable in the revised protocol form.*

6. Does the proposed change involve a request to waive some or all the elements of informed consent or documentation of consent?

no

yes -  Attach the *Informed Consent Waiver or Alteration Request*.

7. Does the proposed change involve a new research site?

no

yes



If information in your previously approved protocol has changed, or additional information is being added, incorporate the changes into relevant section(s) of the protocol. Highlight (e.g. print and highlight the hard copy, or indicate changes using all caps, asterisks, etc) the changed section(s) and attach a copy of the revised protocol to this form. (If the changes are limited to addition/change in research team members, a revised protocol form is not needed.)

Impact for Participants (future, current, or prior):

1. Will the change(s) alter information on previously approved versions of the recruitment materials, informed consent, or other documents, or require new documents?
 No
 Yes - attach revised/new document(s)
2. Could the change(s) affect the willingness of *currently* enrolled participants to continue in the research?
 No
 Yes - describe procedures that will be used to inform current participants, and re-consent, if necessary:
3. Will the change(s) have any impact to *previously* enrolled participants?
 No
 Yes - describe impact, and any procedures that will be taken to protect the rights and welfare of participants:

-----FOR IRB OFFICE USE ONLY-----

Request is: <input checked="" type="checkbox"/> Approved <input type="checkbox"/> Not Approved
Review: <input type="checkbox"/> Exempt, category#: _____ <input checked="" type="checkbox"/> Expedited method, category # <u>6/7</u> <input type="checkbox"/> Convened meeting, date: _____ <input type="checkbox"/> Expedited review of minor change
IRB Signature: <u>Kristy Shirley</u> Date: <u>10/15/14</u>
Comments:

APPENDIX D. SURVEYS

Code Number: _____ Date: _____

Question	0	1	2	3	4
1. I eat vegetables	Never or almost never	Some days	Most days	Every day	
2. I eat green, leafy vegetables like lettuce or celery ___ times in a typical week.	None	1 time	2-3 times	4-5 times	5+ times
3. I eat fruit	Never or almost never	Some days	Most days	Every day	
4. I drink 100% fruit juice ___ times each week	None	1 time	2-3 times	4-5 times	5+ times
5. Do you eat enough fruits and vegetables?	I eat enough fruits and vegetables	I need to eat more fruits and vegetables			
6. I choose healthy snacks	Never or almost never	Some days	Most days	Every day	
7. I eat breakfast	Never or almost never	Some days	Most days	Every day	
8. I do physical activities	Never or almost never	Some days	Most days	Every day	
9. I drink non-fat or low-fat milk ___ times each day.	None	1 time	2 times	3 times	4+ times
10. I choose whole grains, like brown rice instead of white rice, whole grain bread instead of white bread, and whole grain cereals when I eat grains.	Never	Once in a while	Sometimes	Most of the time	Always
11. I drink sweetened drinks like soda, fruit-flavored drinks, sports drinks, energy drinks,	None	1 time	2 times	3 times	4+ times

and vitamin water ____ times each day. Do not include 100% juice.					
12. How often do you worry about having enough food?	Never	A few times per year	Once per month	Weekly	daily
13. I make healthy choices when deciding what to eat when eating out.	Never	Once in a while	Sometimes	Most of the time	Always
14. How often do you read food labels?	Never	Once in a while	Sometimes	Most of the time	Always
15. How confident are you in following directions in a recipe?	Not confident	Somewhat confident	Confident	Totally confident	
16. How confident are you in using measuring spoons and cups?	Not confident	Somewhat confident	Confident	Totally confident	
17. How often does your family gather/grow food instead of purchasing it?	Never	Once in a while	Occasionally	Often	Usually/always
18. How often does your family eat food prepared at home (not at a restaurant)?	Never	Once in a while	Occasionally	Often	Usually/always
19. Being active is fun	I do not agree	I'm not sure	I agree		
20. Being active is good for me	I do not agree	I'm not sure	I agree		
21. A pizza was left out of the refrigerator all night. What should you do?	Eat the pizza	Smell the pizza and then decide if it's okay to eat	Put the pizza in the refrigerator	Don't eat the pizza	
22. A chicken and rice dish has been in the refrigerator for over a week. What should you do?	Eat the chicken and rice dish	Smell the chicken and rice dish and then decide if it's okay to eat.	Put the chicken and rice dish back in the refrigerator	Don't eat the chicken and rice dish	

23. I wash my hands before making something to eat	Almost never	Sometimes	Most of the time	Always
24. Will you ask your family to buy your favorite fruit or vegetable?	No	Maybe	Yes	
25. Will you ask your family to buy non-fat or 1% milk instead of regular, whole milk?	No	Maybe	Yes	
26. Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	No	Maybe	Yes	
27. Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	No	Maybe	Yes	

28. I enjoy cooking: True False

29. I think I can eat a healthier diet and will try to soon: True False

30. What would you like to learn about nutrition? (circle all that apply)

- a. How to prepare healthy meals/snacks
- b. Fast, easy meals
- c. How to eat healthy when eating out
- d. Balancing a plate
- e. Food preservation: freezing or drying
- f. Gardening
- g. Label reading
- h. Traditional food gathering/farm to plate
- i. The food groups and why they are important

21. Would you be interested in taking part in a focus group (talking circle) with your family where we talk about food? Yes No

If yes, please include your name and contact information below:

Gardening Questions:

Code Number: _____ Date: _____

1. What are the basic requirements for plant growth? (circle all that apply)
 - a. Water
 - b. Sunlight
 - c. Nutrients: NPK
 - d. Warm weather
 - e. Dirt
2. What is the growing season for pumpkins (When are pumpkins available and cheap)? (Choose one)
 - a. August/September
 - b. September/October
 - c. July/August
 - d. May/June
3. What is the growing season for greens? (when greens are readily available and cheap) (Choose one)
 - a. June-September
 - b. March-June
 - c. October-January
 - d. May-August
4. What farming or food-gathering practices are good for the Earth? (circle all that apply)
 - a. Not taking all of the food from a perennial
 - b. Planting where the sun and water can reach the plants naturally
 - c. Growing food for far away
 - d. Growing as much of your food as possible
5. How do you recognize a weed? (circle all that apply)
 - a. The shape of the leaves
 - b. It isn't where you planted a plant
 - c. It comes up on its own
 - d. It may keep coming back
6. What are the steps to preparing soil for planting? (choose one)
 - a. Test soil, pick a site, till,
 - b. plant, test soil, water
 - c. Pick a site, Test soil, till
 - d. Pick a site, till, plant
7. Where do you find the zone and planting depth for a seed? (choose one)
 - a. The back of the seed packet
 - b. Under the name of the plant
 - c. On the top corner of the seed packet
 - d. You can't tell by the seed packet
8. Match the garden type to the description

A garden that is built up from the ground without a bottom <u> b </u>	a. Container garden
A garden held in a pot or bucket <u> a </u>	b. raised bed garden
A garden that is made by breaking up the ground <u> c </u>	c. flatbed garden.

Preparing Snacks and Meals/Label Reading Questions

1. What nutrients should be limited? (Circle all that apply)
 - a. Saturated fats
 - b. fiber
 - c. Sugars
 - d. protein
 - e. Sodium
 - f. Water
2. What is the “danger zone”? (choose one)
 - a. 0° to 30°F
 - b. -20° to 20°F
 - c. 40° to 140°F
 - d. 70°F to 100°F
3. Which of these is a safe thawing technique? (choose one)
 - a. Thawing in the sink
 - b. Thawing in the refrigerator
 - c. Thawing on the counter
4. What should you do with perishable foods if you aren't consuming them right away? (choose one)
 - a. Throw them away
 - b. Refrigerate or freeze within 2 hours
 - c. Cook them and leave them out
 - d. Put them on the counter
5. How confident are you in following directions in a recipe? (choose one)
 - a. Not confident
 - b. Somewhat confident
 - c. Confident
 - d. Totally confident
6. How confident are you in using measuring spoons and cups? (choose one)
 - a. Not confident
 - b. Somewhat confident
 - c. Confident
 - d. Totally confident
7. Which of these are added sugars? (circle all that apply)
 - a. High fructose corn syrup
 - b. Honey
 - c. Sugar
 - d. Molasses
 - e. Dextrose
 - f. Sucrose
 - g. Syrup
8. How many of your grains should be whole (at least)? (choose one)
 - a. $\frac{1}{4}$
 - b. $\frac{3}{4}$
 - c. $\frac{1}{2}$
 - d. All of them

9. Which of these are whole grains? (circle all that apply)

- a. Whole wheat
- b. Old-fashioned oats
- c. White bread
- d. Whole barley
- e. Millet

Eating Right While Eating Out Questions:

1. Which of these words signal that an item is high in fat? (circle all that apply)
 - a. Crispy
 - b. Deep-fried/pan-fried
 - c. Grilled
 - d. Crunchy
 - e. Battered
 - f. Refried
2. Which of these words could signal added sugars? (circle all that apply)
 - a. Fresh
 - b. Glazed
 - c. Candied
 - d. Sweetened
 - e. Tender
3. What ways could you reduce the calories/fat/sugar in a restaurant meal? (circle all that apply)
 - a. Don't use dressing
 - b. Ask for half of the meal to go
 - c. Ask for a lite dressing
 - d. Ask for a salad instead of fries
 - e. Share a meal with a friend
 - f. Eat it all as fast as possible

Food Preservation Questions

1. Which of these are ways to preserve food for long periods of time (a month or more)? (circle all that apply)
 - a. Can
 - b. Refrigerate
 - c. Freeze
 - d. Dry
 - e. Cook
2. Which of these sources could you trust to tell you about preserving food safely? (circle all that apply)
 - a. USDA website
 - b. College or university website
 - c. Tested recipe book
 - d. Old recipe book
 - e. Memory
3. How should canned goods be stored? (circle all that apply)
 - a. Away from extreme heat or cold
 - b. Away from light
 - c. Outside
 - d. In the garage
 - e. Wherever there is room
4. How cold should a freezer be kept to store frozen foods? (choose one)
 - a. 0°F to 40°F
 - b. Below 0°F
 - c. Above 0°F, but below 30°F

Traditional Food Systems/Farm to Plate Questions

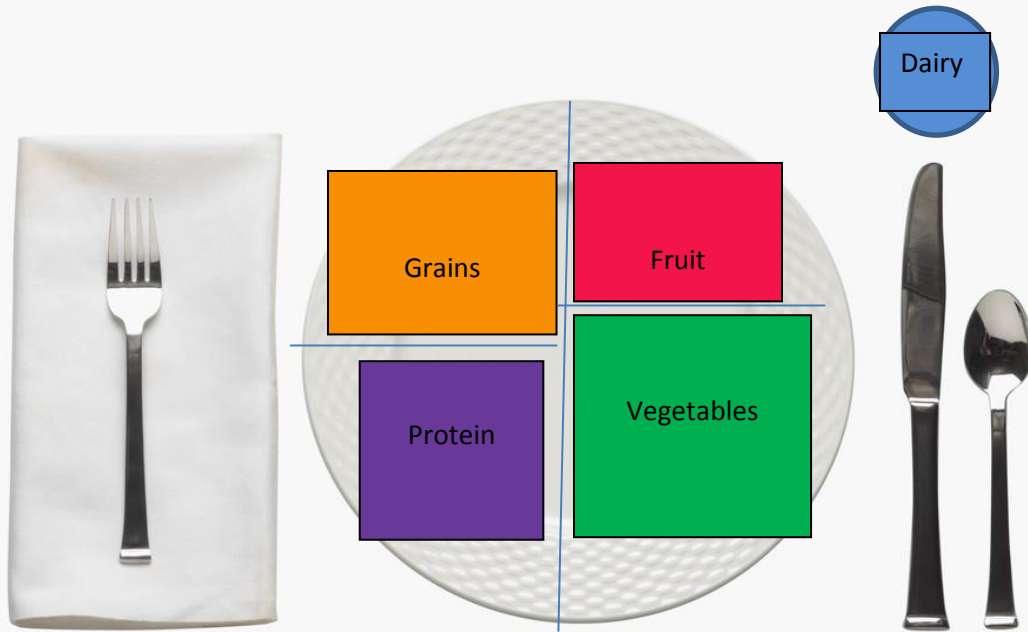
1. Which of these are traditional food practices and good for the Earth? (circle all that apply)
 - a. Fishing, but only taking what is needed
 - b. Using every part of an animal
 - c. Row crops
 - d. Trading food with different countries
 - e. Gathering food, but only taking what is needed, and leaving the rest for others
2. Which of these are modern food practices that are good for the Earth? (circle all that apply)
 - a. buying locally
 - b. purchasing from farmers' markets
 - c. gardening
 - d. fishing, but only taking what is needed
 - e. composting
3. Which of these are reasons to buy foods locally? (circle all that apply)
 - a. You know who produced them
 - b. It is impossible to get sick from them
 - c. The money stays in the community
 - d. The food is fresh
4. How is getting food today different from getting food in the past? (circle all that apply)
 - a. We can get food from anywhere now, but couldn't then
 - b. We always are better for the Earth now
 - c. We were always better for the Earth then
 - d. We can get food when it isn't in season now, but we couldn't then.

Eating on the Run Questions

1. What are ways to prepare meals quickly? (circle all that apply)
 - a. Cut up and prepare fruits and vegetables ahead of time and refrigerate
 - b. Cook meals and freeze it in microwave- and freezer-safe containers
 - c. Try a slow-cooker meal, doing all the prep the night before or morning before, letting it cook all day
 - d. Plan menus ahead of time
2. Which of these vegetables are quick-cooking (can be cooked in the microwave in less than 10 minutes)? (circle all that apply)
 - a. Broccoli
 - b. Green beans
 - c. Corn
 - d. Winter squash
 - e. Canned vegetables
3. Which of these are whole grains? (circle all that apply)
 - a. Oatmeal
 - b. Whole wheat bread
 - c. White bread
 - d. 12 grain bread
 - e. Quinoa
4. Which of these are characteristics of make-ahead meals? (circle all that apply)
 - a. The ingredients are prepared ahead of time
 - b. The food is kept cold until time to cook and serve
 - c. The food can be made ahead of time or cooked in the slow-cooker, depending on the recipe
 - d. The meal may take some time before cooking, but is generally fast to serve
 - e. The meal requires no work ahead of time
5. Which of these are true of TV dinners? (circle all that apply)
 - a. Almost everything is done for you
 - b. You only have to heat the meal
 - c. Often high in sodium/salt
 - d. Can cost more than homemade meals
 - e. Are always healthier than homemade

Balancing a Plate Questions

1. Draw in the MyPlate icon with the correct portions for fruits, vegetables, grains, and dairy below:



2. How many servings of dairy are recommended for all people 9+ years old each day? (choose one)
 - a. 0
 - b. 1/2
 - c. 1
 - d. 2
 - e. 3**
 - f. 4+

3. Match the portion size to the object it most closely resembles

Thumb tip 1/2 baseball Large egg or golf ball 6 dice Card deck Ping-Pong ball	1/2 cup cooked vegetables 1/4 cup dried fruit 2 tablespoons of peanut butter 1 teaspoon of margarine or butter 1 1/2 ounces of natural cheese (cheddar/Swiss) 3 ounces of meat or poultry
--	--

APPENDIX E. FOCUS GROUP AND PHONE INTERVIEW SCRIPTS AND QUESTIONS

Kids' Cooking Camps Agenda/Script/Itinerary

- Introduction: Hi, my name is _____, and I'm here to talk about the cooking camps we held this summer.
- During the summer we had four cooking camps where we talked about making healthy food choices, healthy lifestyle choices, talked about food safety and did hands-on food preparation. The kids prepared a variety of snacks and meals that were nutritious and delicious. We would like to take today to know your thoughts about how the kids have used those lessons at home and whether they have changed anything that you do as a family.
- We will have several questions for you to discuss. Feel free to share your opinions and ideas. Some disagreement is natural and expected. We ask that you try to be respectful and polite and allow everyone an opportunity to state their opinion. Before we begin, I'd like to ask you to read over and sign your consent form. If you are not willing to sign the consent form,
- After our discussion, we will have a short demonstration with taste testing and the drawing for the gift card. Everyone will receive a package of ground beef and a packet of food and nutrition information, including recipes.

At camp, the children took part in a variety of educational activities. (5 minutes)

- What was the favorite camp lesson or activity? Why was it the favorite activity?
- What was the least favorite camp lesson or activity? Why was it the least favorite activity?

At camp, the children learned about healthy eating habits. (15 minutes)

- How have your eating habits changed since camp, if at all?
- What foods are you or your family eating more of now, since you have attended camp?
- What healthy foods are you asking for or being asked to try since camp?
- Parents, have you noticed that your child is a more adventurous eater in trying new foods?
- Kids, what new foods have you tried since camp?
- Can you tell us of an example when you have shared what you have learned about healthy lifestyle choices with others?
- If you wanted to convince someone that it is important to change eating habits and eat healthier, what would you tell them?

At camp, the children learned about cooking and food safety. All the children at camp received a food safety tool kit that included a food thermometer, a cutting board, a vegetable scrubber and hand soap. Our next set of questions is about food safety practices. (15 minutes)

- What was the most important thing you (or your child) learned about food safety during the camp?
- How are you putting food safety into practice in your home?
- Does anyone have an example to share of when you practiced the food safety procedures at home, when preparing food?

At camp, the children learned how to grow different foods in a garden. (15 minutes)

Imagine that you are a gardener next summer, and are about to plant some seeds and seedlings.

- At camp the children received seeds and plants, such as strawberries, squash, cucumbers and herbs, to take home. Did the plants produce food at home that you served for your family?
- Where would you go for more information if you were interested in growing more of your own food? What could make this more doable?
- Are there some food items that would be fun to grow in a garden for your family? Why would you choose to plant these items in your garden?
- What might be some ways to share your garden produce with others, if you grew more than you and your family could eat?

Please share what you thought about the camp. (5-10 minutes)

- Are you doing anything differently because of what you learned at camp?
- Were the camps helpful for your kids and family. If so, what parts of the camp were the most helpful?
- What would you change about the camps in the future? What would you like to learn about (or for your children to learn about)?

Thank you for all of your input. We appreciate your help.

APPENDIX F. TABLES, RESULTS, AND SIGNIFICANCE

Table F1. *t*-test values for Pre-Assessment to Post-Assessment (post-test with $n = 40$; minus pre-test with $n = 30$)

Difference	<i>t</i>-value	Probability
I eat vegetables	1.81	0.0741
I eat green, leafy vegetables	1.06	0.2913
I eat fruit	1.54	0.1279
I drink 100% juice	-0.03	0.9793
Do you eat enough fruits and vegetables?	-0.07	0.9459
I choose healthy snacks	1.32	0.1919
I eat breakfast	-0.28	0.7832
I do physical activities	2.19	0.0318*
I drink non-fat or low-fat milk	1.91	0.0599
I choose whole grains instead of refined grains	-0.29	0.7744
I drink sweetened drinks	-0.42	0.6767
I worry about having enough food to eat	0.00	1.00
I make healthy choices when eating out	0.56	0.577
I read food labels	0.69	0.4954
How confident are you in following the directions in a recipe?	-0.28	0.7800
How confident are you in using measuring cups and spoons?	1.29	0.2002
How often does your family gather or grow food instead of purchasing it?	0.67	0.5075
How often does your family eat food prepared at home?	-0.61	0.5468
Being active is good for me	0.71	0.4834
A pizza has been left out of the refrigerator all night. What should you do?	2.74	0.0092*
A chicken and rice dish has been in the refrigerator for over a week. What should you do?	1.85	0.0692
I wash my hands before making something to eat	0.13	0.8975
Will you ask your family to buy your favorite fruit or vegetable?	1.03	0.3053
Will you ask your family to buy non-fat or low-fat milk, instead of regular, whole milk?	1.69	0.0968
Will you ask your family to have fruits where you can reach them?	1.76	0.0859
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	1.50	0.1402

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F2. *t*-test Values for Knowledge Scores as Shown by Number of Correct Responses Pre-Survey to Post-Survey (Post-test minus Pre-test)

Difference	Pre Sample size	Post Sample Size	<i>t</i>-value	Probability
Balancing a Plate	30	28	2.87	0.0058*
Eating on the Run	29	19	3.38	0.0015*
Preparing Snacks and Meals/ Label Reading	32	33	0.44	0.6640
Get Started Gardening	27	27	2.85	0.0063*
Food Preservation	25	26	5.16	<0.0001*
Eating Right While Eating Out	22	23	2.11	0.0419*
Traditional Food Systems/ Farm to Plate	20	20	1.36	0.1806

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F3. Fisher's Exact Test for Balancing a Plate Response Distribution

Question	Percentage Correct Response Pre (n = 30)	Percentage Correct Response Post (n = 28)	Probability
Using what you know about MyPlate, draw the correct portion for Fruit	63.33	89.29	0.0446*
Using what you know about MyPlate, draw the correct portion for Vegetables	66.67	89.29	0.0834
Using what you know about MyPlate, draw the correct portion for Grains	60.00	89.29	0.0183*
Using what you know about MyPlate, draw the correct portion for Protein	60.00	89.29	0.0183*
Using what you know about MyPlate, draw the correct portion for Dairy	46.67	60.71	0.5581
How many servings of dairy are recommended for all people 9+ years old each day? (3)	23.33	14.29	0.6097
What food item is about the size of a thumb tip? (1 tsp margarine or butter)	26.67	39.29	0.5983
What food item is about the size of ½ a baseball? (1/2 cup cooked vegetables)	30.00	42.86	0.6051
What food item is about the size of a large egg or a golf ball? (1/4 cup dried fruit)	30.00	35.71	0.9258
What food item is about the size of 6 dice? (1 ½ ounces natural cheese)	16.67	32.14	0.3776
What food item is about the size of a card deck (3 ounces of meat)	23.33	42.86	0.2950
What food item is about the size of a ping-pong ball? (2 Tablespoons peanut butter)	23.33	32.14	0.8273

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F4. Fisher's Exact Test for Eating on the Run Response Distribution

Question	Percentage Correct Response Pre (n = 29)	Percentage Correct Response Post (n = 19)	Probability
What are ways to prepare meals quickly? Cut up and prepare fruits and vegetables ahead of time and refrigerate	58.62	78.95	0.2129
What are ways to prepare meals quickly? Cook meals and freeze it in microwave- and freezer-safe containers	51.72	57.89	0.7711
What are ways to prepare meals quickly? Try a slow-cooker meal, doing all the prep the night before or morning before, letting it cook all day	34.48	52.63	0.2446
What are ways to prepare meals quickly? Plan menus ahead of time	41.38	68.42	0.0832
Which of these vegetables are quick-cooking (can be cooked in the microwave in less than 10 minutes)? Broccoli	44.83	57.89	0.5556
Which of these vegetables are quick-cooking? Green Beans	55.17	57.89	1.0000
Which of these vegetables are quick-cooking? Corn	44.83	63.16	0.2500
Which of these vegetables are quick-cooking? Winter Squash	72.41	84.21	0.4878
Which of these vegetables are quick-cooking? Canned Vegetables	51.72	73.68	0.1469
Which of these are whole grains? Oatmeal	75.86	89.47	0.2864
Which of these are whole grains? Whole wheat bread	79.31	78.95	1.0000
Which of these are whole grains? White bread	68.97	84.21	0.3157
Which of these are whole grains? 12-grain bread	44.83	57.89	0.5556
Which of these are whole grains? Quinoa	24.14	57.89	0.0319*
Which of these are characteristics of make-ahead meals? The ingredients are prepared ahead of time	51.72	73.68	0.1469
Which of these are characteristics of make-ahead meals? The food is kept cold until time to cook and serve	41.38	57.89	0.3767

Table F4. Fisher's Exact Test for Eating on the Run Response Distribution (continued)

Question	Percentage Correct Response Pre (<i>n</i> = 29)	Percentage Correct Response Post (<i>n</i> = 19)	Probability
Which of these are characteristics of make-ahead meals? The food can be made ahead of time or cooked in the slow-cooker, depending on the recipe	55.17	89.47	0.0239*
Which of these are characteristics of make-ahead meals? The meal may take some time before cooking, but is generally fast to serve	27.59	42.11	0.3568
Which of these are characteristics of make-ahead meals? The meal requires no work ahead of time	72.41	63.16	0.5384
Which of these are true of TV dinners? Almost everything is done for you	51.72	63.16	0.5553
Which of these are true of TV dinners? You only have to heat the meal	41.38	57.89	0.3767
Which of these are true of TV dinners? Often high in sodium/salt	37.93	68.42	0.0753
Which of these are true of TV dinners? Can cost more than homemade meals	31.03	63.16	0.0394*
Which of these are true of TV dinners? Are always healthier than homemade meals	68.97	78.95	0.5218

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F5. Fisher's Exact Test for Preparing Snacks and Meals/Label Reading Response Distribution

Question	Percentage Correct Response Pre (n = 32)	Percentage Correct Response Post (n = 33)	Probability
What nutrients should be limited? Saturated Fats (yes)	50.00	51.52	1.0000
What nutrients should be limited? Fiber (no)	65.63	66.67	1.0000
What nutrients should be limited? Sugars (yes)	53.13	54.55	1.0000
What nutrients should be limited? Protein (no)	68.75	57.58	0.4431
What nutrients should be limited? Sodium (yes)	40.63	48.48	0.6203
What nutrients should be limited? Water (no)	68.75	75.76	0.5874
What is the "danger zone" temperature range? (40° to 140°F)	53.13	66.67	0.1682
Which of these is a safe thawing technique? Thawing in the refrigerator	37.50	36.36	0.5558
What should you do with perishable foods if you aren't consuming them right away? Refrigerate or freeze within 2 hours	31.25	51.52	0.0219*
Which of these are added sugars? High Fructose Corn Syrup (yes)	53.13	51.52	1.0000
Which of these are added sugars? Honey (yes)	75.00	60.61	0.2905
Which of these are added sugars? Sugar (yes)	78.13	96.97	0.0268*
Which of these are added sugars? Molasses (yes)	25.00	36.36	0.4222
Which of these are added sugars? Dextrose (yes)	25.00	30.30	0.7828
Which of these are added sugars? Sucrose (yes)	34.38	33.33	1.0000
Which of these are added sugars? Syrup (yes)	78.13	66.67	0.4075
How many of your grains should be whole (at least)? $\frac{1}{2}$	31.25	39.39	0.2857
Which of these are whole grains? Whole wheat (yes)	71.88	75.76	0.7828

Table F5. Fisher's Exact Test for Preparing Snacks and Meals/Label Reading Response Distribution (continued)

Question	Percentage Correct Response Pre (<i>n</i> = 32)	Percentage Correct Response Post (<i>n</i> = 33)	Probability
Which of these are whole grains? Old-fashioned oats (yes)	43.75	51.52	0.6222
Which of these are whole grains? White Bread (no)	43.75	33.33	0.4502
Which of these are whole grains? Whole Barley (yes)	56.25	66.67	0.4502
Which of these are whole grains? Millet (yes)	25.00	21.21	0.7746

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F6. Fisher's Exact Test for Gardening Response Distribution

Question	Percentage Correct Response Pre (n = 27)	Percentage Correct Response Post (n = 27)	Probability
What are the basic requirements for plant growth? Water (yes)	96.30	92.59	1.0000
What are the basic requirements for plant growth? Sunlight (yes)	88.89	96.30	0.6104
What are the basic requirements for plant growth? Nutrients: NPK (yes)	44.44	66.67	0.1704
What are the basic requirements for plant growth? Warm weather (yes)	51.85	66.67	0.4064
What are the basic requirements for plant growth? Dirt (no)	22.22	66.67	0.0023*
What is the growing season for pumpkins? (When are pumpkins readily available and cheap?) September/October	74.07	62.96	0.8754
What is the growing season for greens? (When greens are readily available and cheap?) June-September	18.52	22.22	0.5910
What farming or food-gathering practices are good for the Earth? Not taking all of the food for a perennial (yes)	44.44	51.85	0.7857
What farming or food-gathering practices are good for the Earth? Planting where the sun and water can reach the plants naturally (yes)	59.26	88.89	0.0276*
What farming or food-gathering practices are good for the Earth? Growing food for far away (no)	59.26	81.48	0.1350
What farming or food-gathering practices are good for the Earth? Growing as much of your food as possible (yes)	51.85	55.56	1.0000
How do you recognize a weed? The shape of the leaves (yes)	62.96	74.07	0.5587

Table F6. Fisher's Exact Test for Gardening Response Distribution (continued)

Question	Percentage Correct Response Pre (n = 27)	Percentage Correct Response Post (n = 27)	Probability
How do you recognize a weed? It isn't where you planted a plant (yes)	44.44	59.26	0.4142
How do you recognize a weed? It comes up on its own (yes)	55.56	62.96	0.7822
How do you recognize a weed? It may keep coming back (yes)	44.44	59.26	0.4142
What are the steps to preparing soil for planting? Pick a site, till, plant	25.93	48.15	0.2260
Where do you find the zone and planting depth for a seed? The back of the seed packet	44.44	59.26	0.1751
Match the garden type to the description: A garden that is built up from the ground without the bottom= Raised bed garden	40.74	59.26	0.0308*
Match the garden type to the description: A garden held in a pot or bucket= Container garden	66.67	62.96	0.2829
Match the garden type to the description: A garden that is made by breaking up the ground= Flatbed garden	48.15	48.15	0.2568

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F7. Fisher's Exact Test for Food Preservation Response Distribution

Question	Percentage Correct Response Pre (n = 22)	Percentage Correct Response Post (n = 26)	Probability
Which of these are ways to preserve food for long periods of time (a month or more)? Can (yes)	44.00	73.08	0.0483*
Which of these are ways to preserve food for long periods of time (a month or more)? Refrigerate (no)	40.00	65.38	0.0950
Which of these are ways to preserve food for long periods of time (a month or more)? Freeze (yes)	72.00	69.23	1.0000
Which of these are ways to preserve food for long periods of time (a month or more)? Dry (yes)	28.00	57.69	0.0483*
Which of these are ways to preserve food for long periods of time (a month or more)? Cook (no)	84.00	76.92	0.7265
Which of these sources could you trust to tell you about preserving food safely? USDA website (yes)	28.00	65.38	0.0115*
Which of these sources could you trust to tell you about preserving food safely? College or university website (yes)	36.00	46.15	0.5725
Which of these sources could you trust to tell you about preserving food safely? Tested recipe book (yes)	68.00	76.92	0.5414
Which of these sources could you trust to tell you about preserving food safely? Old recipe book (no)	84.00	92.31	0.4189
Which of these sources could you trust to tell you about preserving food safely? Memory (no)	56.00	84.62	0.0337*
How should canned goods be stored? Away from extreme heat or cold (yes)	40.00	84.62	0.0014*
How should canned goods be stored? Away from light (yes)	44.00	65.38	0.1637
How should canned goods be stored? Outside (no)	68.00	80.77	0.3487

Table F7. Fisher's Exact Test for Food Preservation Response Distribution (continued)

Question	Percentage Correct Response Pre (<i>n</i> = 22)	Percentage Correct Response Post (<i>n</i> = 26)	Probability
How should canned goods be stored? In the garage (no)	76.00	88.46	0.2913
How should canned goods be stored? Wherever there is room (no)	52.00	80.77	0.0399*
How cold should a freezer be kept to store frozen foods? Below 0° F	28.00	65.38	0.0007*

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F8. Fisher's Exact Test for Eating Right While Eating Out Response Distribution

Question	Percentage Correct Response Pre (n = 22)	Percentage Correct Response Post (n = 23)	Probability
Which of these words signal that an item is high in fat? Crispy (yes)	72.73	86.96	0.1843
Which of these words signal that an item is high in fat? Deep-fried/pan-fried (yes)	68.18	56.52	0.6460
Which of these words signal that an item is high in fat? Grilled (no)	31.82	60.87	0.0515
Which of these words signal that an item is high in fat? Crunchy (yes)	45.45	65.22	0.1762
Which of these words signal that an item is high in fat? Battered (yes)	40.91	43.48	1.0000
Which of these words signal that an item is high in fat? Refried (yes)	54.55	56.52	1.0000
Which of these words could mean the food has added sugars? Fresh (no)	72.73	86.96	0.2837
Which of these words could mean the food has added sugars? Glazed (yes)	50.00	69.57	0.2307
Which of these words could mean the food has added sugars? Candied (yes)	68.18	65.22	1.0000
Which of these words could mean the food has added sugars? Sweetened (yes)	72.73	86.96	0.2837
Which of these words could mean the food has added sugars? Tender (no)	63.64	73.91	0.5302
What ways could you reduce the calories/fat/sugar in a restaurant meal? Don't use dressing on your salad (yes)	59.09	65.22	0.7631
What ways could you reduce the calories/fat/sugar in a restaurant meal? Ask for half of the meal to go (yes)	36.36	60.87	0.1392

Table F8. Fisher's Exact Test for Eating Right While Eating Out Response Distribution
(continued)

Question	Percentage Correct Response Pre (<i>n</i> = 22)	Percentage Correct Response Post (<i>n</i> = 23)	Probability
What ways could you reduce the calories/fat/sugar in a restaurant meal? Ask for a "lite" dressing (yes)	59.09	69.57	0.5420
What ways could you reduce the calories/fat/sugar in a restaurant meal? Ask for a salad instead of fries (yes)	50.00	60.87	0.5544
What ways could you reduce the calories/fat/sugar in a restaurant meal? Share a meal with a friend (yes)	36.36	56.52	0.2362
What ways could you reduce the calories/fat/sugar in a restaurant meal? Eat it all as fast as possible (no)	68.18	86.96	0.1653

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F9. Fisher's Exact Test for Traditional Food Systems/Farm to Plate Response Distribution

Question	Percentage Correct Response Pre (n = 20)	Percentage Correct Response Post (n = 20)	Probability
Which of these are traditional food practices and good for the Earth? Fishing, but only taking what is needed (yes)	55.00	75.00	0.3203
Which of these are traditional food practices and good for the Earth? Using every part of an animal (yes)	35.00	75.00	0.0248*
Which of these are traditional food practices and good for the Earth? Row crops (no)	70.00	85.00	0.4506
Which of these are traditional food practices and good for the Earth? Trading food with different countries (no)	60.00	65.00	1.0000
Which of these are traditional food practices and good for the Earth? Gathering food, but only taking what is needed, and leaving the rest for others (yes)	75.00	60.00	0.5006
Which of these are modern food practices and good for the Earth? Buying locally (yes)	45.00	65.00	0.3406
Which of these are modern food practices and good for the Earth? Purchasing from farmers' markets (yes)	65.00	50.00	0.5231
Which of these are modern food practices and good for the Earth? Gardening (yes)	80.00	85.00	1.0000
Which of these are modern food practices and good for the Earth? Fishing, but only taking what is needed (yes)	55.00	50.00	1.0000
Which of these are modern food practices and good for the Earth? Composting (yes)	55.00	70.00	0.5145
Which of these are reasons to buy foods locally? You know who produced them (yes)	50.00	60.00	0.7512
Which of these are reasons to buy foods locally? It is impossible to get sick from them (no)	65.00	85.00	0.2733

Table F9. Fisher's Exact Test for Traditional Food Systems/Farm to Plate Response Distribution (continued)

Question	Percentage Correct Response Pre (<i>n</i> = 20)	Percentage Correct Response Post (<i>n</i> = 20)	Probability
Which of these are reasons to buy foods locally? The money stays in the community (yes)	40.00	50.00	0.7512
Which of these are reasons to buy foods locally? The food is fresh (yes)	75.00	80.00	1.0000
How is getting food today different from getting food in the past? We can get food from anywhere now, but couldn't then (yes)	75.00	75.00	1.0000
How is getting food today different from getting food in the past? We always are better for the Earth now (no)	45.00	60.00	0.5273
How is getting food today different from getting food in the past? We were always better for the Earth then (no)	60.00	45.00	0.5273
How is getting food today different from getting food in the past? We can get food when it isn't in season now, but we couldn't then (yes)	40.00	40.00	1.0000

* significant at an $\alpha = 0.05$, $p \leq 0.0500$

Table F10. Combined Pre/Post Correlations

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
I eat vegetables	I eat green, leafy vegetables	0.419	0.000
I eat vegetables	I eat fruit	0.316	0.008
I eat vegetables	I do physical activities	0.293	0.014
I eat vegetables	I drink non-fat or low-fat milk	0.309	0.009
I eat vegetables	I choose whole grains	0.275	0.021
I eat vegetables	I make healthy choices when deciding what to eat when eating out	0.291	0.015
I eat vegetables	How often does your family gather/grow food instead of purchasing it?	0.263	0.028
I eat vegetables	A pizza was left out of the refrigerator all night. What should you do?	0.306	0.010
I eat vegetables	I would like to learn about gardening	-0.260	0.030
I eat green, leafy vegetables	I drink non-fat or low-fat milk	0.384	0.001
I eat green, leafy vegetables	I read food labels	0.288	0.016
I eat green, leafy vegetables	How confident are you in following the directions in a recipe?	0.238	0.048
I eat green, leafy vegetables	How confident are you in using measuring cups and spoons	0.333	0.005
I eat fruit	I drink 100% fruit juice	0.309	0.009
I eat fruit	I eat breakfast	0.288	0.016
I eat fruit	How often do you worry about having enough food	0.290	0.015
I eat fruit	I make healthy choices when deciding what to eat when eating out	0.397	0.001
I eat fruit	I read food labels	0.295	0.013
I eat fruit	How often does your family gather/grow food instead of purchasing it?	0.405	0.001
I eat fruit	Being active is good for me	0.424	0.000
I eat fruit	Will you ask your family to buy your favorite fruit or vegetable?	0.285	0.017

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
I eat fruit	Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	0.466	0.000
I eat fruit	Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	0.263	0.028
I eat fruit	Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	0.244	0.042
I eat fruit	I would like to learn about traditional food gathering/farm to plate	-0.276	0.021
I drink 100% fruit juice	I drink non-fat or low-fat milk	0.402	0.001
I drink 100% fruit juice	I make healthy choices when deciding what to eat when eating out	0.275	0.021
I drink 100% fruit juice	How often does your family gather/grow food instead of purchasing it?	0.248	0.038
I drink 100% fruit juice	Being active is good for me	0.253	0.034
I drink 100% fruit juice	Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk	0.273	0.022
I drink 100% juice	I would like to learn about the food groups and why they are important	-0.263	0.028
Do you eat enough fruits and vegetables?	How often do you read food labels?	-0.304	0.011
Do you eat enough fruits and vegetables?	How confident are you in following the directions in a recipe?	-0.356	0.003
Do you eat enough fruits and vegetables?	How confident are you in using measuring cups and spoons?	-0.343	0.004

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
Do you eat enough fruits and vegetables?	Being active is good for me	0.327	0.006
I choose healthy snacks	I wash my hands before making something to eat	0.262	0.028
I choose healthy snacks	Will you ask your family to have fruits in a place like the refrigerator or a bowl on the counter where you can reach them?	0.244	0.042
I eat breakfast	How often do you worry about having enough food?	0.278	0.020
I eat breakfast	I make healthy choices when deciding what to eat when eating out	0.249	0.038
I do physical activities	I drink non-fat or low-fat milk	0.290	0.015
I drink non-fat or low-fat milk	How confident are you in following the directions in a recipe?	0.320	0.007
I choose whole grains	I read food labels	0.252	0.035
How often do you worry about having enough food?	I make healthy choices when deciding what to eat when eating out	0.323	0.006
How often do you worry about having enough food?	How often does your family gather/grow food instead of purchasing it?	0.254	0.034
How often do you worry about having enough food?	Being active is good for me	0.243	0.043
How often do you worry about having enough food?	Will you ask your family to buy non-fat or low-fat milk instead of regular whole milk?	0.294	0.014
How often do you worry about having enough food to eat?	I would like to learn about preparing healthy meals/snacks	-0.236	0.049
How often do you worry about having enough food	I would like to learn about balancing a plate	-0.290	0.015
How often do you worry about having enough food?	I would like to learn about gardening	-0.241	0.044
How often do you worry about having enough food?	I would like to learn about the food groups	-0.266	0.026

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
I make healthy choices when deciding what to eat when eating out	How often does your family gather/grow food instead of purchasing it?	0.361	0.002
I make healthy choices when deciding what to eat when eating out	I would like to learn about how to eat healthy when eating out	-0.314	0.008
I make healthy choices when deciding what to eat when eating out	I would like to learn about balancing a plate	-0.250	0.037
I make healthy choices when deciding what to eat when eating out	I would like to learn about food preservation	-0.245	0.041
I make healthy choices when deciding what to eat when eating out	I would like to learn about the food groups	-0.256	0.032
I read food labels	How confident are you in using measuring cups or spoons	0.306	0.010
I read food labels	How often does your family eat food prepared at home (not at a restaurant)?	0.259	0.030
I read food labels	A pizza was left out of the refrigerator all night. What should you do?	0.275	0.021
I read food labels	Will you ask your family to buy your favorite fruit or vegetable?	0.293	0.014
I read food labels	Will you ask your family to buy non-fat or low-fat milk instead of regular whole milk?	0.391	0.001
How confident are you in following the directions in a recipe?	How confident are you in using measuring cups and spoons?	0.418	0.000
How confident are you in using measuring cups and spoons?	How often does your family gather/grow food instead of purchasing it?	0.266	0.026
How often does your family gather/grow food instead of purchasing it?	A chicken and rice dish has been in the refrigerator for over a week. What should you do?	-0.246	0.040

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
How often does your family gather/grow food instead of purchasing it?	I would like to learn how to eat healthy when eating out	-0.249	0.038
How often does your family gather/grow food instead of purchasing it?	I would like to learn about gardening	-0.276	0.021
How often does your family gather/grow food instead of purchasing it?	I would like to learn about label reading	-0.258	0.031
How often does your family gather/grow food instead of purchasing it?	I would like to learn about traditional food gathering/farm to plate	-0.279	0.020
How often does your family gather/grow food instead of purchasing it?	I would like to learn about the food groups	-0.388	0.001
How often does your family eat food prepared at home (not at a restaurant)?	Will you ask your family to buy your favorite fruit or vegetable?	0.269	0.025
How often does your family eat food prepared at home (not at a restaurant)?	I enjoy cooking	0.267	0.026
How often does your family eat food prepared at home (not at a restaurant)?	I would like to learn about fast, easy meals	-0.404	0.001
How often does your family eat food prepared at home (not at a restaurant)?	I would like to learn about balancing a plate	-0.337	0.004
How often does your family eat food prepared at home (not at a restaurant)?	I would like to learn about traditional food gathering/farm to plate	-0.329	0.006
Being active is good for me	A pizza was left out of the refrigerator all night. What should you do?	0.423	0.000
Being active is good for me	A chicken and rice dish has been in the refrigerator for over a week. What should you do?	0.399	0.001
Being active is good for me	I wash my hands before making something to eat	0.352	0.003

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals) #
Being active is good for me	Will you ask your family to buy your favorite fruit or vegetable?	0.449	0.000
Being active is good for me	Will you ask your family to buy non-fat or low-fat milk instead of regular milk?	0.657*	0.000
Being active is good for me	Will you ask your family to have fruits in a place like the refrigerator or a bowl on the counter where you can reach them?	0.323	0.006
Being active is good for me	Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	0.526*	0.000
Being active is good for me	I enjoy cooking	0.555*	0.000
Being active is good for me	I would like to learn how to be healthy when eating out	-0.261	0.029
Being active is good for me	I would like to learn about balancing a plate	-0.267	0.026
Being active is good for me	I would like to learn about food preservation	-0.300	0.012
Being active is good for me	I would like to learn about gardening	-0.263	0.028
Being active is good for me	I would like to learn about label reading	-0.274	0.022
Being active is good for me	I would like to learn about traditional food gathering/farm to plate	-0.423	0.000
Being active is good for me	I would like to learn about the food groups	-0.367	0.002
A pizza was left out of the refrigerator all night. What should you do?	A chicken and rice dish has been in the refrigerator for over a week. What should you do?	0.264	0.027
A pizza was left out of the refrigerator all night. What should you do?	Will you ask your family to buy your favorite fruit or vegetable?	0.348	0.003

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals) #
A pizza was left out of the refrigerator all night. What should you do?	Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	0.441	0.000
A pizza was left out of the refrigerator all night. What should you do?	Will you ask your family to have fruits in a place like the refrigerator or a bowl on the counter where you can reach them?	0.273	0.022
A pizza was left out of the refrigerator all night. What should you do?	Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	0.366	0.002
A pizza was left out of the refrigerator all night. What should you do?	I enjoy cooking	0.387	0.001
A pizza was left out of the refrigerator all night. What should you do?	I think I can eat a healthier diet and will try to soon	-0.359	0.002
A pizza was left out of the refrigerator all night. What should you do?	I would like to learn about preparing healthy meals/snacks	-0.351	0.003
A pizza was left out of the refrigerator all night. What should you do?	I would like to learn about fast, easy meals	-0.245	0.041
A pizza was left out of the refrigerator all night. What should you do?	I would like to learn how to eat healthy when eating out	-0.275	0.021
A pizza was left out of the refrigerator all night. What should you do?	I would like to learn about balancing a plate	-0.288	0.016
A pizza was left out of the refrigerator all night. What should you do?	I would like to learn about food preservation	-0.262	0.028
A pizza was left out of the refrigerator all night. What should you do?	I would like to learn about gardening	-0.251	0.036
A pizza was left out of the refrigerator all night. What should you do?	I would like to learn about label reading	-0.329	0.006

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
A chicken and rice dish has been in the refrigerator for over a week. What should you do?	I wash my hands before making something to eat	0.563*	0.000
A chicken and rice dish has been in the refrigerator for over a week. What should you do?	Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	0.433	0.000
A chicken and rice dish has been in the refrigerator for over a week. What should you do?	Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	0.400	0.001
A chicken and rice dish has been in the refrigerator for over a week. What should you do?	I enjoy cooking	0.310	0.009
A chicken and rice dish has been in the refrigerator for over a week. What should you do?	I would like to learn how to prepare healthy meals/snacks	-0.252	0.035
I wash my hands before making something to eat	Will you ask your family to buy your favorite fruit or vegetable?	0.348	0.003
I wash my hands before making something to eat	Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	0.434	0.000
I wash my hands before making something to eat	Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	0.382	0.001
I wash my hands before making something to eat	I enjoy cooking	0.370	0.002
I wash my hands before making something to eat	I would like to learn about fast, easy meals	-0.267	0.049
Will you ask your family to buy your favorite fruit or vegetable?	Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	0.541*	0.000

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
Will you ask your family to buy your favorite fruit or vegetable?	Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	0.462	0.000
Will you ask your family to buy your favorite fruit or vegetable?	I enjoy cooking	0.607*	0.000
Will you ask your family to buy your favorite fruit or vegetable?	I would like to learn about fast, easy meals	-0.348	0.003
Will you ask your family to buy your favorite fruit or vegetable?	I would like to learn about traditional food gathering/farm to plate	-0.360	0.002
Will you ask your family to buy your favorite fruit or vegetable?	I would like to learn about the food groups	-0.275	0.021
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	0.403	0.001
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	0.526*	0.000
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I enjoy cooking	0.546*	0.000
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I think I can eat a healthier diet and will try to soon	-0.238	0.047
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I would like to learn how to prepare healthy meals/snacks	-0.277	0.021
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I would like to learn about fast, easy meals	-0.247	0.039
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I would like to learn about how to eat healthy when eating out	-0.252	0.035

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I would like to learn about balancing a plate	-0.319	0.007
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I would like to learn about food preservation	-0.250	0.037
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I would like to learn about gardening	-0.305	0.010
Will you ask your family to buy non-fat or low-fat milk instead of regular, whole milk?	I would like to learn about traditional food gathering/farm to plate	-0.332	0.005
Will you ask your family to have fruits in a place like the refrigerator or a bowl on the counter where you can reach them?	Will you ask your family to have vegetables cut-up in the refrigerator where you can reach them?	0.281	0.018
Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	I think I can eat a healthier diet and will try to soon	-0.288	0.016
Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	I would like to learn how to prepare healthy meals/snacks	-0.276	0.021
Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	I would like to learn about fast/easy meals	-0.237	0.048
Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	I would like to learn how to eat healthy when eating out	-0.296	0.013

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
Will you ask your family to have fruits in a place like the refrigerator or a bowl on the table where you can reach them?	I would like to learn about gardening	-0.304	0.010
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I enjoy cooking	0.642*	0.000
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I think I can eat a healthier diet and will try to soon	-0.330	0.005
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I would like to learn about fast, easy meals	-0.364	0.002
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I would like to learn how to eat healthy when eating out	-0.257	0.032
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I would like to learn about balancing a plate	-0.460	0.000
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I would like to learn about gardening	-0.421	0.000
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I would like to learn about label reading	-0.354	0.003
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I would like to learn about traditional food gathering/farm to plate	-0.374	0.001
Will you ask your family to have cut-up vegetables in the refrigerator where you can reach them?	I would like to learn about the food groups and why they are important	-0.356	0.003

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
I enjoy cooking	I would like to learn how to prepare healthy meals/snacks	-0.334	0.005
I enjoy cooking	I would like to learn about fast, easy meals	-0.425	0.000
I enjoy cooking	I would like to learn how to eat healthy when eating out	-0.367	0.002
I enjoy cooking	I would like to learn about balancing a plate	-0.537*	0.000
I enjoy cooking	I would like to learn about food preservation	-0.318	0.007
I enjoy cooking	I would like to learn about gardening	-0.418	0.000
I enjoy cooking	I would like to learn about label reading	-0.403	0.001
I enjoy cooking	I would like to learn about traditional food gathering/farm to plate	-0.481	0.000
I enjoy cooking	I would like to learn about the food groups and why they are important	-0.448	0.000
I think I can eat a healthier diet and will try to soon	I would like to learn how to prepare healthy meals/snacks	0.500*	0.000
I think I can eat a healthier diet and will try to soon	I would like to learn about fast, easy meals	0.313	0.008
I think I can eat a healthier diet and will try to soon	I would like to learn about balancing a plate	0.252	0.035
I think I can eat a healthier diet and will try to soon	I would like to learn about food preservation	0.274	0.022
I think I can eat a healthier diet and will try to soon	I would like to learn about label reading	0.259	0.030
I would like to learn how to prepare healthy meals/snacks	I would like to learn about fast, easy meals	0.288	0.016
I would like to learn how to prepare healthy meals/snacks	I would like to learn about balancing a plate	0.249	0.035
I would like to learn about fast, easy meals	I would like to learn how to eat healthy when eating out	0.283	0.018
I would like to learn about fast, easy meals	I would like to learn about balancing a plate	0.460	0.000
I would like to learn about fast, easy meals	I would like to learn about food preservation	0.374	0.001

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
I would like to learn about fast, easy meals	I would like to learn about gardening	0.521*	0.000
I would like to learn about fast, easy meals	I would like to learn about label reading	0.321	0.007
I would like to learn about fast, easy meals	I would like to learn about traditional food gathering/farm to plate	0.479	0.000
I would like to learn about fast, easy meals	I would like to learn about the food groups and why they are important	0.438	0.000
I would like to learn how to eat healthy when eating out	I would like to learn about balancing a plate	0.479	0.000
I would like to learn how to eat healthy when eating out	I would like to learn about food preservation	0.500*	0.000
I would like to learn how to eat healthy when eating out	I would like to learn about gardening	0.609*	0.000
I would like to learn how to eat healthy when eating out	I would like to learn about label reading	0.479	0.000
I would like to learn how to eat healthy when eating out	I would like to learn about traditional food gathering/farm to plate	0.434	0.000
I would like to learn how to eat healthy when eating out	I would like to learn about the food groups and why they are important	0.540*	0.000
I would like to learn about balancing a plate	I would like to learn about food preservation	0.472	0.000
I would like to learn about balancing a plate	I would like to learn about gardening	0.612*	0.000
I would like to learn about balancing a plate	I would like to learn about label reading	0.650*	0.000
I would like to learn about balancing a plate	I would like to learn about traditional food gathering/farm to plate	0.490	0.000
I would like to learn about balancing a plate	I would like to learn about the food groups and why they are important	0.640*	0.000
I would like to learn about food preservation	I would like to learn about gardening	0.495	0.000
I would like to learn about food preservation	I would like to learn about label reading	0.628*	0.000

Table F10. Combined Pre/Post Correlations (continued)

Question 1	Question 2	R (rounded to 3 decimals)	P-value (rounded to 3 decimals)[#]
I would like to learn about food preservation	I would like to learn about traditional food gathering/farm to plate	0.642*	0.000
I would like to learn about food preservation	I would like to learn about the food groups and why they are important	0.617*	0.000
I would like to learn about gardening	I would like to learn about label reading	0.442	0.000
I would like to learn about gardening	I would like to learn about traditional food gathering/farm to plate	0.596*	0.000
I would like to learn about gardening	I would like to learn about the food groups and why they are important	0.703*	0.000
I would like to learn about label reading	I would like to learn about traditional food gathering/farm to plate	0.546*	0.000
I would like to learn about label reading	I would like to learn about the food groups and why they are important	0.694*	0.000
I would like to learn about traditional food gathering/farm to plate	I would like to learn about the food groups and why they are important	0.638*	0.000

[#] All correlations in this table have $\alpha = 0.05$, $p \leq 0.05$.

* Correlations are greater than $R = 0.5$, indicating a high level of correlation

APPENDIX G. CAMP MENU AND SCHEDULE

Day	Snack 1	Meal	Snack 2
Tuesday	Grilled PB&Js	Hamburgers/cheeseburgers with fixings French fries/sweet potato fries Baked apples milk	Popcorn OR ants on a log
Wednesday	Green monster smoothies	Hunter's feast Corn Jacks Milk	Fruit kebabs w/ dip
Thursday	French toast sticks with fruit	Chicken pot pie Chickpea chocolate cake w/ ice cream Milk	Veggie sticks with dip
Friday	Fruit leather- apple	Spaghetti and meatballs Breadsticks Tossed salad Jello w/ fruit Milk	Trail mix w/ dried fruit

Kids Cooking Camp's schedule...



- 9:30-10am: Welcome, ice breaker & snack
- 10-11:30: Lesson, topics include Food Safety, Kitchen Knowledge, My Plate [food groups & serving sizes], Gardening, From Farm to Plate [preserving foods]
- 11:30-12:30: Cook lunch & eat [making mealtime fun with good table manners & table setting]
- 12:30-1pm: Story and activity/game
- 1-2:30: Lesson continued
- 2:30-3: Snack time ...make & eat
- 3-3:15: Survey & Clean-up
- 315-330: Activity/game
- 3:30pm: Homeward bound!



See you tomorrow!



Menus...



Tuesday Let's COOK...

- AM Snack - Grilled PB & J's
- Lunch - Hamburgers w/ fixings, sweet potato fries & baked apple, milk
- PM Snack - Popcorn

Wednesday Let's COOK...

- AM Snack—Fruit kabobs w/orange dip
- Lunch -Hunter's Feast , corn jacks, milk
- PM Snack -Green Monster Smoothies

Thursday Let's COOK...

- AM Snack -French Toast Sticks w/fruit
- Lunch -Chicken Pot Pie, Chickpea chocolate cake w/ ice cream, milk
- PM Snack -Veggie Sticks w/ dip [make Jello w/fruit]

Friday Let's COOK...

- AM Snack -Fruit Leather, [make meatballs , bake]
- Lunch -Spaghetti & meatballs, lettuce salad, stuffed breadsticks, jello w/fruit, milk
- PM Snack -Trail mix w/dried fruit

