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An Evaluation of the Effectiveness of Hands on Cooking and Nutritional Education with Low Socioeconomic Children

Elizabeth G. Freeman

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An Evaluation of the Effectiveness of Hands on Cooking and Nutritional Education with Low Socioeconomic Children

Elizabeth Freeman

University of Arkansas
Abstract

This study was conducted at The Yvonne Richardson Community Center in Northwest Arkansas to test the effectiveness of hands on cooking classes and nutritional education with children age’s nine to eleven coming from low socioeconomic backgrounds. This group was chosen because people included in low socioeconomic status are more likely to a high number of energy dense foods because of their long shelf life and high calorie count in replacement of fruits and vegetables (Proceedings of the Roundtable on Understanding the Paradox of Hunger and Obesity, 2004). Though this is true, not having a balanced diet and eating a majority of energy dense foods causes a significant number of health problems (Conklin, Forouhi, Surtees, Wareham & Monsivais, 2015). Nine children participated in this six-week study, attending at least four of the six cooking classes to qualify. The classes were the duration of around one hour each week and the children made a variety of recipes and completed an array of activities and worksheets. The results of the t-test from the Cooking Matters pre- and post- assessment were not significant though learning themes were determined based on quotes made by participants.
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Chapter I

Introduction

Jim Rohn, an entrepreneur, author, and motivational speaker said, “Take care of your body. It is the only place you have to live.” (Anderson, Luca, Hutchins, Roberts & Doyle, 2010, p. 1073). Many people in the United States are succeeding at taking care of their bodies, but others have a lack of awareness and resources to make this possible. Though it is the choice of every person to take care of their body, some receive an advantage over others based on their income, their parent’s income, and the education they have received. Children whose parents purchase non-nutritional junk food are not given a voice on their ability to eat healthy foods until they are taught to speak up about what foods their parents are buying. If their parent’s cooking is limited or nonexistent, then children probably lack experience in making healthy meals and lack information about how to live healthily. Our food preferences that we develop during childhood generally provide the framework of the foods we prefer throughout our lives (Birch, 2015). This begs the question “How can one take care of their body if they have never been educated on how to accomplish this or do not know how to eat healthy cost efficiently?” Hands on cooking classes have the potential to inspire children to change their diet to make healthier choices in the food they ingest and to do this in a cost efficient manner. Eating healthier foods gives you more clarity of thought, provides longer-lasting energy, and helps prevent future disease. Research indicates that low income families are more likely to eat less fruits and vegetables and more processed foods, cooking classes with low socioeconomic children could fill the gap through providing hands on cooking experiences and nutritional education (Conklin, Forouhi, Surtees, Wareham & Monsivais, 2015 & Proceedings of the Roundtable on Understanding the Paradox of Hunger and
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Obesity, 2004). Chef YRCC, a project of Kids Can Cook, provided six consecutive weekly cooking classes at the Yvonne Richardson Community Center and the effectiveness of these classes were tested via a pre and post survey as well as a follow up one-on-one interview with each participant.

**Background of the Problem**

There is a clear link between obesity and food insecurity (Drewnowski & Specter, 2004). This is an ironic link between terms because of those that are struggling with putting food on the table are those also struggling with obesity. One might assume that an obese person does not struggle with hunger or food insecurity, but this conclusion is not fully examining the issue. The American Dietetic Association defines food insecurity as “limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways” (Holben, 2010, p. 1369). This term does not only address access to food, but also the nutritional value of the food consumed. Energy dense foods, foods high in fat, salt and sugar, are the most inexpensive foods. These are foods that families living on Supplemental Assistance Nutrition Program (SNAP) benefits, a program previously known as food stamps, and other low income families are most likely to purchase.

**Purpose of the Study**

The objective of the study is to determine whether nutritional education and hands on cooking classes lead children in low socioeconomic (SES) homes to make healthier choices such as eating more whole grains, fruits, and vegetables and less energy dense foods. It is designed to encourage participants to cook more frequently at home and enjoy the experience of cooking. It is held at the Yvonne Richardson Community Center using Cooking Matters curriculum.
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Definitions of Terms

To provide clarity for this study, the following terms are defined.

1. Food insecurity: “refers to the limited or uncertain ability to acquire nutritious food in a safe and socially acceptable manner” (Morales & Berkowitz, 2016).

2. Socioeconomic status: A person or families ranking within a social structure which is determined by a variety of factors such as education, income, occupation, wealth, and residence (Casswekk, Huckle, Wall & Parker, 2016).

3. Junk food: food that is high in calories with fats and sugars with little to no nutritional value such as chips and cakes (James, 2010).

4. Energy dense foods: foods that are high in fats and sugars while being low in water content (Drewnowski & Specter, 2004).

Research Questions

1. What effect does a community center sponsored cooking class have on the nutritional and dietary conditions of low SES participants?

2. What is the effectiveness of community center sponsored cooking classes?

3. Can community centered sponsored cooking classes modify the dietary conditions of participants and participant families?

Organization of Research Report

This report is organized in five different sections. The introduction states a clear overview of the purpose of the study as well as relevant background information on the topic necessary for the understanding of the conclusions that were made. The literature review references scholarly articles and how they relate to the study, while the methodology addresses
AN EVALUATION OF HANDS ON COOKING AND NUTRITIONAL EDUCATION the means by which the outcomes were tested. The results section serves to analyze the data collected and clarify results. Lastly, the discussion asserts the conclusions that were drawn through the analysis of the quantitate and qualitative data while addressing the limitations, implications, and recommendations of the study.
Chapter II

Review of Literature

This review of literature examines the connection between food insecurity and unhealthy eating habits. Previous studies address the cause behind this connection while other literature addresses cooking classes as a successful intervention for altering food preferences. Though not exhaustive, this literature review takes a comprehensive look at updated and relevant literature.

After looking into challenges facing those at risk for being in food insecurity or currently struggling with food insecurity, one realizes that there are many interconnected issues at hand. Some of these problems are the connection between low socioeconomic status (SES) and unhealthy eating, the price of healthy versus unhealthy foods, lack of nutritional education and stressors on the body that are connected with experiencing poverty. In 2013, Arkansas was ranked as the number two most food insecure state in the United States (Feeding America, 2013).

It is necessary to not only address hunger, but also address the nutritional value of the food being consumed. Children who do not know how to cook and have little to no nutritional education are unlikely to form healthy eating habits if healthy eating is not a concern of their parents (Birch, 1999).

Socioeconomic Status

One issue previously mentioned is the connection between low socioeconomic status and the unhealthy eating. The MyPlate diagram (see Appendix D) demonstrates the amount of fruits, vegetables, grains, dairy and protein human beings need every day shows that fruits and vegetables should consist of half of one’s diet. Socioeconomic status is connected to the daily amount of fruits and vegetables consumed, that being that those living in low socioeconomic
status intake a notably decreased amount. “The consumption of fruits and vegetables is crucial to healthy eating as inadequate intakes contribute to many chronic diseases and nearly 5% of excess deaths globally” (Conklin, Forouhi, Surtees, Wareham & Monsivais, 2015, p. 2). Arguably, the cause of this is related to the number of calories versus the cost of the food. In fruits and vegetables there is a decrease of fats and sugars as well as less availability of these fresh foods in low socioeconomic areas, known as “food deserts”. Another factor in the low consumption of fruits and vegetables could be the shorter shelf life (Proceedings of the Roundtable on Understanding The Paradox of Hunger and Obesity, 2004).

**Energy Dense Foods**

Connected with the issue of fruit and vegetable intake are the costs, taste, and shelf life of energy dense foods. Energy dense foods are high in fats and sugars while being low in water content. People tend to gravitate towards energy dense foods because of their costs, the sensory pleasure they provide, and the cravings they create. Due to their costs, they create a more enticing incentive for people at or below the poverty line with the sacrifice of leaving out fruits and vegetables. Some examples of foods high in energy density are doughnuts, fried foods, high-fat cheeses and highly processed foods. People can consume foods that are make them feel full due to the high fat content at a lower cost than almost any other foods. Due to the water content and low fat content, fruits and vegetables are low in energy density often pushing those struggling with food insecurity away. In the United States obesity rates are rising and this is connected to the growing consumption of high energy-dense foods (Drewnowski & Specter, 2004).
Emotional Pressures

As well as low fruit and vegetable consumption of those living in mid to low SES due to low energy density, there are also other factors connecting health and SES. There are stressors such as “emotional pressure of low-wage work, inadequate and long distance transportation, poor housing and neighborhood violence” that contribute to health problems facing lower income families (Proceedings of the Roundtable on Understanding the Paradox of Hunger and Obesity, 2004, p. 11). It is also shown that that people living in food insecurity have more struggles with family life, physiological and physical health, productivity and weight as well as development and learning difficulties (Proceedings of the Roundtable on Understanding the Paradox of Hunger and Obesity, 2004). It is proposed that food insecurity causes anxiety of parents with children due to the fear of not having enough food to eat. These tend to cause the body to store excess fats unnecessarily, contributing to health problems (Proceedings of the Roundtable on Understanding the Paradox of Hunger and Obesity, 2004). It is necessary to promote healthy eating to prevent disease, encourage healthy aging, and to provide longer lasting energy rather than overconsumption on foods high in fat and sugar. This research displays the importance of lower income families eating a balanced diet and consuming adequate amounts of fruits and vegetables as well as whole grains and healthy proteins, low in fats and sugars.

Benefits of Cooking Classes

Not being able to cook creates a different type of food insecurity. It creates dependence on pre-made food; therefore, limiting the food options a person or family is able to eat. Another struggle that is paired with poverty is low self-esteem. Adults who have little or no cooking experience might lack confidence in the kitchen because there is a correlation between poverty and low self-esteem. Adding to this struggle, parents also might choose the foods they buy from
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limited options because they do not have the resources to purchase foods that their children might not like, therefore often purchasing easily prepared, unhealthy foods (Fort, 1997).

As a result of these concerns, many cooking programs have started with adults and children, teaching nutritional information and hands on cooking instruction. A study conducted by Lukas and Cunningham-Sabo determined the effectiveness of cooking classes with children in changing their food preferences to healthier foods, willingness to try new foods, comfort levels cooking in a kitchen, as well as their nutritional knowledge. As previously stated, those in lower socioeconomic conditions eat less fruits, vegetables, and whole grains, but this article shows that cooking classes with children are successful in changing food preferences and increasing the amounts of fruits and vegetables eaten (Lukas & Cunningham-Sabo, 2011).

Summary

This review of literature supports a connection between food insecurity and unhealthy eating habits and how cooking classes are a successful intervention for increasing fruit and vegetable consumption as well as whole grains and reducing consumption of processed foods. After reviewing literature, the researcher proposes that Chef YRCC could increase vegetable and fruit consumption as well as encouraging participants to cook more meals at home in replacement for unhealthy processed foods.
Chapter III

Methodology

To address the issues, weekly cooking classes were held for children at The Yvonne Richardson Community Center (YRCC), a non-profit serving a majority of children in low-income households, to determine the effectiveness of hands on cooking classes and nutritional lessons. The study was designed to determine if these classes led to children making healthier eating choices. The cooking class, called Chef YRCC, was conducted during the fall of 2015 over the course of six consecutive weeks. The classes were held on Tuesdays starting on October 27th and ending on December 1st. The recipes came from the curriculum Cooking Matters, a non-profit organization whose goal is to teach people how to cook healthy meals on a limited budget via hands on cooking classes as well as from a local health food store. Each week, the number of students who attended the class varied between seven children and nineteen children. Each student had to attend at least four of the six classes to be included in the study. If participants attended less four classes, they would have not learned an adequate amount of information to test the effectiveness of the class. There were twelve students who attended four or more classes and nine of those twelve were included in this study. The other three failed to complete the consent form or stated an unwillingness to participate in the study.

Class Setting

Four out of the six classes took place in the multipurpose room at The Yvonne Richardson Community Center (YRCC). This is a small room with eight-foot-long white worktables in the room. There were five of these tables total, but during Chef YRCC, only three
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of the tables were used. Each table had access to a power outlet and chairs were removed, making it possible for participants to gather around the table to cook more easily.

The fifth cooking class took place at a local organic grocery store. Participants were transported in the YRCC van from YRCC to the health food store for the class on November 24, 2015. The last class of Chef YRCC took place in the YRCC gym. The multipurpose room was being used to store YRCC items during the last class due to the holiday season approaching. A YRCC staff member had already moved four tables outside the multipurpose room and the children were working on homework at these tables when the researcher arrived at YRCC to teach Chef YRCC. The researcher moved three of the tables to form a U shape formation and chairs were placed around the tables for each participant leaving the middle of the U shape open. Chef YRCC did not use hotplates on this day, making it unnecessary for the tables to be close to an outlet.

Confidentiality

Permission was given to conduct the study from the University of Arkansas Institutional Review Board (See Appendix A). Permission was also received by the Yvonne Richardson Community Center, where the cooking classes were held (see Appendix B). All participants’ parents signed a parent consent form before the study was conducted, following receiving permission to conduct the study by the Institutional Review Board (See Appendix C). Verbal consent was given from every participant after receiving and receiving an explanation from the researcher about the letter to participants. Those who did not give consent were not included in the study. Each student was given a pseudonym in the reported study as well as in the observation notes. All materials identifying participants were destroyed upon the completion of the study.
Participants

Participants were selected based on their enrollment in the YRCC Kids Night program, a free after school program where kids can participate in a variety of clubs, receive help with their homework, have somewhere to reside after school if their parents are occupied with jobs and other responsibilities. Parents are required to fill out paperwork for their children to participate in Kid’s Night. Participants are between the ages of six and eleven, consisting of five girls and four boys. Four of the participant’s parents stated that they were receiving financial assistance via a governmental food assistance program or had within the last year, three choose not to respond to this question about food assistance, and three stated that they had not received any assistance from food assistance programs in the last year. There were twelve participants who qualified to participate in the study by attending at least four of the six cooking classes, but two did not consent to participating in the study while one parent did not agree to sign the consent form for his or her child.

Mason.

Mason was a nine-year-old, male participant who was half African American, half white. His parent responded that he received SNAP, free or reduced price breakfast and free or reduced price lunch within the last year. The researcher was unsure about Mason’s diagnosis, but it was made clear through interaction with him that there was impairment in his cognitive development. Mason had difficulty communicating and would occasionally have fits where it was difficult to calm him down as well as challenging for him to communicate why he was upset. He lied to the researcher once saying that he had washed his hands. The researcher then smelled his hands to see if they smelled like soap and as the smell was that of urine, it was obvious that he was not telling the truth.
Emily.

Emily was a female participant of nine years old. She had received SNAP, free or reduced price breakfast and free or reduced price lunch governmental assistance within the last year and she was racially Caucasian. Emily was slightly shy and reserved. She and Addison were best friends and always asked the researcher before each class started if they were allowed to be at the same cooking table. The researcher allowed them to work together each week. After a few weeks, she started talking more, but would only talk if she was approached and asked a question. She expressed her excitement about the class more openly towards the end.

Addison.

Addison was a low socioeconomic participant, receiving WIC within the last year. She was an African American participant and was nine years old. Addison was extremely outgoing and frequently expressed her love for cooking. She would ask at least three times each class if she could do certain steps in the recipe and what she wanted to do varied each week from cutting the onion, bell pepper, opening the can of beans, mincing the garlic, and many other tasks. She was always over eager to help out in whatever way she could. She came into the cooking class with experience cooking at home and expressed enthusiasm about the class each week.

Angie.

Angie was a nine-year-old female African American participant. Her parent did not respond to the question about if she had received governmental assistance within the last year. Angie had a genetic disorder that affects physical and cognitive development. This was something to be aware of as she had more difficulty having self-control during the cooking classes and needed closer supervision. When YRCC had kid’s night volunteers come to help, a volunteer was assigned to be with Angie one-on-one for closer supervision. To administer the
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interview more effectively, her mom was present to help Angie communicate her thoughts about Chef YRCC and what she learned.

Darron.

Darron was a ten-year-old mischievous boy. He was of African American decent and had not received governmental assistance within the last year. This meant according to the study, he was not of low socioeconomic status. He showed excitement about cutting vegetables and participating in the class, but he was a child who the researcher would have to tell safety precautions to multiple times each week to make sure he was being careful. He did not appear concerned that he could cut himself with the knife or peeler. After being warned, he would be more careful, but the researcher continuously checked on him to make sure.

Parker.

Six-year-old Parker lost interest if he was not involved in the cooking process for a short period of time. He was Caucasian and information was not given from his parent on weather or not he has received governmental assistance within the last year, leaving the researcher unsure about his socioeconomic status. When the participants went on the field trip to a local organic grocery store, he was unsure if he wanted to go and almost did not go. Afterword’s, he stated that he had fun and was glad that he went. Thought interested when he was involved, his attention span was short.

Payton.

Payton was the oldest participant at eleven years old. She was African American and information was not given about weather or not she had received any governmental assistance within the last year so her socioeconomic status was undetermined. The researcher attempted to give her more of a leadership role in teaching the class, placing her with younger kids to help
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them and allowing her to do more advanced steps such as reading the recipe directions for other participants, stirring the cooking ingredients on the hotplate, and mincing the garlic.

Tate.

Tate was one of the youngest participants at six years old. He had no received governmental assistance within the last year and he was African American. His closest friend did not want to attend the cooking class and sometimes caused Tate not to participate, even when he was present for the class. When his friend was not present, he would act completely different, showed enthusiasm about cooking and was eager to be apart of Chef YRCC.

Adrian.

Adrian was a confident girl at age nine. She was Caucasian and had received governmental assistance within the last year receiving free or reduced price breakfast, free or reduced price lunch and free or reduced price dinner. She seemed sure of herself in her ability to cut vegetables and preform other tasks in the kitchen. She showed a demonstration of the “MyPlate” information (see Appendix D) when she showed with hand motions the amount she needed to eat of each food group item during each meal, something taught during the class.

Data Collection

This study was designed to determine the impact of cooking classes and nutritional exercises have on low socioeconomic children at the Yvonne Richardson Community Center, ages six to thirteen. Data were collected to access the impact through administered pre and post surveys, face-to-face interviews with each participant, and anecdotal data that was collected during and after cooking classes, recording details about each cooking class and participant’s reactions the materials, foods, and the class.
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Evaluation Instruments. This study used Cooking Matters’ thirteen-question survey (See Appendices E & F) to determine the effectiveness of the cooking classes. Cooking Matters provided the surveys and approval was given to use these surveys to conduct this study. The survey was either administered individually or in small groups with the children. If the participants were unable to read or were having trouble, the surveys were read to them while students who were comfortable reading completed the survey alone with someone close by to answer questions. The surveys were either administered by the researcher or a YRCC staff member to whom the researcher gave instructions to on how to administer the surveys. The researcher chose to include this survey to test the effectiveness of the cooking classes because this survey was short, adhering to younger participants, and was able to document the information in a clear manner, measuring participants’ before and after responses to questions centered around the teaching purposes of Chef YRCC. The survey asked participants how they felt about eating fruit, vegetables, and whole grains as well as how they felt about their ability to make healthy choices. It also asked participants if healthy eating and cooking was something that they discuss with their parents.

This survey consisted of eight questions with five potential answers to choose from for each question. The remaining five questions asked participants about their feelings, which included five facial expressions, in which the children would select which facial expression and words demonstrated how he or she felt. This study specifically examined fruit, vegetable, and whole grain consumption, comfort in the kitchen, the ability to follow a recipe, the ability to make healthy choices, and the child’s feelings about trying new foods. The exact same thirteen questions were asked after the completion of the six-week intervention. The results were quantified by marking the most desirable answer as five and the least desirable answer as two
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while the one represented a neutral stance or confusion about the question. Evaluation was also
determined by the individual interviews with each participant asking eight questions to all
participants as well as probe questions to allow the participants to expand on their thoughts. The
eight interview questions are as follows.

1. What did you learn from the cooking class?
2. Did you ever make any of the foods at home?
3. Did you talk to your parents about the food you made?
4. Do you feel more comfortable cooking now?
5. When you eat healthier foods, do you notice a difference in how you feel? If so, do you feel better?
6. If you could choose potato chips or fruit to eat for an after school snack, what would you choose? Why?
7. Has Chef YRCC changed anything about what you think about cooking?
8. Do you know how to make choice to save money when buying food?

Baseline Data. This study examined the effectiveness of hands on cooking classes and
nutritional exercises. The researcher conducted a pretest with all participants, measuring their
incoming knowledge about cooking, feelings about eating fruits and vegetables, confidence in
the kitchen, willingness to talk to their parents about these issues and their thoughts about eating
whole grain foods rather than white flour.

Other Data Collection Instruments. This study involved weekly interaction with
participants over the course of the six-week intervention; therefore, observation notes were taken
about the student’s involvement each week, their thoughts about the food, and the general
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atmosphere of the class. Detailed observation notes obtained weekly during the intervention can be accessed in appendices L, M, N, O, P, Q, and R.

**Post Data Analysis.** Interview data was analyzed using qualitative data research analysis techniques. The interviews were transcribed after the interviews were conducted and the researcher read through the data, coding the information without taking notes, attempting to vicariously enter into the participants’ mindset when the interview was conducted. After this, methodological notes were written in the margins, explaining circumstances at the time of the interview (Strauss & Corbin, 2008). The interviews were also coded via highlighting, highlighting positive comments in yellow and negative comments in orange. This aided the researcher to analyze the data and gain an overall sense of how positively or negatively the participant viewed the cooking class.

The data was also broken into analytic files, organizing data into groups of the ages of participants, the responses parents noted about their SES, their gender, and their responses to the interview questions. Quotes were used to determine themes in the data such as kitchen safety, cutting skills, increasing the likelihood of trying new foods, and that unhealthy eating is acceptable during special occasions (Glesne, 2006). The quotes were molded into themes using the concept of axial coding, crosscutting information to encounter the themes in the data (Strauss & Corbin, 2008). The data was transformed through a three step process: description, analysis and interpretation (Glesne, 2006).

**Intervention Strategies**

The pre-surveys were archival data and the researcher attended the The Yvonne Richardson Community Center (YRCC) six weeks in a row and then met with participants individually upon the completion of the study to administer the face-to-face interviews as well as
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post-surveys with participants. Each week, cooking and nutrition lesson were taught by the researcher, volunteers, and a cooking instructor from a local health food store.

**Schedule of Intervention**

Table 1: Lesson Taught per Week

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<th>Week</th>
<th>Date</th>
<th>Lesson</th>
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<tr>
<td>Week 1</td>
<td>October 27, 2015</td>
<td>Black Bean and Veggie Soup</td>
</tr>
<tr>
<td>Week 2</td>
<td>November 3, 2015</td>
<td>Banana Pudding in a Bag &amp; cracked eggs</td>
</tr>
<tr>
<td>Week 3</td>
<td>November 10, 2015</td>
<td>Enchilada Rice, Fried Rice, &amp; Cheesy Broccoli Brown Rice Casserole</td>
</tr>
<tr>
<td>Week 4</td>
<td>November 17, 2015</td>
<td>Turkey Ranch Wrap, S’mores Quesadilla, and Veggie Dip</td>
</tr>
<tr>
<td>Week 5</td>
<td>November 24, 2015</td>
<td>Yogurt parfaits</td>
</tr>
<tr>
<td>Week 6</td>
<td>December 1, 2015</td>
<td>Gatorade and Whole Wheat Crackers</td>
</tr>
</tbody>
</table>

**Week one.** The first Chef YRCC class at YRCCC was focused on gaining knife skills, safety in the kitchen, and began teaching about following a recipe while cooking. Six of the nine participants attended this class. Each table made the same recipe of bean and vegie soup from the Cooking Matters cookbook and every participant was involved in the cooking process cutting
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items, stirring the soup, and reading over basic cooking terms. While the soup was cooking, students learned about the MyPlate diagram (see Appendix D) and talked about the amount of each food group, fruit, vegetables, grains, protein, and dairy, they should be eating each day. Participants were given the opportunity to try the soup when it was done.

**Week two.** During the second Chef YRCC cooking class, eight of the nine participants were present, all except Mason. Students made banana pudding in a bag with fresh bananas, applesauce, granola, and low-fat yogurt. This recipe came from the Cooking Matters cookbook as well. Students were shown how to properly crack an egg without getting the shell in the bowl and were given the chance to crack an egg themselves. After finishing this activity, students were given the opportunity to taste test two different types of oatmeal cookies, one homemade and the other store bought and talked about the nutritional difference in the cookies. At the end after the banana pudding was chilled over ice, all students were given the opportunity to eat the banana pudding.

**Week three.** Week three was the first week that Hannah came to Chef YRCC to teach the cooking class. Hannah has been teaching cooking classes for over twenty years with adults and children. Hannah brought prepared brown rice to teach the children how to cook three different recipes with rice. She brought ingredients to make enchilada rice, fried rice, and cheesy broccoli brown rice casserole. Participants made one of the three recipes and were able to try all three recipes at the end of the class and students were given the recipes to take home.

**Week four.** Hannah came to the cooking class again, providing recipes to make three different snack food items: turkey ranch wraps, s’mores quesadillas, and veggie dip. Each child made one of the three recipes like the previous week and was given the opportunity to try all
three recipes at the end of the cooking class. Participants continued to practice chopping skills, following recipe directions, and using basic kitchen supplies such as a cheese grader, a blender, a can opener, knives and cutting boards, and measuring cups and spoons.

**Week five.** Week five included a field trip to a local organic grocery store, where Hannah works, to take a store tour, talk about healthy eating, and make yogurt parfaits. The yogurt parfaits had low-fat yogurt, a variety of fruits, a variety of granolas, and semi sweet topping such as dark chocolate chips and shredded coconut. Students were given their own plastic cup about six inches tall to choose which fruits, granola, and toppings they wanted to include to make their own yogurt parfait. Students were also given natural cheese cheesy puffs to try from the store.

**Week six.** The last week of the cooking class included a review of information learned such as the MyPlate (see Appendix D) and healthy snack eating as well as introduced new material such as how to monitor the amount of sugar in drinks and the importance of choosing whole grains over white flour food products. This was done through filling out a MyPlate worksheet (see Appendix L) with the food groups, taste testing two different types of Gatorade with different amounts of sugar, discovering where the “sugar” is listed on food labels on a worksheet (see Appendix L) and on the Gatorade bottles, taste testing whole grain and white flour Ritz, and filling out a Snacks and Drinks Crossword out of the Cooking Matters cookbook.

**Summary**

This chapter described the methods that were used to evaluate the effectiveness of hands on cooking and nutritional education with low socioeconomic children. The following chapter discusses the results obtained using the proposed methods.
Chapter IV

Results

The purpose of this chapter is to examine and analyze the quantitative and qualitative data collected during the study and determine “What effect does a community center sponsored cooking class have on the nutritional and dietary conditions of low SES participants?, “What is the effectiveness of community center sponsored cooking classes?”, and “Can community center sponsored cooking classes modify the dietary conditions of participants and participant families?” The data is displayed in narrative text with support from tables and figures. The purpose of the study was to determine the effects that hands on cooking classes and nutritional exercises have on children living in low socioeconomic statuses’ attitudes and perceptions about cooking and healthy eating. The participants in this study were nine children in the Yvonne Richardson Community Center’s Kids Night after school program. This location was chosen based on percentage of families receiving at least one form of financial governmental support. Nine students participated in the study and all participants completed pre and post surveys, participated in an interview, and attended at least four of the six cooking lessons.

Baseline Data

The baseline data that was collected were the anecdotal pre-evaluation Cooking Matters surveys administered with each student (see Appendix E). The information the students selected on the assessment determined their incoming knowledge about cooking and kitchen safety, their thoughts about eating healthy foods, and their comfort level discussing healthy choices with their family members. The participants’ scores ranged from thirty-six to sixty-five, with sixty-five being the highest possible score and thirteen being the lowest possible score. Five represented
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confident understanding or agreeance, four represented understanding and agreeance, three represented the participant disagreed, two represented that the participant strongly disagreed, and one represented confusion about the question or concept.

**During Intervention**

Data were collected during the cooking class each week to document students’ interactions and reactions. Data were collected in the form of anecdotal observation notes taken during and after each class. See appendices L, M, N, O, P, Q, and R for detailed weekly observations notes.

**Anecdotal Records**

Detailed weekly notes were taken throughout the intervention of six weeks. These notes were taken in the form of student quotes and daily observations. The data were used to encounter information that might expose inconsistencies or themes that were not addressed in the survey or the student interviews. Comments and observations for class one can be accessed in appendix M, class two in appendix N, class three in appendix O, class four in appendix P, class five in appendix Q, and class six in appendix R. These are observations about how involved participants were in the class, what their involvement was, and the what steps were taken during each cooking intervention class.

**Post Intervention**

In order to determine the effect that community centered sponsored cooking classes had on the nutritional and dietary conditions of low socioeconomic status (SES) participants, a post assessment survey was administered with participants upon the completion of the study (see
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Appendix F). The results were compared from the pre and post surveys and these results are demonstrated in Figure 1. These results from the two surveys did not produce a significant change. Five of the nine participants results improved, one remained stagnant, one made a minor decrease, while two others decreased.

Figure one. Comparison of the Cooking Matters pre-assessment and post-assessment scores for each participant.

Though most of the assessments increased from the pre-assessment to the post-assessment, Darron and Parker’s scores decreased. This could be a result of misunderstanding when taking the pre-assessment, marking high scores instead of admitting that they were unsure about the meaning of the question. This could be linked to their unfamiliarity with the researcher. Parker marked “Yes, definitely” on the question “I can read recipe directions” on the pre-
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assessment, but when completing the post-assessment, he answered “Not sure. I don’t know what that is” (see Appendix E & F). During the post-assessment he stated “I can’t read” to the researcher which would limit his ability to follow recipe directions. The participants might have answered the post-assessments more honestly than the pre-assessments, resulting in a decrease in their scores.

Addison had the largest increase of the participants from pre-assessment to post-assessment. The question that showed the largest jump from the pre-assessment to the post-assessment was “How do you feel about eating whole grain foods, like whole wheat bread or tortillas, or whole grain crackers?” She responded “I’m not sure if I like to eat whole grains on the pre-assessment, but responded “I kind of like to eat whole grains” on the post-assessment (see Appendix E & F). She was present during class six where participants learned about whole grains (see Appendix R).

Oral interviews were also conducted with participants to discuss their learning. Themes that were determined upon the analysis of the oral interviews were cutting skills, kitchen safety, trying new foods, enthusiasm while discussing cooking, that eating unhealthy foods is acceptable on special occasions, a misconception about the nutritional value of potato chips because they are a vegetable, and impatience during the oral interview. Themes were determined based on more than one students discussing the same idea. Quotes from participants supporting these themes are listed in table and comments can be accessed in Table 2.
Table 2: Common Themes in Cooking Classes

<table>
<thead>
<tr>
<th>Trend</th>
<th>Comments made by students during oral interview</th>
</tr>
</thead>
</table>
| Cutting Skills                             | • Mason “Well, I learned how to cut stuff […]”.  
• Addison “[…] I learned how to chop […]”.  
• Payton “Yeah, I learned how to use a knife.” |
| Kitchen Safety                             | • Emily “I learned….um, how to use a knife safely.”  
• Tate “how to use a knife safely.” in response to “What did you learn from the cooking class?” |
| Trying new foods is good                   | • Emily “[…] and I learned that trying new foods is a good thing.  
• Darron “To try new food and stuff” in response to “what did you learn from the cooking class?” |
| Enthusiasm when discussing cooking         | • Emily “YEAH! I actually cook something! I had never cooked something besides helping my mom cook pancakes before.”  
• Addison “I feel more strong and happier and proactive. Go apples!” and she spoke in an excited tone throughout the duration of the interview. |
| Unhealthy eating is acceptable during special occasions | • Adrian “Yeah, I mean it’s okay to do it sometimes, but not all the time” in response to if eating potato chips and other unhealthy foods is acceptable.  
• Emily “Yeah, I feel better eating a salad. On my birthday I feel better eating a cake!” |
| Misconceived potatoes for being healthy because it is a vegetable | • Darron: Talking about the health of potato chips, he responded “actually is potato a vegetable?”  
• Parker “Because French fries are kinda healthy because they are made out of […] potatoes?” |
| Impatience with the oral interview         | • Parker “Can I please stop now?”  
• Mason “How many things is this going to take?” and “[…] is there one more thing you want me to do?” |
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Data Analysis

In order to determine the impact that community centered sponsored cooking classes had on the nutritional and dietary conditions of low SES participants, the results from the pre and post surveys were compared. The results were analyzed using a paired samples t-test at an alpha level of .05 to determine if the difference between the two surveys was significant. The t-test showed no significant difference between the pre and post assessments. The mean of the pre-assessment was 50.89 while the mean of the post-assessment was 52.89 showing no significant increase.

Gender. The data was analyzed to determine if there was a differentiation between the data collected for male and female participants. The results of female participant’s pre and post surveys were compared to male participants’ pre and post surveys to analyze if there was a difference in the results. There were five female participants and four male participants in the study. The female’s pre-assessment numbers were higher than the male’s pre-assessments, which showed that the females had more prior cooking experience and knowledge about nutrition. This information can be viewed in Figure 2. The two participants who asked the researcher if they could end the interview were boys. Mason said “how many things is this going to take?” and Parker said “Can I please stop now?”. The two participants who responded to the interview question “If you could choose potato chips or fruit for an afterschool snack, which one would you choose?” with confusion about potato chips being healthy because they are made out of potatoes were boys. Darron was deciding which one he would choose and said “actually is potatoes a vegetable?” and Parker said “French fries. And French fries. Because French fries are kind of healthy because they are made out of ….. are they made out of……potatoes?”. Parker
finished answering the question about if he would choose fruit or potato chips with “Because both of those are healthy and I couldn’t really choose. That’s why I picked the fruit.”

![Male and Female Pre- and Post- Survey Averages](image)

**Figure 2**: Comparison of male and female pre- and post-survey scores

**Age.** Participants ranged from ages six to eleven. The youngest two participants, Tate and Parker, at age six showed no significant differences in their pre- and post- surveys in comparison to other participants as seen in Figure 1. Parker’s score decreased while Tate’s increased. Tate was more hesitant to participate than other participants (see Appendix O) when asked to participate he responded “I don’t like cooking” while in his oral interview when asked he thought cooking was more fun after the class than before, he responded saying “I think cooking is funner.” This inconsistency could be accredited to age. The oldest participant at age eleven, Payton scored the same on her pre- and post-assessment and responded that she “really learned it at her house” when asked if she learned how to cook in the cooking class. There were no significant results that could be linked to the age of participants.
Parents of participants were asked if their child participated in one or more forms of governmental assistance within the last year such as WIC, SNAP (formerly Food Stamps), free or reduced-price school breakfast, free or reduced-price school lunch, free or reduced-price school supper, free summer meals, head start, food pantry, or none of the above. Four of the nine responded yes to at least one of these governmental assistance programs, three choose not to respond to the question, while two stated that they had not participated in any of these programs within the last year. The average pre- and post-assessment scores of the participants’ parents who responded yes to receiving at least one type of governmental assistance program averaged 47.75 in the pre-assessment and 53.75 in the post test. Those who did not respond to the question about SES averaged 55 on the pre-assessment and 54.67 on the post-assessment, while the average of those who said they did not receive any one of these governmental assistance programs within the last year averaged 51 on the pre-assessment and
48.5 on the post assessment. The only average that increased from the pre-assessment to the post-assessment was the average of participants who had low SES.

![Display of SES of pre-assessment and post-assessment averages](image)

Figure 4: Comparison of Low Socioeconomic participant pre- and post-assessment averages, those who did not answer the SES question, and those who responded they are not low socioeconomic status.

**Summary**

This chapter presented the quantitative and qualitative data that was collected during the study to answer what effect community center sponsored cooking classes have on the nutritional and dietary conditions of low SES participants. The next chapter will present conclusions reached from the study, the limitations of the study, implications from the study, and recommendations for future researchers.
Chapter V

Discussion

There is a link between low socioeconomic status and unhealthy eating and this is contributed to differing factors. Energy dense foods are foods that are high in fats and sugars and these foods are consumed often by those with low socioeconomic status due to their low costs and high calorie content. When consumed, people feel more full though these food items have little nutritional value. Fruits, vegetables, and healthy proteins have lower energy density, containing less calories, but contain more nutrients that the body needs (Drewnowski & Specter, 2004).

The purpose of this study was to determine the answer to the research question “What effect does a community center sponsored cooking class have on the nutritional and dietary conditions of low SES participants?” The goal of the study was to alter participant food preferences as well as increase participants’ ability to cook a variety of healthy foods. Though the quantitative data showed no significant improvement through a \( t \)-test, participants demonstrated learning from the cooking class in the qualitative data collected via student interviews following the six-week intervention. The anecdotal qualitative data collected by the researcher also displayed excitement about cooking and nutritional learning.

Conclusion

The cooking class, Chef YRCC, at the Yvonne Richardson Community Center did result in student learning such as improved attitudes about nutrition and cooking, increased knowledge of kitchen safety and cutting skills, increased willingness to try new foods, and displayed
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knowledge that *junk foods* should only be eaten on special, rare occasions. The pre- and post-assessments were compared using a *t-test* and these results did not show a significant change in cooking and nutritional knowledge and skills. These results demonstrate different results than those demonstrated by Lukas and Cunningham-Sabo (2011). The study conducted by Lukas and Cunningham-Sabo demonstrated a significant change in food preferences after the intervention of a weekly cooking class. The Lukas and Cunningham-Sabo study only looked at qualitative results and was held in a demo kitchen. These two factors could have contributed to the differing results. Chef YRCC did not demonstrate that community sponsored cooking classes have the ability to significantly alter the dietary conditions of participants and participants’ families.

**Limitations**

There were many factors, similar to all other research that is conducted, that the researcher had no control over that could have affected the results from the study. The researcher was new to the community center, The Yvonne Richardson Community Center, when the study was conducted and this could have altered the participants’ excitement and willingness to participate in the cooking classes. The researcher having participants compete pre-assessments when the researcher was not familiar with the participants could have altered their results, responding more positively or confidently than they felt to try to impress the researcher. The participants’ unfamiliarity with the researcher could have also limited the participants comfort to ask questions to clarify the meaning of certain questions.

The researcher was unable to determine the socioeconomic status of three participants due to parental unwillingness to answer this research question. This was a limitation of the study. With this information, the data could have produced differing results.
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A limitation of this community based cooking class, Chef YRCC, was the inability to cook in a kitchen. The space used for the cooking class was a multipurpose room with work tables. Hot plates were used to cook on and cooking supplies were brought in for the participants to use. If the community based cooking class was held in an area with a kitchen or a demo kitchen, participants might respond differently to the class and this could increase participant learning.

Implications

Community center sponsored cooking classes may improve the nutritional and dietary conditions of children with low socioeconomic status as well as change food preferences towards healthier foods. The data displays that the students did gain culinary skills and improved their attitudes towards trying new, healthier foods, though the t-test results were not significant. Cooking classes that were conducted more frequently or during a longer period of intervention may cause significant results in participant learning. A different method of determining participant learning could also examine the data more accurately such as short weekly interviews or a shorter survey given every week rather than before and after the intervention only. This would potentially display the data more accurately.

Interventions might also be modified based on the number of students allowed to participate in the class. Student learning may increase during a community center sponsored cooking class offered to ten students or less, where participants would receive more one on one attention and instruction.

This implies that cooking classes still have potential, but there needs to be other factors that are examined to make the experience more impactful.
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Recommendations

When conducting future research, it is recommended that the participant-instructor ratio is smaller, such as five participants to each instructor. This will likely improve student learning and alter student food preferences more dramatically as well as increase cooking and nutritional knowledge. Community center sponsored cooking classes should be held in a demo kitchen for a more realistic cooking experience as this might also increase participant learning and ability to transmit the knowledge learned to their everyday lives. This should be a priority when conducting future research on the topic.

Summary

In conclusion, this chapter provided information about conclusions made based on the research conducted, limitations on the study that possibly affected results, implications as well as recommendations for future research. This study was conducted to answer the research question “What effect does a community center sponsored cooking class have on the nutritional and dietary conditions of low SES participants?” Overall, the data suggested that community centered sponsored cooking classes effect is limited on nutritional and dietary conditions of low socioeconomic status children, though there were minor positive effects on participants demonstrated in the qualitative data.
References


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December 14, 2015

MEMORANDUM

TO: Elizabeth Freeman
    Rhett Hutchins

FROM: Ro Windwalker
      IRB Coordinator

RE: PROJECT MODIFICATION

IRB Protocol #: 15-10-256

Protocol Title: An Evaluation of the Effectiveness of Hands on Cooking Classes and Nutritional Information with Mid to Low Socioeconomic Children

Review Type: ☑ EXEMPT ☐ EXPEDITED ☐ FULL IRB

Approved Project Period: Start Date: 12/10/2015 Expiration Date: 11/06/2016

Your request to modify the referenced protocol has been approved by the IRB. **This protocol is currently approved for 23 total participants.** If you wish to make any further modifications in the approved protocol, including enrolling more than this number, you must seek approval prior to implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

Please note that this approval does not extend the Approved Project Period. Should you wish to extend your project beyond the current expiration date, you must submit a request for continuation using the UAF IRB form “Continuing Review for IRB Approved Projects.” The request should be sent to the IRB Coordinator, 109 MLKG Building.

For protocols requiring FULL IRB review, please submit your request at least one month prior to the current expiration date. (High-risk protocols may require even more time for approval.) For protocols requiring an EXPEDITED or EXEMPT review, submit your request at least two weeks prior to the current expiration date. Failure to obtain approval for a continuation on or prior to the currently approved expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or irb@uark.edu.
Appendix B
Letter from Yvonne Richardson Community Center

October 26th, 2015

To whom it may concern:

Elizabeth Freeman has permission to conduct a study regarding the effectiveness of the cooking classes she facilitates with the Yvonne Richardson Community Center (YRCC) youth during the afterschool hours. YRCC deems such classes beneficial in our youth's growth and development. In addition, we are appreciative of the opportunity to expose our youth to diverse opportunities involving ways in which to nourish them educationally and nutritionally.

Elizabeth Freeman nor the University of Arkansas is liable for any injury that happens during facilitated cooking classes. Per our Kids Nite Afterschool program our registration forms have covered any incidents/accidents and indemnifies YRCC, YRCC interns, YRCC volunteers, YRCC sponsors (i.e. the University of Arkansas and Elizabeth Freeman in this case). See the following Kids Nite Afterschool Liability below:

Waiver of liability, consent for participation, transportation, and emergency medical care

I assume all risk and hazards directly related to and incidental to participation in the Yvonne Richardson Community Center (YRCC) programs/events. I hereby waive, release, absolve, indemnify and agree to hold harmless the City of Fayetteville, the YRCC, the sponsors, supervisors and participants for any claim arising out of my child’s injury. I do hereby give consent to the Director/Caregiver of the YRCC, or duly appointed representatives, for my child to be transported in the City of Fayetteville vehicle or any rented vehicles intended for transporting my child(ren) for program events and receive such medical or surgical aid as may be deemed necessary expedient by a duly licensed or recognized physician or surgeon in case of an emergency when the parent(s) cannot be reached. I also give approval for any photographic and/or video likeness of my child to be used in YRCC and the City of Fayetteville promotions.

These forms have been signed by parents prior to participation in any programs occurring during the afterschool times! If there are any further questions regarding programming/policies, please contact me at your earliest convenience.

Sincerely,

[Signature]

Tenisha Gist, YRCC Director
Appendix C

Informed Consent

Consent Forms for Participation in Chef YRCC

GUARDIAN AUTHORIZATION:
Your child is invited to participate in a research study conducted by Elizabeth Freeman, from the UNIVERSITY OF ARKANSAS [College of Education and Health Professions]. I hope to learn if hands on cooking classes and nutrition education help children in mid to low socioeconomic status make healthier choices such and have a more balanced diet such as to increase fruit and vegetable and whole grain intake. Your child was selected as a possible participant in this study because they attend the after school program at the Yvonne Richardson Community Center where I will am conducting the cooking and nutrition classes. Participation is voluntary on you and your child’s behalf and you or your child can choose at any time to terminate their or your participation in this research. You as the parent will be responsible for answering three questions on the survey I will conduct with your child regarding your child’s age, any food allergies your child has and if you have in the last year or are currently receiving help from a food assistant program.

If you decide to allow your child to participate, they will be making recipes from the Cooking Matters curriculum as well as recipes from the Ozark Natural Food’s grocery store from their outreach coordinator. Your child will learn nutritional information such as information from the My Plate diagram, how to use a knife safely, categorizing foods into food groups, learning how to read nutrition labels, learn how to reduce the intake of fats and sugars, and learning how to make these choices with a limited budget. The outreach coordinator from Ozark Natural Foods, Heather Arrripe, will help teach and coordinate three out of the six cooking classes included in the study. She will bring nutritional activities to complete during the time she is present at the cooking classes. Each week, the participants will receive the recipes of what we cooked and other worksheets teaching nutritional information and cooking safety. The child will have to attend four out of the six classes for their data to be included in the study. A video will be taken as well as possibly a news covering about the class. During this video or news covering, your child could be interviewed about the class.

The risks that exist are cutting with knives, using potato peelers, working with hot surfaces and ovens, and other hazards associated with cooking. The cost is free to participate for every child and each week the children will have the opportunity to taste the food we made, although the tasting is not required. The potential benefits are increasing nutritional knowledge, learning how to cook independently, being more comfortable in the kitchen, increasing healthy food intake such as fruits and vegetables, leaning how to cook healthy on a limited budget, and having fun. However, I cannot guarantee that your child personally will receive any benefits from this research.

Any information that is obtained in connection with this study and that can be identified with your child will remain confidential and will be disclosed only with your permission, as required by law or University Policy. Subject identities will be kept confidential by keeping names unidentified in the research. The data will be used to conduct research about the effectiveness of the cooking class and nothing more. The data will also be sent
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to and used by Cooking Matters, the non-profit organization whose curriculum will be used to teach the cooking classes.

Your child’s participation is voluntary. Your decision whether or not to allow our child to participate will not affect your or your child’s relationship with The Yvonne Richardson Center. If you decide to allow your child to participate, you and/or your child are free to withdraw your consent and discontinue participation at any time without penalty.

If you have any questions about the study, please feel free to contact Elizabeth Freeman [(501-650-1424), exf009@uark.edu] or the thesis advisor Dr. Rhett Hutchins at rjhuthe@uark.edu. If you have questions regarding your rights as a research subject, please feel free to contact Ro Windwalker, the University’s Compliance Coordinator, at (479)-575-2208 or at irb@uark.edu. You will be offered a copy of this form to keep.

Your signature indicates that you have read and understand the information provided above, that you willingly agree to allow your child to participate, that you and/or your child may withdraw your consent at any time and discontinue participation without penalty, that you will receive a copy of this form, and that you are not waiving any legal claims.

If you agree to allow your child to participate in this study, please sign here:

__________________________________________  _______________________________________
Signature of Parent                           Date

I have discussed this study with my parent/guardian, and I agree to participate. I understand that I may choose not to participate, even if my parent/guardian gives consent, or I can change my mind and stop participating at any time during the study.

__________________________________________  _______________________________________
Signature of Child                           Date

__________________________________________
Printed name of Child

IRB #15-10-256
Approved: 12/10/2015
Evneice: 11/06/2015
Appendix D

MyPlate Diagram
Appendix E

Pre-survey

Before Class Survey

Please put an “X” in the box to mark your answer.

1. I can make something to eat with fruit all by myself.
   □ YES! Definitely!!!
   □ Yes, I think I can do it.
   □ No, I don't think I could do it.
   □ NO! No way!!!
   □ Not sure / I don't know what that is.

2. I can make something with vegetables all by myself.
   □ YES! Definitely!!!
   □ Yes, I think I can do it.
   □ No, I don't think I could do it.
   □ NO! No way!!!
   □ Not sure / I don't know what that is.

3. I can make healthy choices when I’m out to eat.
   □ YES! Definitely!!!
   □ Yes, I think I can do it.
   □ No, I don't think I could do it.
   □ NO! No way!!!
   □ Not sure / I don't know what that is.

4. I can help make healthy choices at the grocery store.
   □ YES! Definitely!!!
   □ Yes, I think I can do it.
   □ No, I don't think I could do it.
   □ NO! No way!!!
   □ Not sure / I don't know what that is.
5. I can talk to my family about healthy eating.
   - **YES!** Definitely!!!
   - Yes, I think I can do it.
   - No, I don't think I could do it.
   - **NO!** No way!!!
   - Not sure / I don't know what that is.

6. I can talk to my family about healthy cooking.
   - **YES!** Definitely!!!
   - Yes, I think I can do it.
   - No, I don't think I could do it.
   - **NO!** No way!!!
   - Not sure / I don't know what that is.

7. I can follow recipe directions.
   - **YES!** Definitely!!!
   - Yes, I think I can do it.
   - No, I don't think I could do it.
   - **NO!** No way!!!
   - Not sure / I don't know what that is.

8. I can use a knife safely.
   - **YES!** Definitely!!!
   - Yes, I think I can do it.
   - No, I don't think I could do it.
   - **NO!** No way!!!
   - Not sure / I don't know what that is.
Please put an “X” in the box to mark your answer.

9. How do you feel about trying new foods?
   - I really like to try new foods.
   - I kind of like to try new foods.
   - I don’t like to try new foods.
   - I really don’t like to try new foods.
   - I’m not sure if I like to try new foods.

10. How do you feel about eating fruit?
    - I really like to eat fruit.
    - I kind of like to eat fruit.
    - I don’t like to eat fruit.
    - I really don’t like to eat fruit.
    - I’m not sure if I like to eat fruit.

11. How do you feel about eating vegetables?
    - I really like to eat vegetables.
    - I kind of like to eat vegetables.
    - I don’t like to eat vegetables.
    - I really don’t like to eat vegetables.
    - I’m not sure if I like to eat vegetables.
12. How do you feel about eating whole grain foods, like whole wheat bread or tortillas, or whole grain crackers?
  - I really like to eat whole grains.
  - I kind of like to eat whole grains.
  - I don't like to eat whole grains.
  - I really don't like to eat whole grains.
  - ? I'm not sure if I like to eat whole grains.

13. How do you feel about choosing drinks that are low in sugar (such as plain, low-fat milk and water)?
  - I really like to choose drinks that are low in sugar.
  - I kind of like to choose drinks that are low in sugar.
  - I don't like to choose drinks that are low in sugar.
  - I really don't like to choose drinks that are low in sugar.
  - ? I'm not sure if I like to choose drinks that are low in sugar.
After Class Survey

Please put an “X” in the box to mark your answer.

1. I can make something to eat with fruit all by myself.
   - YES! Definitely!!!
   - Yes, I think I can do it.
   - No, I don’t think I could do it.
   - NO! No way!!!
   - Not sure / I don’t know what that is.

2. I can make something with vegetables all by myself.
   - YES! Definitely!!!
   - Yes, I think I can do it.
   - No, I don’t think I could do it.
   - NO! No way!!!
   - Not sure / I don’t know what that is.

3. I can make healthy choices when I’m out to eat.
   - YES! Definitely!!!
   - Yes, I think I can do it.
   - No, I don’t think I could do it.
   - NO! No way!!!
   - Not sure / I don’t know what that is.

4. I can help make healthy choices at the grocery store.
   - YES! Definitely!!!
   - Yes, I think I can do it.
   - No, I don’t think I could do it.
   - NO! No way!!!
   - Not sure / I don’t know what that is.
5. I can talk to my family about healthy eating.
   - **YES!** Definitely!!!
   - Yes, I think I can do it.
   - No, I don't think I could do it.
   - **NO!** No way!!!
   - Not sure / I don't know what that is.

6. I can talk to my family about healthy cooking.
   - **YES!** Definitely!!!
   - Yes, I think I can do it.
   - No, I don't think I could do it.
   - **NO!** No way!!!
   - Not sure / I don't know what that is.

7. I can follow recipe directions.
   - **YES!** Definitely!!!
   - Yes, I think I can do it.
   - No, I don't think I could do it.
   - **NO!** No way!!!
   - Not sure / I don't know what that is.

8. I can use a knife safely.
   - **YES!** Definitely!!!
   - Yes, I think I can do it.
   - No, I don't think I could do it.
   - **NO!** No way!!!
   - Not sure / I don't know what that is.
Please put an “X” in the box to mark your answer.

9. How do you feel about trying new foods?
   □ ☑ I really like to try new foods.
   □ ☑ I kind of like to try new foods.
   □ ☑ I don't like to try new foods.
   □ ☑ I really don't like to try new foods.
   □ ☑ I'm not sure if I like to try new foods.

10. How do you feel about eating fruit?
    □ ☑ I really like to eat fruit.
    □ ☑ I kind of like to eat fruit.
    □ ☑ I don't like to eat fruit.
    □ ☑ I really don't like to eat fruit.
    □ ☑ I'm not sure if I like to eat fruit.

11. How do you feel about eating vegetables?
    □ ☑ I really like to eat vegetables.
    □ ☑ I kind of like to eat vegetables.
    □ ☑ I don't like to eat vegetables.
    □ ☑ I really don't like to eat vegetables.
    □ ☑ I'm not sure if I like to eat vegetables.
12. How do you feel about eating whole grain foods, like whole wheat bread or tortillas, or whole grain crackers?

- 😊 I really like to eat whole grains.
- 😐 I kind of like to eat whole grains.
- 😞 I don't like to eat whole grains.
- 😞 I really don't like to eat whole grains.
- 😞 I'm not sure if I like to eat whole grains.

13. How do you feel about choosing drinks that are low in sugar (such as plain, low-fat milk and water)?

- 😊 I really like to choose drinks that are low in sugar.
- 😐 I kind of like to choose drinks that are low in sugar.
- 😞 I don't like to choose drinks that are low in sugar.
- 😞 I really don't like to choose drinks that are low in sugar.
- 😞 I'm not sure if I like to choose drinks that are low in sugar.
Appendix G

Week 1 Recipe

Bean & Veggie Soup

Servings: 8 1 cup per serving • Prep time: 15 minutes • Cook time: 35 minutes

Ingredients
2 medium carrots
2 medium cloves garlic
2 medium celery stalks
1 large tomato
1 medium yellow squash
1 (15½-ounce) can red kidney beans
1 Tablespoon canola oil
1 teaspoon dried basil or dried oregano
½ teaspoon salt
⅛ teaspoon ground black pepper
2 (14½-ounce) cans low-sodium chicken or beef broth
1 cup water
1 cup frozen green sweet peas
1 cup whole wheat pasta, such as wagon wheels, macaroni, or penne
Optional ingredients
¼ cup fresh parsley

Materials
Can opener • Colander • Cutting board • Large pot • Measuring cups • Measuring spoons • Mixing spoon • Sharp knife • Vegetable peeler

Directions
1. Peel carrots, onion, and garlic cloves. Rinse carrots, onion, celery, tomato, and squash.
2. Dice onion, celery, and tomato. Mince garlic.
3. Cut carrots and squash in half lengthwise. Place flat side down. Cut into thin, half-moon slices.
4. If using, rinse parsley. Pluck leaves from stems. Mince.
5. In a colander, drain and rinse beans.
6. In a large pot over medium heat, heat oil. Add carrots, onion, garlic, and celery. Cook until slightly soft.
7. Add dried herbs, salt, and pepper. Stir.
8. Add broth, water, tomatoes, squash, beans, and peas. Bring to a boil over high heat.
9. Add pasta. Reduce heat and simmer. Cook until pasta is tender, about 8–12 minutes.
10. If using parsley, stir into soup before serving.

Chef’s Notes
- Use any veggies you like. Adjust cooking time as needed for the veggies you use.
- Use any type of canned or cooked beans. Try black beans, chickpeas, cannellini beans, or lima beans.
- Try using fresh cilantro or basil instead of parsley.
- Double the recipe. Freeze leftovers for another night. Or, freeze in individual servings and pull out for quick lunches.

Nutrition Facts
Serving Size: 1 cup (223g)
Serving per Recipe: 8

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>Calories: 140</th>
<th>Calories from Fat 20%</th>
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</tbody>
</table>

Vitamin A 50% • Vitamin C 26%
Calcium 4% • Iron 10%}

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your caloric needs.
Appendix H

Week 2 Recipe

Banana Pudding in a Bag

Virginia Cooperative Extension

Serves 4, 1/2 cup per serving • Prep time: 10 minutes • Cook time: None

Ingredients
- 1/2 cup low-fat granola
- 3 medium bananas
- 1/2 cup applesauce, unsweetened
- 1/2 cup nonfat vanilla yogurt

Materials
- Large zip-top plastic bag
- Measuring cups

Directions
- [Note: Some steps are marked with an asterisk (*)]

*1. In a large zip-top plastic bag, add granola. Squeeze any air out of bag and seal. Lightly crush granola using a can or the bottom of a measuring cup.
*2. Peel bananas. Use your fingers to break them up into the bag of crushed granola.
*3. Add applesauce and yogurt to banana mixture in bag.
*4. Press out any extra air before sealing bag again.
*5. Use your fingers to squish and mash ingredients together until well blended.
*6. Chill pudding inside sealed bag in the refrigerator until ready to serve.

Chef’s Notes
- Make your own granola! Use the recipe on page 37.

Nutrition Facts

Serving Size: 1/2 cup per serving (110g)
Servings per Recipe 4

Amount Per Serving
- Calories: 150
- Calories from Fat: 10
- % Daily Value

- Total Fat: 1g
- Saturated Fat: 0g
- Trans Fat: 0g
- Cholesterol: 0mg
- Sodium: 25mg
- Total Carbohydrate: 28g
- Dietary Fiber: 4g
- Sugars: 20g
- Protein: 4g

- Vitamin A: 2%
- Vitamin C: 15%
- Calcium: 4%
- Iron: 4%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.
Enchilada Rice Skillet

Ingredients

2 cups cooked rice
1 T oil
2 cloves garlic, minced
1 yellow onion, diced
1 bell pepper, diced
1 C corn
1 C black beans
1 small can of green chilies
1 1/4 C enchilada sauce
1/2 t chili powder
1/2 t cumin
1/4 t Mexican oregano
1 C shredded cheese
2 T chopped fresh cilantro

Directions

Heat oil in a large skillet and add your garlic, onion, and bell pepper. Cook stirring frequently until onions have become translucent, about 2-3 minutes.

Stir in rice, corn, black beans, enchilada sauce, 1 T cilantro, chili powder, cumin, and Mexican oregano until well combined and heated throughout. Add salt and pepper as needed.

Top with shredded cheese, cover until cheese has melted or pop it under the broiler.

Garnish with the other 1 T of cilantro!
Cheesy Broccoli Brown Rice Casserole

Ingredients

4 cups fresh broccoli florets and stems, chopped  
Juice of ½ lemon  
¼ cup chopped onions  
1 clove garlic, minced  
1 stalk celery, chopped  
2 tbsp. butter  
¾ cup minced mushrooms  
1 tbsp. all purpose flour  
12 oz. can regular evaporated milk  
½ tsp. salt  
½ tsp. pepper  
2 cups shredded cheese of choice  
3 cups cooked brown rice

Directions

Steam chopped Broccoli and stems until tender but still bright green.
Squeeze Lemon over Broccoli.
Melt butter in a skillet add butter, onions, celery, and mushrooms, cook until
fragrant.
Add flour to vegetables and stir. Cook for a minute or so to cook the raw flour
taste out.
Whisk in milk and cook uncovered for 5 minutes. Keep an eye on it and stir as
needed.
Add 1 ½ cup cheese and stir to melt.
Sauce will thicken the more it sits.
Add your broccoli back into the cheese sauce skillet, stir.
In a casserole dish add your rice, top with this broccoli cheese mixture.
Add the other ½ cup cheese on top and bake at 350 degrees until bubbly.
Fried Rice

Ingredients

- 3 T butter
- 2 eggs, whisked
- 2 medium carrots, peeled and diced
- 1 white onion, diced
- ½ C frozen peas
- 2 cloves garlic, minced
- 4 C cooked and chilled short grain rice
- 3 green onions, diced
- 2 T soy sauce
- 2 T sesame oil

Directions

Heat ½ T butter in a large skillet over medium high heat until it is melted. Add your whisked eggs and cook until scrambled. Remove from heat. In the same skillet add 1 T butter and 1 T sesame oil. Add in your carrots and onion. Sauté for 3 minutes. Add in your peas and cook for another 2-3 minutes. Increase heat to high, add in 1 ½ T butter and stir until melted. Add your rice and soy sauce. Continue stirring for 3 minutes, this will fry the rice. Add the eggs back in as well as the green onions. Top with a ½ T sesame oil, stir, and enjoy!
Snacks

S’mores Quesadilla

Ingredients
- 2-3 tbsp. nut butter
- 1 tortilla
- Mini marshmallows
- Mini dark chocolate chips
- 1 bananas, sliced thinly
- Coconut Oil

Directions
- Spread 2-3 tbsp. nut butter over half of each tortilla.
- Top with some of the marshmallows, chocolate chips, and banana slices. Fold tortillas in half, pressing gently to flatten and seal.
- Brush both sides with a little oil.
- Place in a skillet. Cook tortillas for 2 to 3 minutes per side.
Veggie Dip

Ingredients

- 1/4 cup lemon juice
- 2 cups cashews
- 3 stalks celery, diced
- 1/2 cup chopped bell pepper
- 1/4 cup chopped red onion
- 2 tbsp fresh parsley
- 2 tbsp fresh thyme
- 1/4 cup chopped tomato
- 2 cloves garlic
- Fresh ground black pepper

Directions

Add everything to food processor and process until creamy!

Eat with crackers!
Turkey Ranch Roll Ups

Ingredients

1 Lg. Tortilla
3 slices turkey
2 spoonful's of diced tomatoes
1 handful spinach
1 slice cheese, cut in 1/3rds
1 big spoonful Ranch Cream Cheese

(Mix 1 block cream cheese with 1 envelope Ranch mix)

Directions

Lay out your tortilla and place the spoonful of Ranch Cream Cheese in the middle, spread from the middle out.

Place your spinach in a row in the middle.

Lay your turkey slices on top of that.

Lay your cheese on top of that.

Add your tomatoes.

Take one side of the tortilla and bring it over your filling, tuck under and roll tightly.

Slice off the ends, cut in rolls.

Enjoy!
Week 5 Recipe

Yogurt Parfait

Chef Joyce Roland – Seattle, Wash.
Serves 6; 1 parfait per serving • Prep time: 10 minutes • Cook time: None

Ingredients
4 cups fresh or thawed frozen fruit, such as bananas, strawberries, peaches, or mango
3 cups nonfat plain yogurt
1¾ cups granola
Optional ingredients
2 Tablespoons sliced almonds

Materials
6 cups or bowls • Cutting board • Measuring cups • Measuring spoons • Sharp knife

Directions
Have adults help with the steps marked with this symbol.

1. If using fresh fruit, rinse, peel, and/or trim as needed. If using thawed frozen fruit, drain any excess juices. Cut fruit into ¼-inch thick slices. There should be about 3 cups total.
2. Layer ¼ cup yogurt into each of 6 cups or bowls. Top with ¼ cup sliced fruit and 2 Tablespoons granola.
3. Repeat layers one more time, ending with a layer of granola.
4. If using, top with sliced almonds.

Chef’s Notes
• Layer parfait just before serving to keep granola crunchy.
• Use any high-fiber cereal you like instead of granola.
• Try topping with rinsed, chopped fresh mint leaves for extra flavor and color.
• To save money, use fresh fruits that are in season. When seasonal fruits are hard to find, use thawed frozen fruit.
• Use leftover fruit in Fruit Smoothies (page 30).
• Use Homemade Granola (page 37).

Nutrition Facts
Serving Size: 1 parfait (239g)
Servings Per Recipe: 6

Amount Per Serving
Calories: 280
Calories from Fat: 40

Percent Daily Values
Total Fat: 4g (7%
Saturated Fat: 0g (0%
Trans Fat: 0g
Cholesterol: 0mg (0%
Sodium: 90mg (4%
Total Carbohydrate: 47g (16%
Dietary Fiber: 4g (16%
Sugars: 34g
Protein: 8g

Vitamin A: 6% • Vitamin C: 100%
Calcium: 29% • Iron: 6%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.
The Nutrition Facts Label
Look for it and Use It!

Information you need to make healthy choices throughout your day

Found on all packaged foods and beverages

Use it to compare foods!

Choose the foods that are high in nutrients to get more of, and low in nutrients to get less of.

If you consume more calories than you burn, you gain weight.

400 calories or more per serving is high

100 calories per serving is moderate.

Check the serving size on food packaging. The information listed on the Nutrition Facts Label is based on one serving. Servings are shown in common measurements like cups, ounces, or pieces.

One package may contain more than one serving! If you eat multiple servings – you’re getting “multiples” on calories and nutrients, too.

2 SERVINGS = CALORIES X 2

Nutrition Facts
Serving Size 1 package (27g)
Servings Per Container 1

Calories 58

Total Fat 1g

Saturated Fat 0g

Cholesterol 0mg

Sodium 2mg

Total Carbohydrates 1g

Dietary Fiber 0g

Protein 0g

Vitamin A 0%

Vitamin C 0%

Calcium 0%

Iron 0%

Nutrients To Get More Of
Get 100% DV of these:

- Calcium
- Vitamin A & C
- Whole grain
- Fruits and vegetables
- Legumes and beans
- Fat free or low-fat milk/milk products
- Seafood
- Unsalted nuts and seeds

Nutrients To Get Less Of
Get less than 100% DV of these:

- Cholesterol
- Sugar
- Saturated Fat
- Sodium

Use grains to compare

To meet these goals, eat a variety of foods, including:

- Fruits and vegetables
- Whole grains
- Fat-free or low-fat milk/milk products
- Seafood
- Unsalted nuts and seeds

When comparing nutrients in foods, use %DV.

%DV = Percent Daily Value

%DV is based on “Daily Values” – the amounts of nutrients recommended for Americans aged 4 and older to eat every day.

Percent Daily Values are based on a 2,000 calorie diet. However, your %DV may be higher or lower depending on your calorie needs. Calorie needs vary according to age, gender, and physical activity level. Use www.choosemyplate.gov to find your calorie needs.

ChooseMyPlate.gov

AN EVALUATION OF HANDS ON COOKING AND NUTRITIONAL EDUCATION

Appendix L

Week 6 Worksheets
During this class, a nutrition and dietetics major taught Chef YRCC, Susan. The class was conducted in workspace room at The Yvonne Richardson Community Center (YRCC), the multipurpose room. Students lined up at the door of the classroom and were asked what every person had to do before every cooking class. Many students shouted “wash your hands!” The students were then asked to wash their hands and line up in front of the multipurpose room again when they were finished. The students entered the classroom one by one and each student received a Cooking Matters cookbook. Each student was told to choose a table to work at, of three table options, throughout the duration of class one’s cooking class. Each table had a hot plate on each table to make the soup and the hot plates were used to cook the recipes each week. After each student was at one of the three tables, Susan discussed that we were going to be making bean and veggie soup. She then had the students open to the page with cooking terminology and called on different kids to read the material that defined different cooking terminology like “Bake”, “Grill”, “Chop”, “Mince”, and “Simmer”.

There were fifteen total students in the Chef YRCC class on October 27th, while six of those students were participants in this study. Emily, Addison, Angie, Darron, Parker, and Adrian were present of the nine participants in the study.

Susan told all the kids to gather around the one table, where she was working. She asked them if they had ever used knives before to cut things. Some participants responded such as Emily, Addison, and Adrian said that they had used knives before while Darron and Parker said they had not. Susan then held up different knives and talked about their size and shape. There were about ten different knives on the table and I had to tell Darron to keep his hands off the
AN EVALUATION OF HANDS ON COOKING AND NUTRITIONAL EDUCATION

knives while she was talking. All the knives were at Susan’s table while other supplies such as
cutting boards, can openers, and others were equally dispersed between three different tables for
the students to use. Susan conducted the lesson on which knives to use and how to use them
safely before students were allowed to touch the knives.

Susan then talked to them about how to cut vegetables and other foods. She talked about
curling your fingers to keep from cutting yourself. When demonstrating how to cut an onion,
Susan told the kids to cut the onion in half, cut the end part off, and then slice the onion into
really thin slivers. She told them if you do not cut all the way through to the bottom, when you
turn the onion to cut it the other way, the onion is still connected, making it easier to cut cubed
pieces.

Each student was able to participate in a hands-on way, cutting the different vegetables
such as carrots, onions, garlic, celery, tomato, and squash, adding them to the soup pot, opening
the cans of beans and vegetable broth, draining the beans, measuring the water, canola oil,
oregano, salt, pepper, and adding the sweet peas and whole wheat pasta into the soup. All the
students gathered around one table, Susan showed them how to conduct the next step in the
recipe, then we disperse into our three groups and one or two students completes that step. The
researcher supervised one table while Susan supervised the other two tables, individually giving
assistance to participants while cutting and adding ingredients.

Many of the students at Susan’s table where very excited about getting the opportunity to
work with knives and understanding how to cut vegetables and other things on their own at home
especially Addison. She told Susan that she would be able help her mom and dad in the kitchen
at home or when she wanted something on her own, she could get it. Emily grasped the concepts
quickly after being taught how to cut vegetables safely and was excited about getting to peel and
dice the carrots. Angie cut the celery and ate a few pieces after cutting them. This is something
that happened multiple times with Angie throughout the intervention. Many participants, such as
Darron and Parker, said “they hated veggies” but as soon as we started getting hands on they
seemed excited about getting to help out. It seemed that being more hands-on with the food made
them more open to trying it later on.

After adding all the ingredients other than the noodles, participants placed the lids on the
soups and waited for them to reach a boil. After they were boiling, Susan added the noodles and
placed the lids back on the soups. While this was occurring, students were told to sit on the floor
of the multipurpose room in one area for the nutritional lesson.

During the nutrition lesson, Sarah Jane talked about “MyPlate” (see Appendix D) and
identified each food group. Students discussed examples of different foods and identified them in
their perspective group. Susan taught the student the amount of each food group everyone needs
each day: one handful of fruit, one and a half handfuls of grains and proteins, two handfuls of
vegetables, and a small cup of dairy.

This demonstrated to the participant that they need to eat more vegetables than any other
food group, the smallest amount of dairy, and a moderate amount of grains, proteins, and fruit.
After explaining this, Susan conducted an assessment with the participants asking “How much
dairy do you need?” and the kids would make an open circle with one hand. She said
“vegetables” and many hesitated while others put out two hands and others looked at the other
students. Eventually each student put out two handfuls. She said every group and participants did
the hand motions for each food group until everyone was able to put their hands out confidently
when she said the category without looking around or hesitating. The students showed enthusiasm while playing this game. After completing the “MyPlate” information (see Appendix D), Sarah Jane asked “What is a protein?”, “What is a vegetable?”, “What is a fruit”, and “what is a grain?” to teach what these categories meant if the participants were unsure. She asked, “What food group is a tomato in?”. Susan described that a tomato is a fruit because it has seeds and all fruits have seeds.

Parents of participants were told about the class and were encouraged to leave their children for the full duration of the class which ended around 5:30pm, but this is not always possible for many different reasons. Addison, Angie, and Darron had to leave before getting to try the soup.

I brought the bean and veggie soup back the next day for the kids to try it if they had to leave early the day before. Tate, though he was not present the previous day when participants made the soup, was very hesitant about trying it. After he tried the soup, he said “I really like this” and wanted another cupful after he was done with his first.
Class 2 (November 3\textsuperscript{rd}, 2015)

During the second class, the participants lined up at the door if they wanted to participate in Chef YRCC and were told to go and wash their hands. As the children walked in, they were assigned to be at one of three tables. Eight participants in the study attended during class two. The only research participant that was not present during class two was Mason.

Susan, the nutrition and dietetics student teaching the previous week was there to teach as well as another dietetics student Melissa. The researcher was also teaching and overseeing a table. The researcher announced that the children would be making banana pudding and learning how to crack eggs. The researcher told the children to open up their cookbook to page seventy for the banana pudding recipe.

While the students were separated into three tables, Susan, Melissa, and the researcher each read the recipe and aided the participants at their individual table in completing the recipe (see Appendix H). The first part of the recipe was to measure out $\frac{1}{2}$ cup of granola, put it in a Ziploc bag and lightly crush the granola once the bag was closed. While the researcher was obtaining the bananas from another table, she turned around to encounter Darron banging the granola on the table. He seemed excited about getting to compete this part of the recipe. The researcher calmly told him that the granola was crushed sufficiently and that he needed to calm down a little and that his group needed to move onto the next step in the recipe.

The researcher handed three bananas to the group of five students. Two participants peeled the bananas, broke them in half, and placed them inside the Ziploc bag. Two different participants mashed the bananas in the bag while they mixed into the granola. After this,
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participants opened up the Ziploc once more and Darron measured ½ cup of unsweetened applesauce and Addison measured ½ cup vanilla yogurt to add. Then participants mixed all the ingredients after this for the final mix of the banana pudding to make sure it was well blended. Participants placed their banana pudding in one of two bowls of ice to cool down before enjoying the pudding.

After the banana pudding was complete, Sarah Jane discussed the different parts of the egg. Many students were unaware of this information, but Addison informed Susan about the albumen, colloquially known as the egg white, when cracking the eggs. This is advanced information that she knew prior to Chef YRCC. There were two dozen eggs so that every participant would be able to crack at least one egg. Emily, Addison, Angie, and Payton had cracked eggs before at home while Parker, Tate, and Adrian had not.

At the three separate tables, the leaders, Susan, Melissa and the researcher, demonstrated how to properly crack an egg by hitting the egg on the counter or edge of a bowl, placing the two thumbs together on the cracked part, and opening up the shell. Participants showed enthusiasm about getting to crack the eggs. Melissa demonstrated for Addison how to crack an egg with one hand like chefs do since Addison had experience with cracking eggs. Addison has some difficulty, but appeared excited about this new challenge as she stated “I really love to cook and this is so much fun!”. After each participant was able to crack an egg at their table, they were asked to sit together in an open space on the floor in the multipurpose room.

Susan explained to the participants that they were going to try two different types of cookies and guess which one was store bought and which one was homemade. The homemade cookies were oatmeal dark chocolate chip while the store bought were flaxseed oatmeal cookies.
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Susan had put both cookies in identical glass containers to make it difficult for students to distinguish the difference between the homemade and store bought cookies. All participants formed a line and each were handed both cookies and were told the homemade was cookie number one and the store bought was cookie number two. The researcher asked Angie which one she thought was homemade and she did not respond to the question. After being asked which one was better, she responded “Yes!” Darron, Parker, Payton, Tate, and Adrian all responded that they preferred cookie number one, the homemade cookie while Addison responded that she preferred cookie number two, the store bought cookie. Susan discussed that it is better to eat cookies with oatmeal because oatmeal is a grain as well as that it is better to use dark chocolate chips rather than milk chocolate because they contain less sugar and are healthier.

The plan was to make breakfast casserole out of the eggs and bring it back the next day for the participants to taste since there was not enough time to make something with the eggs during the class, but this was against YRCC regulations and therefore, this was not an option.
AN EVALUATION OF HANDS ON COOKING AND NUTRITIONAL EDUCATION

Appendix O

Class 3 (November 10th, 2015)

Hannah, the outreach coordinator of a local health food store, attended Chef YRCC three weeks in a row to teach the cooking class. The participants lined up at the door outside the multipurpose room like the previous weeks and were instructed to wash their hands and return to the doorway when their hands were clean. Mason, Emily, Addison, Angie, Darron, Parker, Payton, and Tate were the study participates present for the class. The only participant not present was Adrian. In addition to the study’s eight participants, there were eleven more students present for Chef YRCC during class three. Hannah and the researcher were the two that administered the class during week three and there were a few YRCC volunteers to help oversee for safety. Angie had a YRCC volunteer assigned specifically to ensure her safety and aid her with tasks.

Students were assigned a table to work at for the day and were dispersed by age, having a mix of older and younger participants at each table. Emily and Addison requested to be together along with two other girls not present in the study and the researcher allowed the four of them to work at the same table.

While in the previous two cooking classes, all participants made the same recipe, for class number three with Heather, each table made a different recipe. All of the ingredients were provided by Hannah during this class as well as the following two weeks that she instructed the class. One table with Tate and Angie made the Enchilada Rice Skillet (see Appendix I), while other participants made the Cheesy Broccoli Brown Rice Casserole (see appendix I), and the rest of the participants made Fried Rice. Each recipe incorporated rice and participants were taught
that brown rice is a whole grain and is healthier than white rice. It was explained that at least half of the grains that one eats should be a whole grain like brown rice, wheat pasta or whole grain bread.

The researcher oversaw the Enchilada Rice Skillet table while Heather administered the cooking and learning for the Cheesy Broccoli Brown Rice Casserole table as well as the table that made Fried Rice. Tate was supposed to be participating in making the Enchilada Rice Skillet, but his friend was not interested in helping to cook so they sat in the corner and did not participate throughout the majority of the class. When Tate was asked if he wanted to participate he responded saying “I don’t like cooking”.

Participants read the recipe and started completing the steps from step one. Each participant was given the opportunity to participate and was assigned different tasks to complete such as measuring the amount of oil, cutting the onion, cutting the bell pepper, mincing the garlic, and measuring out the pre-cooked brown rice. After the onion was cut, Angie grabbed a piece of diced onion one time and ate it. She was told to not eat the ingredients because they need to be added all together to make the recipe. When the researcher was helping another student complete a step in the recipe, Angie was caught eating another piece of onion. The volunteer assigned to help Angie was not overly aware of what she was doing in that she also grabbed the knife multiple times. The researcher reminded Angie that she was to leave the knife on the table unless she was receiving help while cutting an item.

After students had trouble cutting the fresh cilantro, the researcher demonstrated how to cut it. Each participant helped break up the cilantro by hand and then the participants measured out two tablespoons of cilantro. To keep Angie on task, she was responsible for stirring the
mixture while other participates added in the ingredients. When another student wanted the opportunity to stir the mixture, the researcher told Angie that she needed to let someone else stir for a little bit, she responded with “No”. The researcher told her again that everyone needed to share responsibilities and was told that she would be able to stir again once other participants were given the opportunity. She appeared upset about this. The spoon was then taken away from her and given to another student. She was given back the spoon later on. Angie graded the cheese for the enchiladas and when the mixture was hot, participants added the cheese on top.

At table making broccoli cheese rice, Addison showed an eagerness to help by saying “Can I open the can? And later on she said “Can I cut the celery”. She was told that she could participate, but that every participant needed to get the change to be involved so she would have to wait to make sure everyone was able to be involved since she had already completed multiple steps in the recipe.

Mason and Parker helped make the fried rice with brown rice. Parker helped stir the rice while it was cooking and opened up the can of peas with Hannah’s help. Mason cut the green onion with the help of the instructor, Hannah.

Emily, Addison, Darron, and Payton helped make the broccoli cheese rice. Addison and Payton grated the cheese. After pressing the lemon to get the juice out, Addison squeezed a little extra lemon juice into her mouth excitedly. The students seemed excited and were eager to try the foods! Payton sautèed the chopped onions, bell pepper, and cut the celery on a cutting board alone before adding it in to sauté. Emily helped with the mushrooms, rinsing them, peeling off the stems, and then cutting them into small pieces to add into the broccoli cheese rice.
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Once all three recipes were completed, the researcher passed out paper plates to each participant and served everyone with all three rice recipes. Everyone sat at the tables and ate together, talking about the foods. The participants had more enthusiasm about the recipes this week than the previous two weeks. Tate ran over to get a plate to try the foods. Though he did not participate much in the cooking process, he was excited to get to taste the different recipes. After being asked which one was his favorite, he responded “the brown one”, as he pointed to the enchilada rice skillet. The dark brown one was the enchilada rice skillet, while the broccoli cheese rice appeared white and yellow with the green broccoli, and the fried rice had a light brown color. Payton said that the fried rice was her favorite and that she did not like the broccoli cheese one because she does not like broccoli.

Emily and Addison said that their favorite was “the brown enchilada one”. The two favorites were the enchilada rice skillet and the fried rice, while the broccoli cheese was the least liked, though many participates liked all three!
Like the previous week with Hannah, the three separate tables made three separate recipes. The students lined up outside the door and the researcher put hand sanitizer in their hands as they walked. The supplies for each recipe were already sitting on each one of the three tables including cutting boards, knives, the ingredients, can openers, hot plates, and other supplies (see Appendix J). Students were assigned a table on this day to keep them from fighting over which recipe they would be making. One table made the turkey wrap, one made a S’more quesadilla, while the third group made a dip to go with crackers that they blended up. This was the only class in which every participant was present.

The researcher aided participants and read the recipe on how to make the turkey wrap with Mason and Darron. While making the turkey wraps, Mason stated “I want to help” many different times and the researcher responded that everyone needed to have an opportunity to help, thought he had the opportunity to help out already multiple times. He responded with a “huff” which consisted of him blowing air out of his nose and crossing his arms. The researcher bent down to talk to him and asked him what was wrong. Mason responded that “I really want to help out, but I can’t”. It was explained to him that he could help out, but that everyone has to take turns. After this, he waited for his turn and calmed down.

Each student was able to make their own quesadilla so they each got a whole wheat tortilla. It was explained again that whole wheat is healthier than white flour. They each spread one tablespoon of cream cheese down the middle of their quesadilla and then added a handful of spinach on top of the cream cheese. Participants cut the turkey with a kitchen knife in one inch
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slivers after the researcher demonstrated how to cut a piece and then each participant cut their
turkey slices. After this, Mason and Darron added a little shredded cheese on top.

Susan was the overseer for the participants making the Chocolate S’more. Angie was
hands on in helping make this. When not involved, Angie often picked up materials and ate food
items when instructed not to do this, so it was beneficial to keep her involved in the cooking
process. Participants peeled the bananas and sliced them into pieces and completed the other part
of the recipe (see Appendix J). Participants added almond butter over the entire tortilla and then
added bananas, marshmallows, and dark chocolate chips onto one side of the tortilla. After, the
participants folded the tortillas in half and placed them on top of headed coconut oil in the pan
one by one. All of the participants appeared excited that they were getting to make something
sweet.

Hannah was at the table with students making the homemade dip to eat with crackers.
Emily and Addison were at Hannah’s table helped make this recipe, cutting the basil, onion, and
measuring out the garlic. They were involved in the entire process and exclaimed that they were
having fun.

The three recipes were made more quickly than previous weeks and so there was a gym
nutrition activity incorporated into the lesson. Though all participants were encouraged to
participate, only Emily, Addison, Payton, and Allison choose to participate. This was five of the
nine participants, all of the girl participants and none of the boy participants. The activity was
called “Go, Slow, Woah”. There were cards with different foods listed on them and on each card
on the other side was “go”, “slow” or “woah”. The “go” foods are foods that are really healthy
the “slow” foods are foods than are not bad for you, but should be eaten in moderation like once
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a day, while the “woah” foods are foods that are not healthy and should only be eaten on occasion such as cake at a birthday party or sweet treats that should be eaten only once a week or once every two weeks.

An example of the “go foods” would be vegetables like carrots and broccoli, and foods like whole grain rice, fruits like bananas and strawberries, and healthy proteins such as baked chicken and black beans. The “slow foods” were foods such as milk, cheese, and dark chocolate. The “woah foods” were foods like chocolate cake, soda, and other unhealthy foods, which should only be eaten at birthday parties, holidays, or other special days, but should not be foods and drinks that are consumed regularly.

The activity was lead by Susan while the researcher and Hannah set up the multipurpose room for participants to be able to sit down and eat together. For the activity, participants lined up in the middle of the gym court, outside the multipurpose room, and the game was explained. It was similar to the game “red light, green light”. A certain food on a card was called out and it was a “go food” the participants would speed walk towards the administrator, if it was a “slow food”, then participants would walk slowly towards the administrator, and if it was a “woah food”, participants were supposed to stay where they were. If a participant did the wrong action for the type of food, they had to take three steps back. The first person to reach the administrator got to administer the game during the next round of the game when participants would start over.

The researcher handed out paper plates to all the students and each participant tried each recipe. This was encouraged for them to at least try every recipe and they did not have to eat anymore if they did not like it. Addison said that the dip was too spicy for her because she does not like spicy foods, while Angie wanted seconds of the dip and shook her head yes when asked
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if she liked the dip. All the participates like the s’more and all said that they liked the turkey wrap too. There were enough papers for each participant with all three recipes printed on them, but a few participants ran off without getting one or accidentally left it behind.
On November 24th, the class took a field trip to local health food store. It had been discussed that the attendance might be low due to the students being out of school during this week for Thanksgiving Break, but the afterschool program was still available on Monday and Tuesday, so it was determined that the class would still be held. Only seven participants total went on the field trip, three of which who were participants in the study.

Parker was at YRCC, but he said that he did not want to go on the field trip because he did not feel like cooking on that day. He was told that it was going to be fun and that we were going to go on a fieldtrip. After being told that he could be the YRCC after school director’s helper for the day, he decided to go on the fieldtrip. At 4:10pm, participants lined up and drove in the YRCC van to the local health food store. On the way to the natural health food store, the researcher asked students how their day was going and what their plans for Thanksgiving since it was two days away.

When the van pulled up to the store, participants were told to be careful in the parking lot and walk into the store together. Once in the store, Hannah met participants at the door for her last class involved with Chef YRCC. Hannah introduced everyone to the lady working at the customer service counter right inside the door and the woman told the participants about a little basket that was on her desk filled with little oranges and apples. She told them that they were allowed to take one and whenever they come in, they are always allowed to take a little piece of fruit. The lady also told the participants about the organic foods they have and showed them pictures of farmers that grow their produce that were above the produce section in the store.
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Parker grabbed an apple out of the basket, but accidently dropped it on the ground. The YRCC director told him it was fine to eat, but that he needed to wash it off before he ate it. Parker also stated “Why would anyone shop here?” when participants were walking around the store. The YRCC director told Parker that she used to work there refilling some of the bins that they have on one isle of different foods.

After the completion of the short tour, Hannah directed participants over to the community area of the store where anyone who buys food in the store can eat their food there. There are about ten tables with chairs and a water station with cups available. There were two tables set up with the foods needed to make yogurt parfaits. She had set out the following items in paper bowls on two different tables: blueberries, blackberries, pineapple, strawberries, chocolate granola, mixed nut granola, low sugar granola, dark chocolate chips, shredded coconut and one tub of non-fat vanilla yogurt for each table.

Hannah explained to the kids that they were going to get to make their own yogurt parfait. She said first they were first going to put a layer yogurt, then some fruit, then granola, and then they could start the pattern over again with another layer of yogurt, fruit, and granola. She said they could then top it with dark chocolate chips. The kids did not follow her directions perfectly in that Payton and Mason added a lot of dark chocolate chips to their yogurt parfaits as multiple layers rather than sprinkling a few on top. The dark chocolate chips were gone quickly.

Payton was hesitant to try the blackberry and she asked the researcher what that fruit was called. The researcher told her what it was and told her they are good. She tried it and said it was really sour and that she did not like it. The researcher responded that sometimes they are sweeter and sometimes they are sour and that these were pretty sour. The researcher also told her that it is
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always good to try new foods and its okay if you do not like it, but you will never know if you
like it if you do not try it.

Parker did not like his yogurt parfait and threw away his cup even though it was full. He
said that he did not like it all mixed together. Payton on the other hand made two different cups
of yogurt parfaits and said that she really liked them. At one point, Payton spilled water on the
floor after getting some water from the water station and was asked to clean it up. She told the
researcher she did not spill the water even though the researcher watched her spill the water on
the floor. The researcher was persistent until she helped clean it up. Mason like the yogurt parfait
as well and ate most of it.

Then participants lined up to leave, told Ms. Hannah thank you, and walked out to the
van together. Before we left, the researcher asked Parker if he was glad he came since he almost
did not want to come and he said he was really glad he came and that he had fun.
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Appendix R

Class 6 (December 1st, 2015)

When the researcher arrived at 4:00pm to set up for the class, the multipurpose room was locked and when the after school care director was confronted about where the class would be, she said it would be held in the gym at the white rectangular tables rather than in the multipurpose room because there were items being stored in that room for the holiday coming up. The researcher changed plans and set up the tables right outside the multipurpose room in the corner of the gymnasium. The tables were set up in a “U” shape so that the researcher could stand in the middle and would be seen by all participants. The purpose of this class was to review the information learned in previous classes such as the “MyPlate” information (see Appendix D), information about whole grains, as well as information about how much sugar is in different foods and drinks.

The researcher was the only teacher present for this class. All participants attended except Payton. When the class started, participants were asked if they remembered the “MyPlate” diagram (see Appendix D) that we had leaned in the past. Adrian said she remembered and put out her hands and listed the amount of each food a person is supposed to eat each day. All students then practiced the hand motions after prompting from the instructor. The hand motions were fruits (one hand), grains (one hand and two fingers), proteins (one hand and two fingers), vegetables (two hands), and diary (a small circle with one hand). This exercise is to helped the participants understand the daily amount of each group they need to eat and to understand that they should eat the most vegetables, the least dairy, and a moderate amount of fruit, grains, and healthy proteins. Emily, Addison, and Adrian were confident and remembered the information
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about MyPlate, while Mason, Angie, Darron, Parker, and Tate were hesitant at first, but were able to do the hand motions after they were reviewed by the researcher.

After this, students were handed a piece of paper (see Appendix L) shown a model of how to fill it in the worksheet with the “MyPlate” information. The researcher had a demo worksheet that was already filled out that she showed to the participants to follow. Tate and Parker had some difficulty, being the youngest two participants, but with some help, they were able to fill in some of the information. Emily, Addison, and Adrian wanted to see the demonstration paper multiple times to make sure they were filling out the form correctly. Mason sat there and was not filling the form out and the researcher walked over to him and showed him the demonstration example and asked him which group we need to eat the most of and he responded “I don’t know”. The researcher responded “do you remember which group we used two hand to represent?” and he responded “no”. Then responded “oh wait, vegetables” and I said “yes!” and then asked him which square was the biggest and he pointed to it and then he wrote in “vegetables”, looking at my form to check for spelling.

When the forms were mostly completed, the researcher explained to the participates that they were going to try two different types of Gatorade to determine which one they thought had less sugar and which one they liked better. They were handed a worksheet (see Appendix L) and shown where the sugar was listed on a nutrition label and told that if there is more than ten grams of sugar in each serving, that they needed to not eat that item as a common food item.

For the last part of the class, the researcher told the participants that they were going to review information about whole grains. The researcher asked participants if white rice or brown rice was a whole grain individually. Mason responded that white rice was a whole grain, Emily
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responded with brown rice with a questioning look on her face, Addison responded confidently that brown rice was a whole grain, while Darron responded with white rice and then said “wait, wait, brown rice”. Parker and Tate thought white rice was a whole grain, while Adrian knew that brown rice was a whole grain.

The researcher then walked around with Ritz crackers, package that was whole grain and one that was not but was low sodium. The researcher then held out two crackers to each participant and asked them which one they thought was whole grain. After this, the researcher discussed with everyone that whole grain is healthier for you because it is closer to the natural form of flour and that most of the time, whole grain foods are darker in color than white flour food items.

After this discussion about whole grain and white flour foods, the researcher asked which cracker was a whole grain to the whole group and they all responded, knowing the difference. Then the researcher offered for everyone to have four crackers and they all choose the whole grain cracker over the white flour cracker. Participants seemed excited to choose the whole grain and many asked for more crackers, wanting the whole grain. The researcher told everyone that they were allowed to have more crackers if they wanted.