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WE COOK: FUN WITH FOOD AND FITNESS: IMPACT OF A YOUTH
COOKING PROGRAM ON THE HOME ENVIRONMENT

By

Courtney Warday

A THESIS

Presented to the Faculty of

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Under the Supervision of Professors Linda Boeckner & Michelle Krehbiel

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WE COOK: FUN WITH FOOD AND FITNESS: IMPACT OF A YOUTH COOKING
PROGRAM ON THE HOME ENVIRONMENT

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University of Nebraska, 2017

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BACKGROUND

US food preparation habits have decreased since 1965 (Smith, et al, 2013). Children are rarely involved in food preparation in the home (Fulkerson, et al, 2008). Cooking frequency has been positively associated with healthy eating (Raber, et al, 2016). Food consumption behaviors have changed in the US in the last few decades possibly contributing to the obesity epidemic (Understanding Childhood Obesity, 2010).

OBJECTIVE

The purpose of this study is to examine how We Cook: Fun with Food and Fitness, an elementary youth cooking program impacts the home environment.

PARTICIPANTS

Participants were adult family members of youth involved in the WeCook: Fun with Food & Fitness program. At the end of the program, family members answered three open-ended questions to evaluate the impact WeCook had. There were 30 youth participating in the WeCook program and 14 families that participated in the study.

RESULTS

Six themes emerged through data analysis including, desire for increased family time, increased confidence, mixed messages from parents, children showing independence, positive attitudes toward food preparation, and transfer of skills from the WeCook curriculum to the home environment. Subthemes also emerged under the themes: desire for increased family time and transfer of skills from the WeCook curriculum to the home environment.

CONCLUSION

Results of this study reveal that cooking programs increase confidence and positive attitudes toward food preparation and involving the family may produce a transfer of skills to the home environment.

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CHAPTER I: INTRODUCTION

Time spent on food preparation has declined as a whole across all income groups from 1965-1966 to 2007-2008 in the United States because less people are cooking and those that are cooking spend less time in the kitchen (Smith, et al, 2013). From the American Time Study, conducted in 2009, surveying 118,635 adults 18 years and older, it was reported that only 68% of women and 40% of men are cooking. (Smith, Shu Wen, Popkin, 2014). Time spent on food preparation declines as time spent working outside the home increases. From 1984 to 2009, women in the United States' workforce increased 44 percent (Reicks, Trofholz, Stang, & Laska, 2014). Decreases in food preparation have been attributed to the rise in the number of working women because women are the primary decision makers for preparation of food/meals. The decrease in food preparation time has also been attributed to an increased convenience food availability, and time scarcity (Reicks, Trofholz, Stang, & Laska, 2014). These factors combined with a lack of healthful eating knowledge and basic cooking skills may influence families' consumption of food eaten away from the home (Hersch, Perdue, Ambroz, & Boucher, 2014).

These statistics make it clear that adults seem to be preparing fewer foods at home, which has led to an increased number of children not getting involved in the food preparation process. In a longitudinal study, Fulkerson, et al (2008) found that roughly 43.3% of parents conveyed their child never, or rarely helped with meal preparation. Further, food preparation of meals as adolescents predicted whether young adults in their mid-to-late twenties liked to cook and how often they would prepare meals that contained vegetables (Laska, Larson, Neumark-Sztainer, & Story, 2012).

Cooking frequency has been positively associated with healthy eating (Raber, et al, 2016). More frequent home food preparation practices has been associated with a lower dependence on fast food, a better adherence to the dietary guidelines, and a higher consumption of healthier foods. An increased amount of food preparation time may be linked to a lower body mass index (BMI) (Ducrot, et al, 2016).

Parallel to changing food preparation patterns, food consumption behavior and patterns have also changed in the United States in the last few decades. The majority of individuals in the United States, especially children, do not eat the recommended amounts of fruits and vegetables. Studies show that 25% of a child's vegetable consumption comes from french fries (Understanding Childhood Obesity, 2010). Less than 10% of high school students get the daily-recommended amount of fruits and vegetables (Understanding Childhood Obesity, 2010). According to the national Youth Risk Behavior Survey (YRBSS) as of 2015, only 14.8% of youth are eating at least three vegetables daily. From the same YRBSS survey in 2015, 5.2% of youth were not consuming fruit at all and 6.7% of youth were not eating vegetables (Center for Disease Control and Prevention, 2015). Juice consumption accounts for 40% of children's daily fruit intake. Much of the juice consumed lacks fiber and nutrients that whole fruits contain, making juice a less healthy choice (Understanding Childhood Obesity, 2010). In addition, American adults and children are consuming more fast food and sugar-sweetened beverages than ever before (Task Force on Childhood Obesity, 2010).

The shift of food consumption behaviors and patterns may partially explain the increase in childhood obesity from 5% in 1976 to 17% in 2010 (Task Force on Childhood Obesity, 2010). As of 2016, childhood obesity rates have remained stable at around 17%

for ages two to 19. Although the obesity rate in children has stabilized, children are becoming obese earlier. As of 2016, 8.9% of 2-5 year olds are now obese, with 2% of these children being considered extremely obese (Obesity Rates & Trends Overview: The State of Obesity, 2017). According to the YRBSS survey, in 2015, there were also about 16.0% of youth that were overweight (YRBSS | Youth Risk Behavior Surveillance System | Data | Adolescent And School Health | CDC, 2015). Overweight children are 70-80% more likely to stay overweight as an adult or become obese. This gain in excess weight as a child has been linked to higher and earlier death rates in adulthood and earlier development of chronic diseases (Understanding Childhood Obesity, 2010).

Because of these rising rates of obesity, a shift back to more home food preparation with healthful foods is of increasing interest as a possible intervention to decrease obesity. Cooking programs have recently been used by people of all ages to promote healthy eating practices and to slow or reverse childhood obesity (Hersch, Perdue, Ambroz, & Boucher, 2014). Cooking programs help parents address their children's resistance to dietary change by including family members in the preparation. They also provide information about ways to make sometimes challenging dietary changes more achievable and taste good (Reicks, Trofholz, Stang, & Laska 2014).

However, more research needs to be done to assess the long-term impact of cooking programs particularly programs directed at children on their confidence, cooking attitudes, dietary intakes, knowledge/skills, and healthy outcomes (Reicks, Trofholz, Stang, & Laska 2014).

The program researched in this qualitative study was an after-school 12 week cooking program called WeCook: Fun with Food & Fitness. The WeCook program is

funded by the United States Department of Agriculture (USDA) through a five year Children, Youth, & Families at Risk (CYFAR) grant from National Institute of Food and Agriculture (NIFA). The WeCook program is reaching youth in fourth and fifth grade with limited financial resources in Title I elementary schools. An additional component to the WeCook program includes the family of youth in three family nights throughout the semester. The purpose of this study is to examine how WeCook, an elementary youth cooking program impacts the home environment.

CHAPTER II: LITERATURE REVIEW

Food Preparation Terminology

An evidence-based conceptual framework for healthy cooking defined various terminology in relation to food preparation. ‘Cooking frequency’ is defined as the decision to cook at home, as opposed to purchasing food prepared outside of the home. A sub-construct to cooking frequency is ‘cooking from scratch’ or cooking from basic ingredients. In the literature, “scratch” or “basic ingredients” refers to using whole foods or unprocessed ingredients. (Raber, et al, 2016).

Another area of terminology in relation to food preparation is ‘technique/method.’ ‘Technique’ refers to the cooking approach, the actions taken by individuals while in the process of cooking, such as browning the hamburger. The term ‘method,’ refers to the procedures applied to the ingredients during preparation such as broiling, deep frying, or steaming. Techniques and methods have been shown to positively impact nutrient content through reduced fat intake and reduced sodium intake (Raber, et al, 2016).

‘Minimal usage’ is defined as the use of products while cooking that should be moderated or minimized. Foods that should be used minimally during food preparation include animal fats, processed foods, red meat, and added sugars or sweeteners. Reducing these types of ingredients while cooking is a skill taught in many nutrition-based interventions. ‘Addition foods’ are defined as healthy foods added during the cooking process to improve the nutritional content of recipes. Some examples of these foods are unprocessed fruits and vegetables, and olive oil (Raber, et al, 2016). These foods are usually used during food preparation in cooking programs.

‘Replacements’ are defined as ingredients that are actively removed from recipes and replaced with healthier options, for example, replacing refined grains with whole grains. ‘Flavoring’ refers to the way the taste of food can be embraced throughout the cooking process in a healthful way. Flavoring includes increasing the use of citrus, spices, herbs, or alliums. This also includes staying away from cream-based sauces or margarine to flavor various food items and reducing salt while cooking. These are useful terms that help explain areas of the food preparation process and create a healthy product (Raber, et al, 2016).

Trends in US Home Food Preparation

Time spent in food preparation at home includes time spent preparing the food and cleaning up the preparation area after the meal is complete. According to one cross-sectional analysis of data from six nationally representative United States dietary surveys and six United States time use studies, between 1965-1966 and 2007-2008, the amount of men who spent time cooking increased from 29% to 42% (Smith, Ng, & Popkin, 2013). Of those men who cooked, time spent cooking increased from 37.5 min/day to 45.0 min/day. For women, the amount of those cooking decreased from 92% to 68% and the time spent cooking decreased also from 112.8 min/day to 65.6 min/day on average (Smith, Ng, & Popkin, 2013). Another study analyzing United States time-use surveys, found that between 1975 and 2006, women’s food preparation time declined substantially, while men’s food preparation time remained fairly stable (Zick & Stevens, 2010). Of the men who were cooking, only 23% stated they cooked between 1 and 39 minutes each day, and only 17% cooked 40 or more minutes per day. From the women who were cooking, about 35% were cooking between 1 and 59 minutes per day, and 33%

were cooking 60 or more minutes per day. Those who reported cooking were more likely to be older, female, and better educated (Smith, Shu Wen, Popkin, 2014).

From 1965-2008, food preparation has declined across all income groups, but the biggest decline in time spent in food preparation was low-income families (Smith, Ng, & Popkin, 2013). Although low-income families report consuming 72% of their daily energy from food in the home, they still report they are not cooking (Smith, Ng, & Popkin, 2013). The decrease in time spent in food preparation implies that when people engage in food preparation, they rely on packaged and convenience foods (Smith, Ng, & Popkin, 2013). From 1975-2006, grocery shopping time increased modestly for both men and women (Zick & Stevens, 2010). Meal time with a focus on simply eating, with no distractions, declined for both genders, while meal time with other distractions such as television, phone, tablet, etc, rose tremendously for both genders, especially between 1975 and 1998 (Zick & Stevens, 2010).

A survey of 110 grocery shoppers in Washington D.C., found that about four in five families admit to using easy-to-prepare packaged foods at least once per week and approximately 75% of families say they heat up packaged or pre-made foods at least once a week (Seman, Compton, & Musiker, 2012). This same study found that although 85% of families know and say eating healthy meals is important, only about 40% of these families are actually providing these meals most days of the week. Satisfaction levels for how often families are eating healthy and balanced dinners ranked the lowest out of all categories on the survey. The satisfaction for eating healthy dinners is especially lower for food insecure families and those families where both parents are working (Seman, Compton, & Musiker, 2012). Food insecurity is defined by a household's incapacity to

supply food for every person to live a healthy lifestyle (Understanding Hunger and Food Insecurity, 2017).

The percentage of total money a household spends on food away from the home has increased from 33% in 1970 to 47% in 2010. The national dietary intake data from 1994-1996 and 2003-2004 demonstrates that each meal eaten away from home adds 130 calories per day and also a reduction in diet quality. When preparing food at home, people may consume less calories, total fat, saturated fat, sodium, and cholesterol. Food prepared at home also may add more fiber, more calcium, and more iron in comparison with foods that are eaten away from the home (Reicks, Trofholz, Stang, & Laska, 2014).

A meta-analysis of 28 studies conducted between 1980 and 2011 revealed that the percentage of children's daily caloric intake eaten away from the home has increased from 23% to 33% since the 1960s (Appelhans, Waring, Schneider, & Pagoto, 2014). In a study surveying parents of eight to ten-year-olds, it was reported at least weekly that families were eating at fast food establishments, restaurants, or picking up take-out to bring home (Fulkerson, Story, Neumarksztainer, & Rydell, 2008). Parents indicated that they would like to change their eating behaviors and want help with meal planning and preparation. They also stated that they want to spend more time in eating together and want recipe ideas of quicker and healthier meals. The results indicate that parents may not feel confident in the kitchen (Fulkerson, Story, Neumarksztainer, & Rydell, 2008).

Meal preparation is an adult's duty in most households, 77.4% with only one adult cooking and 21.7 % with two adults cooking (Fulkerson, Story, Neumarksztainer, & Rydell, 2008). The parents in this study also indicated many mealtime conflicts, such as their child's refusal to eat certain foods. If children assisted in the food preparation

process, parents would receive help, children would be willing to try more foods, and learn an important life skill (Fulkerson, Story, Neumarkstainer, & Rydell, 2008).

Cooking Matters, a program of the Share Our Strengths Organization teaches youth and families how to shop smarter for food, how use nutrition facts labels to make healthy choices, and how to make delicious and nutritious meals on a budget. The Cooking Matters program has reached over 265,000 families with limited resources across the United States (What We Do, 2017). The Cooking Matters Report of January 2012 shows several demographic categories that play a factor in how family meals are conducted at home. As income decreases, eating dinner prepared at home increases; however the foods consumed are not made from scratch (Seman, Compton, & Musiker, 2012).

Families with an unemployed guardian, a homemaker, or disabled guardian have considerably more meals made in the home than those with an employed guardian (Seman, Compton, & Musiker, 2012). One meta-analysis review found in four studies that a mother's employment status was negatively associated with family meal frequency. There is evidence that having variable work hours was associated with lower family meal frequency. In two studies, parent/guardian work-life stress is negatively associated with family meal frequency (Dwyer, Oh, Patrick, & Hennessy, 2015). One study utilizing data from Project-Eat, surveying 3700 adolescents in the United States, found that full-time mothers also reported less encouragement of healthful eating of their adolescents that contributed to lower fruit and vegetable intake. The same study found that higher parental work-life stress was associated with less healthful eating environment (Bauer, Hearst, Escoto, Berge, & Neumark-Sztainer, 2012).

The larger the family and the more children in a family increases the likelihood of eating meals at home (Seman, Compton, & Musiker, 2012). Families with lower education levels are more likely to eat meals in the household. Families are more likely to eat healthy meals prepared at home when the food decision maker is the mother or grandmother of the family (Seman, Compton, & Musiker, 2012). A review of existing family meal intervention programs found that healthy food availability in the home was positively associated with family meal frequency (Dwyer, Oh, Patrick, & Hennessy, 2015).

Findings from a ten-year longitudinal study reveal that food preparation during adolescence was associated with increased food preparation during emerging adulthood (Laska, Larson, Neumark-Sztainer, & Story, 2012). Adolescents who helped with food preparation for dinner at least once or twice a week were more likely to engage in food preparation-related behaviors as emerging adults. These behaviors could include preparing dinner with chicken, vegetables, or fish, writing a grocery list, or preparing an entire meal. Roughly 41% of adult females and 24% of adult males engage in food preparation with vegetables most days of the week (Laska, Larson, Neumark-Sztainer, & Story, 2012). More than two-thirds of the participants enjoyed cooking when they were in their mid-to-late twenties. The participants who stated they did enjoy cooking were especially likely to have been engaged in food preparation activities as adolescents (Laska, Larson, Neumark-Sztainer, & Story, 2012).

Individuals who were more involved in food preparation as young adults reported dietary intakes that more often met the Healthy People recommendations for fruit, vegetables, and even calcium (Larson, Perry, Story, & Neumark-Sztainer, 2006). About

31% of individuals reporting high involvement of food preparation were getting five servings of vegetables and fruit daily, while only three percent of low involvement food preparation individuals were getting five servings (Larson, Perry, Story, & Neumarksztainer, 2006).

Motivations for Meal Choices

Taste, convenience, and nutrition are motivations for an individual's food selection. Convenience was the main factor influencing away-from-home food choices, it was 17% more likely for them to purchase fast food (Stewart, Jolliffe & Blisard, 2006). A stronger preference for convenience increased the probability of dining out, at least every few days, by over 8%. When seeking a healthful option and thinking of nutrition, consumers are 19% more likely to choose full-service restaurants rather than fast food (Stewart, Jolliffe & Blisard, 2006).

One open-label random controlled trial found that specific dish choice motivations during home food preparation was significantly associated with being overweight. Those motivated by a healthy diet were negatively associated with being overweight. Motivations of specific diet or pleasure factors was positively associated with being overweight. Hispanic and African American women caretakers that are a normal weight have been shown to be more likely to place importance on eating healthy food compared with overweight providers of these ethnicities. Food preparation requires energy and effort while convenience food is considered an alternative for saving time and energy thus individuals experiencing fatigue are more likely to lean on convenience food. Conversely, those who place an importance on time available for cooking actually devoted significantly more time to cook. Thus, individuals such as these are not affected

by time scarcity, but are more concerned about time management and are more likely to eat healthy meals (Ducrot, et al, 2016).

Barriers to Food Preparation in the Home

One of the biggest barriers to food preparation in the home is due to the lack of resources including money, time, knowledge/experience, and equipment. Some families do not buy healthy options because they simply cannot afford them. At least one in four families report not buying healthy foods often or ever because of price (Seman, Compton, & Musiker, 2012). Approximately 30% of families report being extremely dissatisfied with the price of healthy groceries (Seman, Compton, & Musiker, 2012).

The lack of equipment or supplies can be an obstacle to food preparation. Meal preparation equipment can be expensive so it is not a high priority for low-income families. Food preparation supplies make cooking simpler, less time-consuming, and create a need for less effort. Parents with negative attitudes toward cooking and meal preparation are less likely to spend money to equip their home with supplies. Research conducted in 2012-2013 through in-home comprehensive audits of foods, media, and sports equipment in the home, indicated that the presence of food preparation equipment and supplies in the home is positively associated with child consumption of home cooked meals and increased family meal occurrence (Appelhans, Waring, Schneider, & Pagoto, 2014). In this research study, all households had at least a refrigerator, skillet, and frying pan. Higher income was associated with more cooking supplies (Appelhans, Waring, Schneider, & Pagoto, 2014).

Lack of cooking knowledge, skills, and confidence can also reduce time spent on food preparation of healthy meals. Participation in family consumer science classes has

decreased over recent decades in the United State schools, possibly causing young adults to not cook as often (Smith, Ng, & Popkin 2013). Family and Consumer Science classes provide food and nutrition education. Family and Consumer Science classes that include basic cooking techniques, food safety, nutrient information, and other related topics provide youth with skills to become confident in selection and preparation of food (Lichtenstein & Ludwig, 2010).

Informal cooking education from parents or family members in the home has also decreased (Smith, Ng, & Popkin 2013). The recent decline in home cooking practices in our society has had a negative impact on intergenerational transmission of cooking knowledge and skill. Even if adults want to cook more often and save money, without personal experience in cooking, they may not have the skills to do so (Smith, Ng, & Popkin, 2014). Inadequate cooking skills were reported by 23% of males along with 18% of females (Larson, Perry, Story, & Neumarksztainer, 2006).

Lack of knowledge can be a barrier to buying foods at the grocery store. Although many grocery shoppers, roughly 81%, understand that fresh produce is healthy, many are surprisingly uneducated on the health benefits of canned and frozen vegetables (Seman, Compton, & Musiker, 2012). Fresh produce is the best option, but only 12% ranked canned fruits and vegetables as extremely healthy and only 32% ranked frozen fruits and vegetables as extremely healthy. Approximately 44% rated canned fruits and vegetables as neutral, showing that much of the public is unaware of the nutritional value of canned fruits and vegetables (Seman, Compton, & Musiker, 2012).

Along with lack of proper skills and knowledge, time is also a major barrier when it comes to food preparation. More than one third of all males and females indicated that

they did not have time to prepare food (Larson, Perry, Story, & Neumarksztainer, 2006). There is a growing amount of evidence demonstrating that lack of time is the most significant barrier to achieving nutrition goals set by nutrition allotment programs. Trying to manage competing demands of people's daily busy lives stimulates the impulse decisions to buy quick, convenient foods that are usually processed. (Smith, Ng, Popkin, 2014). Preparation of whole grains, raw produce, and lean meats can take significant time. Low-income families deal with the constraints of lower status jobs including long hours at multiple jobs, working random shift times, or working overtime. These constraints cause barriers to food preparation of meals at home for low-income adults (Smith Ng, Popkin, 2013).

Households struggling to find and maintain resources may decide to save time and spend money on away from home foods that are more convenient. During economic downturns, it has been shown that people spend more time on leisure and personal care activities such as sleeping or watching television and less time on domestic activities that take up time such as cooking (Smith, Ng, Popkin, 2014). Along with the time commitment of preparing meals at home, involving children in food preparation would take even more time. A recent focus group study of working parents indicated parents would love to have their children help out more in meal preparation; however, they don't have the time to commit to teaching and cleaning up the mess involved (Woodruff & Kirby, 2013). Overall, families are eating most meals at home and understand that healthy meals are important to their family's health; however, because of these barriers some families struggle.

Obesity Epidemic

Obesity has become an epidemic in the United States in recent decades. As of 2010, 31.7% of children between age 2 and 19 are either obese or overweight (Task Force on Childhood Obesity, 2010). The child's environment has a defining role in the development of childhood obesity. Over the last three decades, typical dietary habits and patterns of American households have changed significantly. Americans have developed a fast-paced lifestyle, which is contributing to eating away from home more frequently. Families are more likely to rely on ready-prepared foods or quick snacks. This problem leads to a lifestyle that contributes to unhealthy food choices. Americans are consuming more fast food and sugar-sweetened beverages than ever before. Consumption of such items has been shown to contribute to obesity (Task Force on Childhood Obesity, 2010).

Along with the increased consumption of fast food and sugar-sweetened beverages, portion sizes have also become larger. Many Americans are eating bigger portions and eating more frequently. At many food establishments, larger portion sizes are offered for cheaper prices, such as the "value menu" items. About twenty years ago, the average cheeseburger had 333 calories compared to 590 calories currently (Understanding Childhood Obesity, 2010). The average American diet increased 250 to 300 calories daily between 1971 and 2000. This addition of calories every day adds up to between 26 and 31 pounds of weight gain in one year. Adolescents eat an average of 8 percent more calories than 30 years ago. Studies have shown that children who learn to listen to their bodies when they are full, eat less than those who are taught to clean their plates (Understanding Childhood Obesity, 2010).

Additionally, time spent watching television, using the computer, and playing video games has increased. Screen time can lead to mindless eating and is associated with children sleeping poorly (Task Force on Childhood Obesity, 2010). In the United States, children spend four to five hours daily in front of a screen on average and, participate in physical activity and play outside at lower rates than ever. Roughly 25% of children do not participate in any physical activity during their free time (Understanding Childhood Obesity, 2010).

Consequences of Obesity

Every organ system in the body is impacted by obesity. This health problem is regarded to be more damaging to the body than smoking or alcoholism. It has been shown that obese children have arteries that are the same as a forty-five year old person (Understanding Childhood Obesity, 2010). Other health diseases are commonly associated with the development of obesity. For instance, it is the most significant risk factor for Type 2 Diabetes, which is now becoming prevalent in children. Approximately one third of all children in the United States born in the year 2000 are expected to develop diabetes during their lifetime (Task Force on Childhood Obesity, 2014). Obese children are at higher-risk for developing heart disease and more likely to develop asthma. Along with physical health, obese children report a lower quality of emotional health, educational performance, and social well-being (Task Force on Childhood Obesity, 2010).

Each year around 112,000 people die from obesity-related diseases (Task Force on Childhood Obesity, 2010). The provision of extra health care to treat obesity-related diseases leads to substantial economic costs. Each year, obese adults spend \$1,429.00

more on medical expenses than normal-weight individuals (Task Force on Childhood Obesity, 2010). In 2008, medical spending accredited to obesity, reached \$147 billion (Task Force on Childhood Obesity, 2010). During childhood, an estimated \$3 billion is spent annually in direct medical costs for children with excess weight (Task Force on Childhood Obesity, 2010).

Advances in Prevention

Advances in obesity prevention over the last three decades began with raised awareness. In 2001, *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity* was issued (Committee on Accelerating Progress in Obesity Prevention & Institute of Medicine, 2012). The call to action recognized the epidemic as a priority for the Department of Health and Human Services. This document discussed the problem at multiple levels of society and addressed ways to achieve tangible results. In 2003, Dr. Elias Zerhouni formed a task force to develop research strategies against obesity. In 2004, they released a strategic plan that included research on obesity-related topics. This research brought attention to the necessity for more examination of special populations at high risk for obesity. Numerous other means of awareness in the US include media reports, government acts and policies, and wellness programs arising in different community locations (Committee on Accelerating Progress in Obesity Prevention & Institute of Medicine, 2012).

Nationwide data suggests the prevalence of obesity may be leveling off. This may be an indication of a leveling off of the obesity prevalence. However, no downward movement in obesity levels is occurring. This means improvement is still necessary.

(Committee on Accelerating Progress in Obesity Prevention & Institute of Medicine, 2012).

Education is key to achieving success and has become a widespread strategy for intervention. *The American Recovery and Reinvestment Act of 2009* included roughly \$1 billion in funding for prevention and wellness investments (Task Force on Childhood Obesity, 2014). More than half of this funding was directly related to preventing obesity and tobacco use. More investigation of successful strategies to help families and communities identify ways to address childhood obesity in economical and effective ways is needed (Task Force on Childhood Obesity, 2014).

The Home Food Environment

On the interpersonal level, families control the food brought into the home. The home food environment and its relationship to childhood obesity is a growing area of research. Exposure to fruits and vegetables can have an impact on a child's acceptance to them. Neumark-Stzainer and others (2005) found that foods available in the home correlated with taste preferences as well as with. In order to increase the consumption of fruits, vegetables, whole grains, lean proteins and low fat dairy, more work needs to be done to influence the parent to bring these foods into the home. Although having "healthy" food available is an indicator of healthy food consumption, it is not the only factor associated with adolescent food intake. Parent fruit and vegetable intake can also influence children's intake (Cooke, 2004; Hanson, 2005). Neumark-Staniner also found that eating as a family increased consumption of fruits and vegetables in older children (Neumarker et al., 2005).

Family Meals & Their Benefits

The encouragement of family meals is a strategy promoted by public health professionals to encourage healthy eating and to reduce potentially unhealthy body weight (Woodruff & Kirby, 2013). Family meals offer the opportunity to connect with each other, communicate about family happenings, and give each other time and attention. The most important thing about family meals is to make them frequent, fun, and family-centered (Hammons & Fiese, 2011).

Evidence suggests that regular family meals protect against unhealthy eating and obesity during childhood and adolescence. Hammons and Fiese (2011) concluded that family meal frequency contributes to a reduced likelihood of unhealthy eating, and a greater likelihood of healthy eating among children and adolescents. In a recent meta-analysis study, it was found that children and adolescents who participated in frequent family meals were less likely to be overweight (Dwyer, Oh, Patrick, & Hennessy, 2015). Additionally, eating family meals more frequently is positively correlated with intake of nutrient dense foods (such as fruits, vegetables, lean proteins, whole grains and dairy) (Gillman; Neumark et al.).

Positive associations between family meals and healthy eating behaviors have also been found in systematic reviews (Hammons & Fiese 2011). In one review, Woodruff and Hanning (2009) found that family meals have positive influences on adolescents' dietary intake including, increased fruit/vegetable consumption and dairy consumption with less consumption of sugar-sweetened beverages and unhealthy foods. Frequent family meals may also prevent obesity. Children and adolescents who share family meals three or more times per week are more likely to be in a normal weight range

and have healthier dietary patterns than those who share fewer than three family meals together (Woodruff & Hanning 2009). In addition, they are less likely to engage in disordered eating (Woodruff & Hanning 2009).

While habits of healthy nutritional choices have been evaluated when families sit down and eat together, regular family meals also provide opportunities for the family to develop better communication (Lyttle & Baugh, 2008). At family meals, parents and children have time to catch up with each other and learn about the events that happened during that day (Lyttle & Baugh, 2008). It also provides parents a learning opportunity where they can teach social skills, table manners, and basic cooking skills to their children (Lyttle & Baugh, 2008).

Not only can frequent family mealtime provide an opportunity for healthy eating habits and communication, they can allow parents an opportunity to be aware of and monitor their children's moods, behaviors and activities with friends (Schulz, 2013). This kind of parental monitoring is important for parents so they know what their kids are doing, whom they are with, and where and when their activities are taking place. Family meals give regular structure and routine to a child's day (Schulz, 2013). If a child knows that he or she can expect a reliable schedule, it increases his or her sense of security and improves well-being (Schulz, 2013). These include a decreased risk of substance use or delinquency, heightened personal and social well-being, and better academic performance (Story & Neumark-Sztainer, 2005).

Sitting down and having regular family meals makes a positive impact on young children's language acquisition and literacy development (Story & Neumark-Sztainer, 2005). Family meals furnish a daily opportunity for a parent or sibling to speak to an

infant or toddler, and help them learn words, understand language and build conversation (Story & Neumark-Sztainer, 2009). The benefits of participating in regular family meals encompass not only good nutritional habits, but also communication skills, learning experiences, and overall well-being for both child and parents (Story & Neumark-Sztainer, 2009).

Barriers to Family Meals

Some families feel as if there are too many barriers for preparing and enjoying family style meals to make the effort worth it. A common issue for many families is time. In Lincoln, NE the average commute time to work from home is 18 minutes (TownCharts, 2017), while the national average commute time to work is 25.4 minutes (Keefe, Melendez, Ma, 2017). Between the parent's work schedule, children's school schedule, and extracurricular activities; getting from point A to point B is time consuming. It can be seen as challenging to add an extra stop to go grocery shopping in order to prepare a meal for everyone to enjoy together.

Food deserts are areas that have limited access to healthy affordable foods (Dutko, Ploeg, Farrigan, 2012). Some geographical areas may be lacking a closely located grocery store which may hinder the family's ability to get to a grocery store and purchase what is needed if transportation or money is an issue. Neighborhoods that are considered to be low income tend to have fewer chain grocery stores. Chain grocery stores offer the largest variety of food at the lowest price. This leaves low income families with fewer grocery options and higher prices (Story, Kaphingst, Robinson-O'Brien, Glanz, 2008). Areas are more likely to be food deserts if there is a higher poverty rate regardless of whether it is rural or urban. In all areas except very dense urban

areas, the higher the percentage of minority populations, the more likely the area is to be food desert (Dutko, Ploeg, & Farrigan, 2012).

The frequent consumption of prepackaged meals and eating out has in some cases limited individual cooking ability and knowledge. Not being knowledgeable on how to prepare food is often seen as a barrier. Also, not being knowledgeable on the importance of eating healthy meals or even knowing what a healthy meal consists of can be seen as a barrier to preparing food in the home. Taste preference is also a factor for decreased family style meals. Generally, calorically dense foods that are consumed while eating out are considered to be more palatable. For this reason, taste preferences have been found to be one of the strongest correlations for the low consumption of fruits and vegetables (Story, Kaphingst, Robinson-O'Brien, Glanz, 2008). By providing nutrition and cooking education there can be an increase in self-efficacy to be able to produce a meal that the whole family can enjoy. Self-efficacy is the driving force of being able to overcome the barriers that discourage family style meals.

Existing Youth Cooking Intervention Programs

Despite the barriers previously discussed, most of the families agree that cooking a healthy meal is an attainable goal. Many families say they are very eager to learn more about food preparation and cooking healthy meals in order to reach this goal. About one in two families report being very interested in learning more about cooking healthy meals; however, only 45% of families say that cooking healthy meals is realistic (Seman, et al, 2012). Findings from a literature review, conducted by Reicks, et al, 2014, analyzing articles from 1980 to 2011, revealed that participants of three different cooking interventions showed an enhanced understanding of healthy cooking strategies and food

preparation. These interventions increased the participants cooking confidence in the kitchen and improved self-efficacy of following a recipe. Two of the studies demonstrated an increase in cooking behaviors post-intervention including four to six weeks later at the follow-up and reported positive cooking attitudes and enjoyment of cooking (Reicks, et al, 2014).

A cooking intervention, called the Cookshop program, consisting of ten sessions inside the classroom for students in kindergarten through sixth grade, resulted in decreased plate waste as well as increased preferences and knowledge of foods. The program designers believed that cooking in the classroom would be an enjoyable environment so they chose to prepare minimally processed vegetables and whole grains, teach about the foods they were cooking, and offer these same foods in the cafeteria to possibly improve preference and intake. The plant-based diet was encouraged through these classes and each week a different whole grain or vegetable was focused on. The program had a positive impact on self-efficacy in cooking, knowledge of vegetables and whole grains, and preferences for the foods in the program (Liquori, Koch, Contento, & Castle, 1998).

Another cooking program in Oklahoma had a positive impact on the youth and adults. The pre- and post- questionnaires showed a significant difference in fruit and vegetable intake. The youth's average number of fruits daily increased from 1.1 to 2.3 servings and there was a 39% increase in number of youth who actually consumed the recommended servings of fruit every day (Brown & Hermann, 2005). There was a similar increase in consumption of vegetables as well with the average number consumed

increasing from 1.4 to 2.4 servings each day with a 25% increase in youth getting the recommended three servings of vegetables daily (Brown & Hermann, 2005).

Outcomes of a systematic review of evidence from 2003-2014 show favorable results for cooking classes in youth. Two of the reviewed studies were found to determine food preparation skills and cooking confidence. There was an overall increase in cooking confidence after the intervention for control and intervention groups. They observed that with fourth graders in New Mexico and Colorado, there was a significant increase in cooking self-efficacy. Children were more willing to try foods if they cooked it themselves. In Colorado fourth-graders, the overall change in attitude toward cooking was more significant in the intervention group compared to the control group. These results show cooking classes can potentially impact children and their habits or behaviors toward cooking and food (Hersch, Perdue, Ambroz, & Boucher, 2014).

Another existing cooking and physical activity intervention is called Fuel for Fun: Cooking with Kids Plus Parents and Play. This program consists of five components. The first is called Cooking with Kids in Colorado that includes a cooking and tasting curriculum in the classroom. The second component is called Cafeteria Connections and is composed of reinforcement of students' previous classroom experience, utilizing behavioral economic strategies. The third aspect of the program is called SPARK active recess. This playground intervention encourages students to participate in moderate to vigorous activity while at recess. The fourth component involves the family and is called Fuel for Fun Family. The purpose of this component is to get parents on board so that all the students have learned can be implemented at home. The last and final component of the Fuel for Fun program is called About Eating and is an online interactive nutrition

program targeting parents. Fuel for Fun also involves the family in a family night twice each year. At family night, activities were available for families to participate in such as nutrition crafts, SPARK games, and cooking/tasting stations. A light meal was also served by school cafeteria staff throughout the night. This program also included another family component called the FFF Action Packs, which were sent home with students after each tasting and cooking lesson. Participants of this program were families and youth that utilize food pantries. Data analysis has not taken place for this program currently, but follow up interviews will occur within a year (Cunningham-Sabo, et al, 2016)

The 4-H We Cook Program

The 4-H WeCook: Fun with Food and Fitness program is an after school cooking and physical activity program developed by University of Nebraska-Lincoln (UNL) Extension specifically 4-H Youth Development. United States Department of Agriculture (USDA) through the National Institute of Food and Agriculture (NIFA) provide funding for the program through a Child, Youth, and Families at Risk (CYFAR) grant (2014-2019). The goal of WeCook is to help high-risk youth and their families gain knowledge and skills that will help them select, prepare, and consume well-balanced nutritious foods and participate in physical activity.

WeCook serves fourth and fifth graders and their families at two Title I elementary schools in Lincoln, Nebraska. Minority youth made up of 35% of youth at one location and 66% of youth at the second location. Approximately 7.5% of youth at school one were English language learners while at school two there were 35% English language learners. Participation in the free/reduced meal program was higher than the national average, 60% of youth at school one and 88% of youth at school two. Roughly

79% of youth participating in WeCook were female and 21% were male. About 20% of youth were Hispanic while the other 80% were Non-Hispanic ethnicities. There was a total of 30 youth enrolled in WeCook during the fall 2016 semester including both schools, with 15 youth at each.

The WeCook program strives to accomplish both short and long term outcomes. The program aims to improve selection of healthy foods by increasing knowledge of healthy food options. Long term goals of the program are: Increase youth knowledge of nutrition and increase physical activity behaviors. Families will provide an environment that encourages nutritious, balanced, and safe meals along with physical activity.

The WeCook program provides experiential learning with food preparation and interactive activities that promoted a healthy lifestyle. Each week two hours of programming focus on a specific nutrition theme. One day a week included preparing healthy snacks and food items, while the other day focuses on physical activity and nutrition knowledge through fun high-energy interactive activities. The club meets throughout an entire semester including 12 weekly lessons and three family nights. The lessons included: Motion Commotion, My Plate, Rethink Your Drink, Eat a Rainbow, Portion Control, Grainy Brainy, Eating Out, Power Up Your Day-Eat Breakfast, Let's Play, and Media Mania. There was also an Introduction day and Wrap Up final day. All recipes were selected by a registered dietitian based on a set of criteria of at least one fruit or vegetable, minimal sugar, use of non-fat, low-fat, or reduced-fat dairy, and less than 5g per serving of saturated fat.

Throughout the semester, WeCook includes the family in three family nights at where all family members are invited to come and eat dinner with their youth. Youth

prepare dinner together as a group for their families and the families sit together for a family meal.

Literature Gaps and Justifications for Current Study:

Cooking classes are a growing trend in the United States. They are a hands-on learning approach to teach individuals of all ages healthy meal preparation skills. Since cooking classes are popular nationwide, it is important to determine if nutrition education and food preparation impacts the individual participant and their families' food preparation habits. There is limited research on how youth cooking classes affect the families' cooking behaviors and if the children become more involved in meal preparation following the cooking classes at home. There is also limited research on cooking programs that include a family component and how this aspect influences the home environment. These gaps in the literature indicated a need for research to be done in this area.

CHAPTER 3: METHODOLOGY

Research Design:

The purpose of this qualitative study was to examine how WeCook, an elementary youth cooking program, impacted the home environment. The data were collected by participants recording their responses to three short questions using electronic tablets. Participants were given three open-ended questions created by the primary investigator to explore the research phenomenon. There were no demographic questions asked regarding age, gender, race, or ethnicity. The questions were designed to investigate the changes youth and families made in regards to behavior, confidence, and attitude associated with food preparation and the home environment. The research design did not include the primary researcher asking follow up or clarifying questions. IRB approval was granted in the fall of 2016 (see Appendix F).

Questions:

1. Tell me about your child's confidence and enjoyment levels in the kitchen since attending the WeCook Program.
2. Describe any changes in the food preparation habits of your family since your child has attended the WeCook Program.
3. Tell me about some future goals your family has in relation to cooking, eating together, and physical activity.

Participants:

The target population included family members of the youth enrolled in the We Cook afterschool program at two Title I elementary schools in Lincoln, Nebraska. Family members that attended We Cook's "Family Night" were invited to participate in the study.

Only adults, ages 19 and older, who had a family member enrolled in the We Cook program were eligible to participate in this study.

Recruitment:

Initially, the youth were recruited for the We Cook: Fun with Food & Fitness program through the afterschool program at their elementary school. Family members of youth enrolled in the WeCook program are invited to participate in a total of three family nights throughout the semester. During the second family night of the fall 2016 semester, adult family members of participating youth, were recruited to participate in the research study. The primary investigator introduced herself to all that attended and verbally explained the research that would be conducted at the last family night of the semester. The primary researcher spoke to each family in attendance and gave them a flyer (see Appendix A) that described the research and explained how to participate in the upcoming study. At this time, the primary researcher also answered any questions from the families.. The week before the research was conducted, the WeCook staff gave a verbal reminder to youth during the after school WeCook program. Another flyer, identical to the first flyer, that explained the research procedure and participation was sent home with youth. The last step of the recruitment process occurred the night of data collection. Before the start of the last family night, during the last week of programming, the primary researcher gave each family a verbal reminder about the research taking place that night. Families were invited individually by the primary and secondary researchers to participate in the research study.

Data Collection Procedures

The family members interested in research participation were asked to sign an informed consent form (Appendix B) after the primary investigator explained how the research would be conducted. Once the consent forms were signed, the families were taken to a recording station. The recording station consisted of a desk, chair, electronic tablet, microphone, and a copy of the protocol (see Appendix D). The protocol was followed by the primary researcher throughout the interviews. The recruitment script (see Appendix E) was utilized to explain all instructions to the participant. Once the recruitment script was read, participants were given a printed copy of the three questions (see Appendix C). Participants were encouraged to ask questions to the primary investigator throughout the research procedure and were informed that they could withdraw from the study at any time for any reason,

Interviews were self-conducted by participants and recorded on an electronic tablet at their own convenience. Once the participants read through the questions and were ready for their responses, they turned on the electronic tablet to begin recording. At this time, the researcher asked if the participant had any questions. If no questions were asked, the researchers left to allow participants privacy. Participants then recorded their responses to interview questions on the electronic tablet. The average recording time for participants was between three and five minutes. If participants did not want to show their face during the interview, they could face the electronic tablet camera toward the wall. When the interview was completed, the participants received ten dollars for participation. The participants were thanked and went back to participating in the family night activities.

Confidentiality

Participants' identities were protected by: 1) no identifying information was used on the video files and all information was only accessible to the research team. Names were not used, but instead files were labeled following a coded naming procedure outlined by Merriam (2009) 2) participants were asked about their comfort level for sharing their audio recorded responses in the research paper by giving permission on the consent 3) coded names were used ("Family 01") in publication. No confidential information was requested during the interview and all collected data were only accessed by the primary investigator, secondary investigator, primary investigator's advisor, and one graduate student whose assistantship was funded by WeCook, for analysis.

Data Analysis

Data analysis of this qualitative study involved consolidating, reducing, and interpreting the short interviews as outlined by Merriam (2009). Each interview was transcribed by only the primary researcher. No applications or software were used during the transcription process. After all data were transcribed, the primary researcher double checked the transcription with the audio to make sure they matched. Then the primary researcher read and re-read the data multiple times to familiarize herself with the responses of participants. The primary researcher was looking for words or phrases that occurred similarly in participant answers, pertaining to the research purpose. Each word or phrase had to meet two criteria as outlined by Merriam (2009): 1) the word/phrases must be heuristic, meaning they should reveal significant information about the study; 2) the word/phrase must be interpretable by itself. Identified word/phrases were compared for regularities in the data. Eventually, throughout this process of breaking down data

into bits of information, themes began to emerge. During this task, discrimination between criteria for each theme became clear and the bits of information were assigned to a specific theme based on the criteria. Then, some themes were subdivided into sub-themes (Merriam, 2009).

In order to validate the emerging themes, two other qualified individuals also separately reviewed and analyzed the data following the same procedure by Merriam (2009) to identify themes. The first reviewer was the primary researcher's advisor, and the other was a graduate student whose assistantship was funded by WeCook. Once each researcher separately spent substantial time reviewing data and identifying themes, all investigators came together for a meeting. During this meeting, investigators discussed themes they discovered during data analysis and agreed upon major themes and sub-themes.

The six identified themes:

- Desire for increased family time
- Increased confidence
- Mixed messages from parents
- Children showing independence
- Positive attitudes toward food preparation
- Transfer of skills from the WeCook curriculum to the home environment

CHAPTER 4:

RESULTS

Demographics:

A total of 30 youth were involved in the WeCook: Fun with Food & Fitness program, 15 participants at each of the two schools. On the last family night of the semester, when the research study was conducted, eight out of the 15 families attended from school one and nine out of the 15 families attended from school two. At school one, seven out of the eight families in attendance participated in the research study. At school two, eight out of the nine families in attendance participated in the research study. The total sample size was 14 families, as one family was excluded due to translation. The response rate combined from both schools was 15 out of 17 of the participants attending the final family night. Out of the 14 participants in the study, nine were female, and five were male. There was one participant that was a sibling to the youth in the We Cook program, and 13 participants were parents/guardians.

Qualitative Findings:

Six themes emerged from the data: 1) desire for increased family time, 2) increased confidence, 3) mixed messages from parents, 4) children showing independence, 5) positive attitudes toward food preparation, and 6) transfer of skills from the We Cook program to the home environment.

Transfer of skills from the We Cook Program to the home environment:

A major theme that emerged from the data was the transfer of skills from WeCook programming to the home environment. This theme emerged from parents response to the three questions. Sub themes identified were food safety practices, willingness to try new

foods, healthier foods, helping with food preparation more, and being more active (Table 1).

Ten out of 14 families, (78%) believed that their child was helping with food preparation more often. Parents used words such as “participated” or “helped” to describe their child being more involved in the kitchen. Five families out of 14 (34%), reported their child and/or family being more active, perhaps due to the activity tracker utilized in this study. One family described their child’s increase in activity as being goal driven by desiring to achieve 10,000 steps each day. Other families used phrases such as “physical activity has increased” and “exercising a lot more” to describe this shift in behavior.

Four out of 14 families, or (29%), reported their child was making healthier choices following the We Cook program. Parents reported this change in food decisions with phrases such as “making healthier choices” or “chooses the healthy foods.” Three families out of 14, (21%), stated their child was willing to try new foods. Parents described this willingness to try new foods with words such as “open” and “willing.” One parent even reported their child “had a lot of fun making and trying new foods.” Three families out of 14, (21%) also reported their child had more safe food practices. Parents used words such as “cautious” and “aware” to describe increased food safety practices.

Table 1: Results of Theme: Transfer of skills from We Cook to the Home Environment

| Sub theme | Number of families | Quotes |
|------------------------------------|--------------------|---|
| Helping with food preparation more | 10/14 | <p>“She has not only participated a lot more within the preparation of food within my family's household but she has also been more active in the kitchen and to help out with my mother.” –Family 01</p> <p>“She asks to help in the kitchen a lot more and does a lot more things by herself with direction from me instead of me having to stand right beside her when she’s cooking” –Family 08</p> |
| Being more active | 5/14 | <p>“Her physical activity for sure has increased due to the Fitbit because she is really excited to make it to her 10,000 steps that she wanted to achieve.” – Family 08</p> <p>“As in physical activity she has always been active so she just wanted to get involved in this which also included doing things together with others” – Family 03</p> <p>“Wearing theFitbit really helped her understand that she was exercising a lot more and it would get her really excited to exercise” –Family 08</p> |
| Healthier foods | 4/14 | <p>”He tries to choose the healthy foods. He helps me sometimes to prepare healthy foods, he likes to eat veggies” –Family 05</p> <p>“I feel like my daughter is making healthier choices and she thinks a lot more about the foods she is eating and the snacks she is preparing, that she wants to take a lot more time in making her choices” -Family 08</p> |

| | | |
|-------------------------------------|-------------|--|
| Food Safety Practices | 3/14 | “My child has been very cautious in preparing foods so much as washing our hands, and telling us to set up the table before we eat.” –Family 14 “She has become very aware of food prep and practices very good habits.” –Family 02 |
| Willingness to try new foods | 3/14 | “She has been open to trying newer things instead of the usual everyday meals that we would have.” –Family 14 “She has had a lot of fun making and trying new foods.” –Family 14 |

Desire for increased family time:

The theme, desire for increased family time, was characterized by the following sub-themes: desire for increased family meals, desire for increased exercise together, desire to cook more together, desire to be together as a family more often, and time as a barrier (Table 2). These answers correspond to question number three in the interview questions: Tell me about some future goals your family has in relation to cooking, eating meals together, and physical activity. The desire to spend more time together was spoken in different ways, but all words concluded the same longing for attaining a healthier lifestyle together.

There were eight families out of 14 (57%) that spoke about a desire for increased family meals together. Families described their future goals for increased family meals with phrases such as “eat more together” and “eat breakfast together.” There were seven families of the 14 (50%) that expressed a desire for increased exercise together as a family. Some parents described this desire as “a priority” or “a need” for their family.

Four out of 14 families, (29%) indicated a desire to cook in the kitchen more often together. Families reported this future goal using phrases such as “cooking a lot more meals together” or “be more active in the kitchen...together.” Two of the 14 families (14%) expressed the desire to simply be together as a family more often. These families used phrases such as “brought us together as a family” to describe this theme. Two of 14 families, (14%) realized the barrier of time or busy schedules, but are still striving for the goal of eating together more. Families used phrases such as “different schedules” or “busy a lot” to describe this challenge.

Table 2: Results of Theme: Increase family time and Subthemes

| <i>Subtheme</i> | <i>Number of families</i> | <i>Quotes</i> |
|---|---------------------------|--|
| <i>Desire for increased family meals</i> | <i>8/14</i> | <p><i>“We need to find a time to eat more together as a family so that’s something we could improve on.”- Family 03</i></p> <p><i>“Future goals we have is we eat dinner together every night and we try to eat breakfast together as often as possible.” –Family 12</i></p> |
| <i>Desire for increased exercise together</i> | <i>7/14</i> | <p><i>“We have to and want to prepare to have more exercise to add more minutes to our physical activity.” –Family 05</i></p> <p><i>“These are the goals for my family. With activity, taking a walk or riding bicycles with the family is a priority we try to do” –Family 11</i></p> |
| <i>Desire to cook more together</i> | <i>4/14</i> | <p><i>“I feel like our future goals are that we will be cooking a lot more meals together” –Family 08</i></p> <p><i>“Some future goals are, we want to be more active in the kitchen so we want to work together as a family more often” –Family 01</i></p> |
| <i>Desire to be together as a family more often</i> | <i>2/14</i> | <p><i>“We have actually some more eating family meals together instead of hey you go sit at the table, were going to sit in the kitchen or into the living room and eat so it has brought us together eating as a family.” –Family 13</i></p> <p><i>“Some future goals are, we want to be more active in the kitchen so we want to work together as a family more often, have more family meals, hang out, and just have family time and that is it.” –Family 01</i></p> |

| | | |
|--------------------------|-------------|--|
| <i>Time as a barrier</i> | <i>2/14</i> | <p><i>“For our future goals, we really want to um start eating meals together because we all have different schedules so that’s something we could improve on because we all have like I said different schedules.”- Family 03</i></p> <p><i>“I feel like our future goals are that we will be cooking a lot more meals together and trying to sit down as a family even though we are busy a lot, but we will try to make more time for that”-Family 08</i></p> |
|--------------------------|-------------|--|

Positive Attitude toward Food Preparation

There were 11 out of 14 families (79%) that, reported more positive attitudes toward food preparation. Parents provided several statements which demonstrated that they have seen a positive shift in their child's attitude since participating in the WeCook program. A positive attitude toward food preparation was reported by parents in many ways. Parents used words/phrases such as "enjoyment," "having fun," "likes," "interested" to describe their child's experience in the kitchen following the WeCook program (Table 3).

Confidence

An increase in the child's confidence was mentioned in the interviews of over half of the families, eight of 14 families (57%, see Table 3). By the end of the WeCook program, youth's confidence increased and the families noticed this change at home too. Parents mentioned statements related to their child's confidence during the interview process. Words such as "confidence" and phrases such as "confidence has grown" were used to describe this change.

Independence

Six families out of 14 (43%) stated either their child had increased their level of independence in the kitchen or they wanted their child to be more independent during food preparation. Parents characterized their child's increase in independence with phrases or expressions such as "on their own" or "her cooking...for the family." For example, one parent from Family 08 wanted their child to help out with choosing recipes, and to make snacks/meals on their own (Table 3).

Mixed Messages

Four families out of the 14 interviewed, (28%) reported mixed messages about how the WeCook program was impacting the home environment (Table 3). Many families stated there were no changes in their child's behavior, but then included a contradictory statement to follow. For example, a parent would comment that they hadn't seen a change in their child and then would remark about their child trying to be more involved or appearing to be more interested in food preparation at home.

Table 3: Results of Themes: Positive attitude towards foods preparation, Confidence, Independence, and Mixed messages,

| <i>Theme</i> | <i>Number of Families</i> | <i>Quotes</i> |
|--|---------------------------|---|
| <i>Positive attitude toward food preparation</i> | <i>11/14</i> | <p><i>“The We Cook program has really helped my son enjoy being in the kitchen and wanting to learn more about eating not only healthy but learning how to cook”</i></p> <p><i>“I think that my daughter’s confidence and enjoyment in the kitchen has grown tremendously since the We Cook Program.” –Family 13</i></p> <p><i>“She has had a lot of fun making and trying new foods.” –Family 14</i></p> |
| <i>Confidence</i> | <i>8/14</i> | <p><i>“My child’s confidence has grown since he has been in the We Cook program” –Family 12</i></p> <p><i>“I think that my daughter’s confidence and enjoyment in the kitchen has grown tremendously since the We Cook Program.” –Family 08</i></p> |
| <i>Independence</i> | <i>6/14</i> | <p><i>“We do eat meals together already and talked about her doing more of the family cooking, cooking certain meals for the family and trying new things that she could do for us.” –Family 14</i></p> <p><i>“We will try to make more time for that and make more time to let her pick out meals and prepare them on her own with me helping her” –Family 08</i></p> |

| | | |
|-----------------------|-------------|--|
| <i>Mixed messages</i> | <i>4/14</i> | <p><i>“There has been no real change at home. She has been trying to get more involved.”-Family 04</i></p> <p><i>“I have seen her um not necessarily change a lot of her habits, they were the same, but um she has been interested in what I was doing and chopping, all my food preparation.”-Family 03</i></p> <p><i>“We haven’t really made any changes other than she is more helpful” –Family 10</i></p> |
|-----------------------|-------------|--|

CHAPTER 5:

DISCUSSION & CONCLUSION

Major Findings:

This research study examined how WeCook, an elementary youth cooking program, impacted the youth's home environment. Results from this qualitative study reveal that the program influenced the home environment. Parents' responses to questions revealed increased time in food preparation together, eating together, and being more active together as a family. Families also reported future goals to continue to foster these habits and create a healthy lifestyle for the whole family. The WeCook program helped families grow closer together, and helped them begin to foster healthy behaviors that will hopefully lead to a healthier future for their family.

Youth developed skills throughout the WeCook program that transferred into the home environment. These valuable skills will help them continue to develop a healthy lifestyle into the future. Parents commented during the interview that their youth learned valuable skills from WeCook during the sessions at school, and then are practicing the skills at home. Youth were more independent, meaning they want to engage in food preparation with minimal supervision. Youth were also more willing to try foods, more aware of food safety practices, and more helpful in the kitchen. According to families, youth were enjoying food preparation after WeCook more than they enjoyed it prior to WeCook. The WeCook program promoted development of these skills by encouraging youth to try each recipe, teaching the youth how to read a recipe on their own, allowing them to practice putting ingredients together properly, and using measuring and cutting

tools/techniques. Parents stated they are also learning some of these skills from their children.

The WeCook program also increased youth's confidence in the kitchen. Approximately 57% of families reported that they noticed this increased confidence at home. This finding was consistent with many other cooking interventions in the literature (Reicks, Trofholz, Stang, & Laska, 2014; Liquori, Koch, Contento, & Castle, 1998; Hersch, Perdue, Ambroz, & Boucher, 2014). Youth also had an increased positive attitude toward food preparation following the WeCook program. There were 79% of families who commented on this increased positive attitude in the kitchen. Cooking programs make food preparation fun and exciting rather than a chore. This finding is consistent with other cooking interventions found in the literature (Hersch, Perdue, Ambroz, Boucher, 2014; Reicks, Trofholz, Stang, & Laska, 2014). The WeCook program also demonstrated an increase in independence in the kitchen. Parents were able to decrease supervision when their child was doing food preparation as youth desired to help with tasks in the kitchen on their own.

The primary population targeted for the WeCook: Fun with Food & Fitness program was families with limited resources. Through longitudinal surveys and/or interviews throughout the United States, Child Trends identified that parents with lower education levels and living under the poverty line were less likely to be involved in their child's school extracurricular activities (Parental Involvement in Schools, 2013). This contrasts with the results of the WeCook program in that the family members were highly engaged in the family nights held at both schools during the course of the program. In addition, a high percentage of family members that attended the last family night

participated in this qualitative study, which was another indicator of interest. Not only did families participate, but family members reported a beneficial impact on their home environment. This program was successful and gave families skills and tools to live out a healthier lifestyle together at home.

One other interesting finding was the mixed messages reported by some parents regarding changes they experienced with their child. Parents would state that their child was not making changes at home, but then would follow with a contradictory statement implying their child made food or activity changes. The parents' oral responses imply they feel a big shift in behavior must occur in order for them to feel a change has been made. It is not clear why parents felt this way, but approximately four out of the 14 families had statements such as these. It is possible that the second question was confusing and they did not fully understand what it was asking. Although not every family member may have changed behavior, it is significant that the child's behavior changed at home.

Strengths of the Study:

The biggest strength of this qualitative study was that the research design allowed for participants with limited English-language skills or low literacy levels to have a voice and participate in program evaluation of the WeCook program. This alternative method of evaluation was easy for all populations to use. This may explain our high participation rate of 15 out of 17 (88%) families attending the last WeCook family night.

Another strength was the short and easy format of the data collection procedure. Since only three questions were asked, parents could answer the questions in five minutes or less. Parents were given the questions to answer at their own convenience. The

research team was not present during the interview creating a confidential environment for the participants. Participants also chose whether their face was shown on the video. No video was used for research purposes, just the audio-recording was used.

One last strength of the research design was the research took place at an event families were already attending. Families did not have to make an extra trip to the school for the research since the study was taking place during the last family night of the semester. All of these strengths enhanced the results that were obtained from the study.

Limitations of the Study:

A study limitation was the number of questions asked. To make the research study and more appealing to participants of the study, only three questions were asked. Another limitation of the study was the primary researcher did not conduct the formal interview so no follow up or clarifying questions could be asked. In a repeated study, follow up questions would be a good addition. The ability to ask more questions would make the research more valid by clarifying statements made by participants and probing for deeper understanding. A larger number of participants would add to the study's reliability. If repetition of this study were to take place, more schools and participants should be considered. There were also no long-term follow up interviews with families after the completion of the program. Follow up interviews six months and a year later would be a good addition. In order to accurately determine the impact the program had on the family, long-term follow up interviews would be vital to see if the changes were still taking place in the home environment. With these modifications and improvements, future studies could further validate results from this study.

Future Program Recommendations:

The family component of the WeCook program gives the whole family the ability to be involved in the program. The fact that the families only participated in the program once a month was convenient for busy families with other children and activities. At WeCook, families sat down and ate a family meal together during the family nights. The children cooked dinner for the whole family, fostering independence and confidence in their food preparation abilities. It allowed youth to showcase the skills they learned to their families. If the program were revised, more family involvement in the food preparation process during family night is advisable. Families would then be able to prepare a recipe together with their child, before sitting and eating the meal together. This would model how to get the whole family to prepare a meal together at home. It would still be valuable to have a family night only once a month since most families are busy.

Another component of the WeCook program that is recommendable for future programs is the use of experiential learning theory. The WeCook program did not lecture youth about nutrition, but rather, nutrition themes engaged youth in activities that allowed learning through touch, taste, and smell. Each week the youth participated in food preparation related to a theme at one session and fun physical activity games at another session. This active learning engagement in an after-school setting is more successful because the experiential learning activities allow youth to practice and retain information. Children were excited about nutrition and physical activity because they were having fun with their peers while learning. This program's successful results from the data collection demonstrated this aspect well.

Conducting a longitudinal study is recommended for future studies to determine true transfer of skills and behaviors from the cooking intervention to the home environment. Extending the evaluation period to a longer time period would be valuable to see what is happening with youth learning and behavior over the extended time rather than at the immediate conclusion of the program. This additional evaluation would help validate that the WeCook program is actually impacting the family.

Studying different approaches to nutrition education involving cooking and the family is important to help determine how to best impact the families' habits. By learning cooking at a young age, youth can enjoy cooking and teach their family the skills they are learning. Results from this qualitative study help demonstrate that transformation of skills from children to families can alter the home food environment. Future cooking interventions should contemplate the addition of: 1) a family aspect to the program to promote food preparation as time to spend together as a family; 2) teaching nutrition through themes by using experiential learning; 3) hands-on learning by teaching skills through cooking; 4) promoting an active lifestyle with physical activity days; 5) some form of evaluation for parents to provide feedback, giving them a voice and getting them involved in another way. A follow up evaluation six months and again a year after programming would help determine how the program truly impacted participants and families.

Conclusion:

The results from this qualitative study reveal that the WeCook: Fun with Food and Fitness youth cooking programs increase youth's confidence with food preparation, positive attitudes toward food preparation, and foster independence. The results also

revealed that involving the family in the cooking intervention can aid in transfer of skills from the child to the home environment. Overall, the outcome of this qualitative study indicates promise that cooking programs help improve youth and families' diet quality, health behaviors, and ultimately may help slow or reverse childhood obesity.

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APPENDICES

APPENDIX A:
RECRUITMENT FLYER



RESEARCH OPPORTUNITY

Your child is participating in an after school program called We Cook, a program led by The University of Nebraska-Lincoln 4-H Youth Development. For the past several weeks your child has been learning cooking skills and participating in fun physical activities each week. As a family member of We Cook, we value your opinion! We would love your feedback on how the program has impacted your family.

Description of Project:

- All Parents/Guardians of WeCook participants are invited to take 5-10 minutes of their time during the last family night of the year to answer 3 simple interview questions.
- Interviews will be conducted via Ipad on December 3 at West Lincoln & December 22 at Arnold.
- No sign-up required. The research team will be asking for participants the night of.

All participants will receive \$10 cash after completing interviews.

For more information, please contact:

Courtney Warday, BS, Graduate Student, Dietetic Intern University of Nebraska—Lincoln courtney.jarosz21@huskers.unl.edu

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**APPENDIX B:
PARTICIPANT INFORMED CONSENT**



COLLEGE OF EDUCATION & HUMAN SCIENCES

DEPARTMENT OF NUTRITION & HEALTH SCIENCES

IRB#16617

Title: A participatory study of Parent/Guardians' of the 4-H We Cook Afterschool Program; their Perceptions of Food Preparation in their home following their child's participation in We Cook.

Purpose:

We are conducting this study to learn more about the Parent/Guardian's perceptions of the 4-H We Cook after school program and how it is impacting their child and the family's food preparation habits. We are specifically interested in finding out if the program has increased the families' food preparation knowledge, confidence, and behaviors. You are invited to participate in this study because your child is enrolled in the We Cook program. All Participants must be 19 years and older. Your input could greatly influence future programing for We Cook. Your decision of whether or not to participate in the study will not have an impact on your child's participation in the We Cook program.

Procedures:

You will be asked to participate in a 5-10 minute interview captured using an Ipad. You will be given a verbal explanation of all procedures before you begin. Researcher will give you a sheet of paper with three interview questions that you will answer in a classroom. Video interviews will be transcribed and all video evidence will be destroyed after project is over. All information will be de-identified and no names will be used. Instead of names, each family will be coded such as "Family_01."

Benefits:

There are no direct benefits to participants. Participation in research will benefit society by: 1) having a deeper understanding of family perceptions of food preparation in their home; 2) obtaining information to improve cooking programs.

Risks and/or Discomforts:

There is a potential breach of confidentiality, however safeguards are in place as listed in the confidentiality section.

Confidentiality:

All data, including video and transcript files will be stripped of identifying information. Files will be labeled following a coded naming procedure such as "Family_01, Family_02". All data will be kept on Warday's password protected computer as well as in a Box folder that is only accessible by members of the research team. Records and Data will be collected and stored on UNL servers only.



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Any data printed out in paper copies for paper reading/analysis will be kept in a locked cabinet in Krehbiel's office in the Agricultural Communications building on UNL East Campus. The video interviews will be temporarily kept on the Transcribe cloud-based web program for transcription purposes only. This data will be immediately removed once the transcription process is complete. Warday & Krehbiel will transcribe the interviews. All data will be housed in the Box folder only accessible to the research team. The data will be stored in a locked cabinet in the investigator's (Warday, Dr. Krehbiel) office and will be kept for 3 years after the study is complete. Warday, Krehbiel, Ashley Walther (Graduate Student whose assistantship is funded through WeCook), & Linda Boeckner (Warday's Advisor) will be the only persons having access to the data. The information obtained in this study may be published in a graduate thesis, but the data will not be identifiable because pseudonyms will be used for all participants. No video will be reported, only transcribed interviews.

Compensation:

You will receive \$10 cash for participating in this project.

Opportunity to Ask Questions:

You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. Or you may contact the investigator(s) at the phone numbers below. Please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 to voice concerns about the research or if you have any questions about your rights as a research participant.

Freedom to Withdraw:

Participation in this study is voluntary. You can refuse to participate or withdraw at any time without harming your relationship with the researchers or the University of Nebraska-Lincoln, or in any other way receive a penalty or loss of benefits to which you are otherwise entitled.

Consent, Right to Receive a Copy:

You are voluntarily making a decision whether or not to participate in this research study. Your signature certifies that you have decided to participate having read and understood the information presented. You will be given a copy of this consent form to keep.

Participant Feedback Survey:

UNL wants to know about your research experience. This 14 question, multiple-choice survey is anonymous; however, you can provide your contact information if you want someone to follow-up with you. This survey should be completed after your participation in this research. Please



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complete this optional online survey at:

https://ssp.qualtrics.com/SE/?SID=SV_aVvINCf0U1vse5n.

Signature of Participant:

Signature of Research Participant

Date

Name and Email of investigator(s)

Courtney Warday, BS, (Primary Investigator)

courtney.jarosz21@huskers.unl.edu

Michelle Krehbiel, PhD, CFLE (Secondary Investigator)

mkrehbiel2@unl.edu

**APPENDIX C:
INTERVIEW QUESTIONS**

Questions for WeCook

1. Tell me about your child's confidence and enjoyment levels in the kitchen since attending the WeCook Program.
2. Describe any changes in the food preparation habits of your family since your child has attended the WeCook Program.
3. Tell me about some future goals your family has in relation to cooking, eating meals together, and physical activity.

APPENDIX D:
PROTOCOL

Protocol:

Interviews will be conducted in a room outside the normal programming room. Before participants are interviewed, they will be required to sign a form consenting their participation in the research study. Once consent is signed, the interview process will begin.

Each participant will receive a sheet of paper with the three interview questions listed and an Ipad. There will be a research team member in the room at the beginning that will explain how the interview will work. The research team will explain that no names will be used; they will be coded into "Family_01", "Family_02", etc. This information is also on the informed consent form. Once the staff member has explained the procedures, they will leave while the interview takes place. At the participant's convenience, they will use the ipad to record themselves answering the questions. Interviews should only take 5-10 minutes of participant's time. When finished, the participant will come out of the room and give the ipad back to the staff member.

Upon completion of the interview, participants will receive \$10 cash.

APPENDIX E:
RECRUITMENT SCRIPT

Recruiting Script

Hello, My name is _____. I am part of the research team from the University of Nebraska. I am conducting research on the impact of food preparation behaviors in the home following the We Cook program.

Participation in this research study involves interviewing yourself via Ipad. The interview should only take 5-10 minutes of your time. I will be giving you a slip of paper with the three interview questions and an Ipad. I will show you how to record yourself answering the questions. I will be leaving the room during the interview, but will be just outside in case you have any questions. Whenever you are finished answering all the questions you will stop the recording and come outside the classroom. Once you give me the Ipad, you will receive \$10 in cash.

It is important to answer the questions fully to your ability to get the most accurate results. Just as stated on the informed consent, we will not be using your personal information from the videos including your faces and names. We will be transcribing the video to words and all identities will be coded such as “Family_01” etc. Do you have any questions before we begin?

Thank you for participating in this research study!

APPENDIX F:
UNL IRB APPROVAL LETTER



Official Approval Letter for IRB project #16617 - New Project Form

November 16, 2016

Courtney Jarosz

Department of Nutrition and Health Sciences

609 S. 27th St Lincoln, NE 68510

Michelle Krehbiel

4-H State Office

AGH 114, UNL, 68583-0700

IRB Number: 20161116617EX

Project ID: 16617

Project Title: We Cook Thesis Project

Dear Courtney:

This letter is to officially notify you of the certification of exemption of your project for the Protection of Human Subjects. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as exempt.

You are authorized to begin your research at West Lincoln Elementary School and

Arnold Elementary School. You are authorized to implement this study as of the Date of

Final Exemption: 11/16/2016

o Review conducted using exempt category 2 at
45 CFR 46.101 o Funding: 4-H Youth
Development Salary Savings (Departmental)

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- * Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- * Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- * Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- * Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- * Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 402-472-6965.

Sincerely,

Becky R. Freeman

Becky R.
Freeman, CIP
for the IRB



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