

# Master of Public Health Field Experience Report

## ***NUTRITION EDUCATION WITH COOKING DEMONSTRATION FOR HEAD START PARTICIPANTS IN RILEY COUNTY***

by

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MPH Candidate

submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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## Summary

This field experience is a collaboration work with Riley County K-State Research and Extension Office. A series of four nutrition education classes was designed and delivered to the parents of under five children participated in Head Start program in Riley County, Kansas. The main goal of this field experience project is to improve parents' knowledge and understanding about healthy food and healthy eating for their children, as well as to promote home-cooked meals and cooking confidence among parents.

Social cognitive theory was used to guide the process of this program from planning, implementation, and evaluation. Self-efficacy, outcome expectation, knowledge, observational learning, and behavioral skills were the constructs of social cognitive theory that became the main focus of this program. The topic of each class was different, covering healthy food and healthy eating, eating healthy on a budget, healthy drinks, healthy snacks, and picky eating. There was a cooking demonstration in each class to promote cooking confidence of the parents. Several strategies were incorporated, including repetitively exposing the participants about simple and important nutrition messages and encouraging parents' participation in class. There were three types of evaluation, including cooking skills evaluation, knowledge evaluation, and program evaluation. At the end of the program, parents showed improvements on their cooking confidence and knowledge about nutrition, and improvements on the awareness of healthy food choice.

**Subject Keywords:** *nutrition education, cooking demonstration, social cognitive theory, Extension Office, Head Start*

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## **Chapter 1 - Field Experience Scope of Work**

Cooperative Extension is a national education system operated by land-grant colleges and universities. The main purpose of extension is to deliver education and communicating evidence-based science to the public through non-formal education. The focus areas of extension comprise of agricultural practices and businesses, families and consumer well-being, and youth leadership (USDA-NIFA, 2017). In the state of Kansas, cooperative extension is administered by Kansas State University.

Riley County K-State Research and Extension Office is part of the Cooperative Extension with the area of coverage in Riley County, Kansas. The office is located in the downtown area of Manhattan, Kansas. The philosophy of Riley County K-State Research and Extension Office is “to help people help themselves by taking university knowledge to where people live, work, play, develop, and lead”. Some of the units in Riley County K-State Research and Extension Office are including 4-H Youth Development, Crops and Livestock, Health and Nutrition, Lawn and Garden, Community Development, and others. Each unit has its own programs targeting a wide range of population group, from children to seniors.

Preceptor or mentor of this field experience is Virginia Barnard, MPH, an Extension Agent of family and consumer sciences. Her areas of specialization including food and nutrition, food safety, health and safety, and indoor environment. She was graduated from Kansas State university as a Master of Public Health with an emphasis in nutrition. She has worked as an extension agent for more than 10 years with Riley County K-State Research and Extension office

The scope of work or the primary focus of this field experience is to collaborate with Riley County K-State Research and Extension Office in designing and delivering a series of nutrition education classes to people in Riley County, Kansas area. We worked together with Head Start program, the Manhattan-Ogden Unified School District 383, to deliver nutrition education to the parents of children participating in Head Start program.

Head Start is a national program of United States Department of Health and Human Services that promotes school readiness for children under five years old. The program helps children from low-income families and their parents to be prepared in

physical, mental, and cognitive, before entering the elementary school (HHS, 2015). Nutrition is part of the comprehensive services at Head Start as the knowledge and the practice of nutrition is important to support growth and developments of the children.

A series of four nutrition education classes was designed for the parents of under five children. The topic of each class was different, covering healthy food and healthy eating, eating healthy on a budget, healthy drinks, healthy snacks, and picky eating. There was a cooking demonstration in each class to promote cooking confidence of the parents.



**Food, Families, and Fun Nutrition Classes**

*Does your family have a favorite food, but not sure if it is healthy or not? Want to know about the best foods for your kids? Worried about what your kids are eating? Do you want to eat healthy on a budget?*

**Come and join this class series for parents and kids!!!**

- ❖ Free meal for the whole family in every class
- ❖ Fun, hands-on activity for kids
- ❖ Certificate for complete attendance at the last class
- ❖ A chance to win door prizes

**Class Schedule**

<b>What's on Your Plate?</b> Date: Tuesday, February 14 Time: 5:30 pm to 7 pm Location: Head Start 1700 Leavenworth St. Manhattan, KS 66502	
<b>Eating Healthy on a Budget</b> Date: Tuesday, February 28 Time: 5:30 pm to 7 pm Location: Head Start 1700 Leavenworth St. Manhattan, KS 66502	
<b>Think Your Drink</b> Date: Tuesday, March 7 Time: 5:30 pm to 7 pm Location: Head Start 1700 Leavenworth St. Manhattan, KS 66502	
<b>Picky Eating and Healthy Snack Party</b> Date: Tuesday, March 14 Time: 5:30 pm to 7 pm Location: Head Start 1700 Leavenworth St. Manhattan, KS 66502	

\*Don't worry if you can't come to all the classes. The more classes you attend, the more chances you get at winning a door prize!

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**Figure 1.1 The Flyer of the Program**



## **Chapter 2 - Learning Objectives**

There were three learning objectives of this field experience: to understand the health and nutrition practices of families attending Head Start in Riley County, Kansas; to increase public health skills including program development, written and verbal communication, problem-solving, and evaluation; understand the role of extension program in the improvement of public health nutrition areas.

### **A. Activities Performed**

As described in the field experience agreement, the main activity is the nutrition education class series. First, the topics for the classes were chosen based on the main eating or nutrition-related problems in local communities. This was done through discussion with field experience preceptor and major professor. The date and place for the program were assigned together with Head Start officer. Then the outline and the curriculum for the classes were designed using the social cognitive theory as a guide. A flyer for recruitment was designed and the copies were distributed to the parents.

The materials for each class were designed using the federal guidelines and many sources from federal programs, extension resources, and many other sources. In each class, the participants received the power-point presentation file, the recipes, and additional materials related to a specific topic of the class. A cooking demonstration was performed at each class. A pre and post evaluation were conducted to measure the cooking skills and knowledge related to the topic. At the end of each class, there was a program evaluation filled by the participants.

Beside these activities, there are other programs I involved in. Junior Chef Class, which is a basic cooking class for the children, the Junior Chef Girls Only Class, and a series nutrition education classes for children in Ogden are the programs that I worked with Riley County K-State Research and Extension Office.

### **B. Products Developed**

The developed products during this field experience process are the curriculum for all the four classes, the presentation files in the power-point format, and the recipes that were performed on cooking demonstration during each of the classes (See

Appendix 1, 5, and 6). The materials were designed to be easily understood by the low-income families.

## **Chapter 3 - Capstone Project / Culminating Experience**

### **A. Introduction of the program**

Food, Families, and Fun Nutrition Classes is a class series designed for the parents or caregivers who are members of Head Start program. Head Start is a national program of United States Department of Health and Human Services that promotes school readiness for children under five years old from low-income families. The main goal of this field experience project is to improve parents' knowledge and understanding about healthy food and healthy eating for their children, as well as to promote home-cooked meals and cooking confidence among parents.

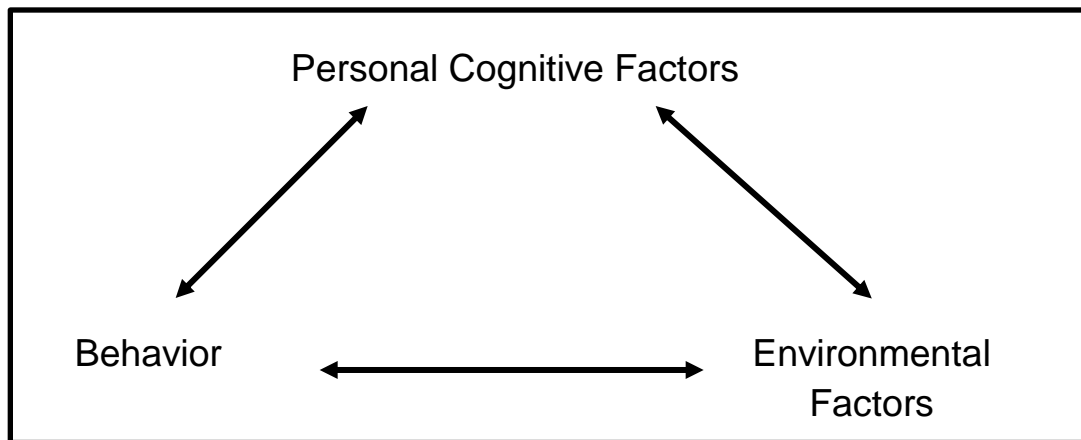
These class series comprise of four classes with different topics. The topics were selected based on their importance and their closeness to the common issues or problems that are faced by the specific target. The parents were expected to attend the whole series to get the complete benefits of each class. The series was also managed to be in a certain order in terms of the material composition. However, parents who cannot attend all classes will still be able to understand the particular class that they attend.

Parents can bring their children in each meeting. There was a separated class and activities for the children. Each class started with eating meal or dinner together and then the children will be lead to a separated room. The duration of each class was about 1 hour, not including the dinner time. The meals for dinner and kids' activities were organized by students from Manhattan Area Technical College.

### **B. Social Cognitive Theory**

Theory is an important part of health communication. "Theory enables the practitioner to predict the outcomes of interventions and the relationships between internal and external variables". Using theory in health communication promotes the success of exchanging information between the educators and the audience, because theory can predict and explain behavior. Theory can be used to guide the process of planning, intervention and evaluation of the program (Corcoran, 2013).

Social cognitive theory was used to guide this class series for Head Start participants. The theory was first developed in 1960s by Albert Bandura. The theory describes that human behavior is explained by a triadic model, including behavior, personal cognitive factors, and environmental factors. The interconnection of these three components is called reciprocal determinism (Kelder, Hoelscher, & Perry, 2015).



**Figure 3.1 Social Cognitive Theory**

The major constructs of personal cognitive factors are including self-efficacy, collective efficacy, outcome expectation, and knowledge. The constructs of environmental factors are including observational learning, normative beliefs, social support, barriers and opportunities. Whereas the constructs of behavioral factors are including behavioral skills, intentions, reinforcement and punishments (Kelder et al., 2015). The constructs of social cognitive theory that became the main focus of this field experience program are self-efficacy, outcome expectation, knowledge, observational learning, and behavioral skills.

Self-efficacy is the main construct of social cognitive theory. It is defined as the confidence on one's own capability to perform a behavior that will lead to an outcome. People with low self-efficacy tend to be pessimistic towards performing a behavior. On the other hand, those with higher self-efficacy tend to be more confident in his or her ability to perform a task successfully. Improving self-efficacy can be done through mastery experiences, social modeling, verbal persuasion, and practice under a stress-

free condition (Kelder et al., 2015). In this nutrition education program, mastery experiences were promoted by showing parents how to prepare easy but healthy recipes. Verbal persuasion was expressed through nutrition education sessions. The main messages about healthy eating were repetitively exposed to the parents. The environment of the class was relaxed and parents' participation was highly encouraged.

Outcome expectation is a person's expectation about the consequences of taking an action. The consequences can be physical and social, short term and long term (Kelder et al., 2015). Parents were taught about the benefits of nutrition during childhood, especially for children under five years old. It was taught that nutrition is an investment and unhealthy eating habit will result in chronic diseases. The benefits of cooking at home using fresh ingredients were promoted to parents.

Knowledge or the understanding about nutrition is an important part of this program. The classes provided important information about healthy food, the importance of healthy eating, the benefits of cooking at home, the limits of added sugar, health risks of consuming unhealthy drinks, healthy snacks, picky eating, and many tips on how to perform the nutrition messages. In order to make sure the knowledge retains, each class was started with reviewing the materials from the previous class(es) except on the first class.

"Observational learning is a type of learning where a person learns new information and behaviors by observing the behaviors of others and the consequences of others' behaviors" (Kelder et al., 2015). Observational learning was promoted through cooking demonstration and class discussions. By observing the cooking process, parents were encouraged to cook simple but healthy food at home. Class discussion was encouraged at every class. Here, parents can share their stories about the topic and other participants can learn from the stories.

The last construct is behavioral skills, which are "the abilities needed to successfully perform a behavior" (Kelder et al., 2015). Parents were taught several skills, including reading food labels and nutrition facts, translating amount of sugar in nutrition facts into teaspoon measurement, cooking skills, making healthy snacks, and making smoothies.

## C. The Program Summary

The summary of the program can be seen in table 3.1 below. The detail of the program can be seen at Appendix 1.

**Table 3.1 Program Summary**

Classes	Objectives	Discussion	Cooking Demonstration
What's on Your Plate? (02/14/17)	Increase knowledge about basic nutrition, the principles of healthy food, and role of healthy eating for children	Why healthy food is very important for the kids? What is healthy food and unhealthy food?	Rainbow Quinoa
Eating Healthy on a Budget (02/28/17)	Increase knowledge and understanding about food label and nutrition facts, share tips and tricks on eating healthy while still on a budget, promote cooking at home	Is healthy food more expensive? What are the benefits of cooking at home? Tips on being on budget	Creamy Pasta with Peanut Butter Sauce
Think Your Drink (03/07/17)	Increase knowledge and understanding about added sugar and naturally occurring sugar, health risks of consuming too much sugar, limit of sugar per day, limit the 100% juice, the amount of sugar in popular drinks, healthy drink options	What drinks do you have every day? Are they healthy and safe? What is the recommendation of sugar intake in a day? Why we should limit sugary drinks? What about 100% juice?	Three smoothies' recipe: Peach Banana, Mixed berries, and Simple Green Smoothies
Picky Eating and Healthy Snacks (03/14/17)	Wrap up the lessons from previous classes, increase the knowledge about healthy snacks and healthy snacks options, encourage healthy parenting on parents especially when facing picky eaters	Do you remember? How much fruits and vegetables per day for adults and for children? What are your favorite healthy snacks? What's most important at meals?	Fruit crepes and dipping sauce

Some strategies were used in this nutrition education program. Important messages were communicated using simple and repetitive messages throughout the classes. For example, healthy food is food that is balanced, varied, whole, and colorful.

This message along with the short explanation were exposed to the parents repeatedly. Parents participation was encouraged in the class to promote observational learning and class engagement. Parents were motivated to prepare home cooked food and to choose healthier options of foods and drinks. The motivation will contribute to confidence and self-efficacy improvements. Cooking demonstration was also one of the strategies to improve parents' confidence and skills to cook at home and to choose healthier food options for their families. Recipes were chosen based on the topic of each class, the simplicity of the making process and the ingredients, and the appropriateness as healthy food.



**Figure 3.2 The Process of Cooking Demonstration**

## **D. Project Evaluation**

There were three types of evaluation in this program, cooking skills evaluation, knowledge evaluation, and program evaluation

### ***Cooking Skills Evaluation***

Cooking skills evaluation was done by filling the self-administered pre and posttest comprise of 7 questions including 4 questions about cooking confidence, 1 question about cooking practice, and 2 questions about attitude (see Appendix 2 and 3). These questions were developed for low socioeconomic participants and the process of designing the questionnaire is explained in Chapter 4.

There were 9 people who filled the evaluation form. However, only 5 people who did fill both pre and posttest. Four other people either did not come at the last class where the posttest was administered or only came at the last class. Five people that did both pre and posttest completed the class series. Among them, one person had the highest cooking skills measurement since the first class based on the questionnaire. Based on the interview, this person cooks every day and also passionate about cooking, and very confident about cooking. Therefore, there was no change on cooking skills after attending the program.

Four other people had improvements in their confidence level. One person had four points improvement on the confidence on being able to cook from raw ingredients. One person had four points improvements on the confidence of following a simple recipe while another person had two points improvement for the same measure. One person had four points improvements on the confidence of tasting new food, one person had two points improvement, and one person had one point improvement on the same measure. One person had five points improvement on the confidence of cooking new foods and recipes and one person had one point improvements. Two people reported cook more often at the end of the program.

### ***Knowledge Evaluation***

The evaluation of knowledge and understanding about the topic was done through the discussion questions. There was no written test since the parents already



had cooking skills evaluation and program evaluation which were written tests. However, discussion part acted as a brainstorming of parents' knowledge before the class began. At the end of the class, there was a session "do you remember", which served as a posttest to determine the knowledge and understanding that were gained at the end of the class.

### ***Program Evaluation***

Program evaluation sheets were filled by participants at the end of each class to express their thought, suggestion, and comment about the program. This evaluation comprised of four open-ended questions. Generally, participants had positive comments about the classes. Here are some of the comments they made:

"I didn't ever check the nutrient facts on labels but now I will be making sure I read them".

"It was very well organized"

"Lots of good information about what we eat and drink"

"I will make it and make sure I watch what I give my kids and myself for now on"

"I love learning new recipes!"

"These past Tuesdays have been fun!"

"The handouts were very professionally made"

"They showed us how to cook fast and nutritious"

"It was very interactive and I love getting new recipes"

"I expected to learn how to shop on a budget and get really good tips"

A participant showed a picture of smoothies that she made at home following the recipe and demonstration from previous class.

### ***Limitation and Recommendation***

The main limitation of this program was probably the variation on the number of families attending each class. There were families that always attended the classes, but some of the families only came one time or not came at the last class. This made the

pre and post evaluation cannot be done properly, and some families missed the benefits of the class(es) they did not show up. The future programs need to design the methods of recruiting participants and to make sure having the participants committed to the whole class series.

## **E. Culminating Experience**

### ***MPH 785 - Introduction to Epidemiology***

This class taught me various terminologies on morbidity and mortality, and how to measure them. I learned about types of study and the characteristics of each study. I also learned about some aspects that impact the study including bias and confounding. This basic knowledge is very important for me in many ways. The lessons helped me in distinguishing types of study when I read papers for my master's report and field experience work. The knowledge about measurement of morbidity and mortality is vital whenever I look for information about current data in the United States and other countries.

### ***MPH 701 - Biostatistics***

Biostatistics taught me about the foundation of statistical tests in health-related areas. This class helped me understand the basic knowledge of measure of location, measure of dispersion, descriptive statistics, probability, screening tests, discrete and continuous probability distribution, hypothesis testing, sample size, and power in research. Understanding the concept of statistic guided me to do my literature review for developing evaluation tools I used in my field experience project.

### ***MPH 802 - Environmental Health Sciences***

Through this class, I had learned about many aspects of environment, such as food that we eat every day, the energy that we utilized, diseases and disasters that are caused by interactions with nature, how products are created, and how food is produced. As a person who works in nutrition area, I have learned about the effects of

bioaccumulation and bio-magnification of pollutants on our food sources. This class taught me the production of the modern crop, livestock, fishing, and organic food. The regulation of food production up to food labeling was also taught. This class helped me in understanding the food system and the environmental hazards in food.

Understanding these concepts was very helpful to make wise food choices and thus, it helped me on the process of designing the materials for my field experience project. I also visited Biosecurity Research Institute to learn how the threats from crops and animals are studied.

### ***MPH 720 - Administration of Health Care Organization***

This class helped me understand health system in the United States. As an international student, there were many new information that I have learned through this class. I had gained my understanding about how Americans see healthcare, the system of affordable care act, and how every state can have different policies in health care. Through this class, I learned about health care benefits for low-income population, which I work with during my field experience.

### ***MPH 818 - Social and Behavioral Sciences***

This is the first class that introduced me to the theories of behavioral change. The theories and their application were introduced in this class. One of the theories that was taught, social cognitive theory, was used as a guide on planning, implementing, and evaluating my field experience nutrition education program.

### ***FNDH 600 - Public Health Nutrition***

This class taught me the major problems of nutrition in the United States and other countries. There were two class projects that I performed: the nutrition education program and the food security learning project. We did nutrition education for army's children at Fort Riley Military Base. The process of designing and implementing nutrition education had given me skills and experience that I needed for my field experience work. I volunteered in Riley County Senior Center and food pantry at Grace Baptist Church for my food security learning project. I learned how government and local organization work on preventing food insecurity in the United States.

### ***FNDH 844 - Nutritional Epidemiology***

This class taught me more detail about epidemiology and more specifically about nutrition research. This class gave me research skills and helped me build critical thinking. Detail observation was done to differentiate the types of study, the methodology, the results, and the interpretation of the results. This class helped me to analyze the closeness of the research findings to the fact. The skills that I obtained from this class had guided me to work on my papers, the master's report, presentations, and field experience program.

### ***FNDH 820 - Functional Foods for Chronic Disease Prevention***

This class taught me unique topics about how some foods have functional components and therefore are categorized as functional foods. I had learned about the regulation of functional foods, the mechanism of actions of the active components on preventing chronic diseases, and the current research on specific functional foods. The knowledge and understanding that I gained from this class had helped me in designing the materials for my field experience project.

### ***FNDH 880 - Graduate Seminar in Human Nutrition***

This class taught me the skills of making a good presentation, from designing presentation materials, inserting video into a presentation, body language during a presentation, and many tips on how to be a good presenter. The skills that I gained from this class had helped me to be better on doing a presentation for both class presentation and field experience nutrition education class series.

## **Chapter 4 - Development of Cooking Skills Questionnaire for EFNEP participants in Kansas**

It is mentioned in Chapter 3 that self-administered questionnaire was filled pre and post program to evaluate the impacts of nutrition education with cooking demonstration class series on participants' confidence, practice, and attitude towards cooking. This chapter explains the process of developing the tool or questionnaire that was used for cooking skills evaluation. The tool itself was designed for EFNEP participants in Kansas. However, considering EFNEP and Head Start participants share similarities especially in socioeconomic background, this tool might be effective for evaluating cooking skills improvement among Head Start participants.

### **A. Introduction**

Over the past four decades, there have been major shifts in the dietary patterns of people in the United States. Compared to the 1970s, both younger and older people today eat out more frequently (Guthrie, Lin, & Frazao, 2002). Obviously, the consumption of fast food is more frequent due to its convenience and its time-saving trait. This trend is evenly distributed in the population across different age groups, income levels, and other socioeconomic profiles. On average, about one-third of the total daily energy consumption came from fast food (Bowman & Vinyard, 2004; Paeratakul, Ferdinand, Champagne, Ryan, & Bray, 2003). These have become critical public health concerns since the nutritional quality of typical fast food, along with the other non-home-based food, is lower than home-prepared food. Studies found that these types of foods were lower in essential nutrients such as calcium, magnesium, vitamins, and fiber, and they also contain significantly more energy, fat, sodium, and sugar (Bowman & Vinyard, 2004; Guthrie et al., 2002; Paeratakul et al., 2003).

Not only fast food, but also the consumption of convenience food products is increasing. Convenience food products are distinguished for their features in minimizing the amount of time, physical energy, and mental energy needed in food planning and preparation (Brunner, Van der Horst, & Siegrist, 2010; Buckley, Cowan, & McCarthy,

2007). The study of the consumption patterns of the US population in 1980s showed that the demand for ready-to-eat and ready-to-cook foods were increasing. This trend was associated with a variety of factors, including age, gender, time constraint, and the availability of a microwave oven in the household (Park & Capps, 1997). US food industries offered a huge range of prepared foods that only required very little in preparation such as reheating (Lang & Caraher, 2001). It was reported that the increase of total energy intake in US children from the late 20th century to the early 21st century was mainly due to the consumption of food prepared away from home and perhaps store prepared foods (Poti & Popkin, 2011). A study conducted in Brazil demonstrated the changing of eating pattern of the population. Compared to three decades ago, Brazilian households nowadays consumed more ready-to-eat or ultra-processed foods, which have less nutritional quality compared to the less-processed foods (Monteiro, Levy, Claro, de Castro, Inês Rugani Ribeiro, & Cannon, 2011). The same trend was shown in Ireland as the reliance of pre-prepared food is increasingly demonstrated in the population (Mac Con Iomaire & Lydon, 2011).

As the reliance on fast foods as well as convenience foods or prepared foods has emerged, the practice of cooking from raw ingredients or cooking from scratch is declining, as it is seen as a time consuming activity (M. D. Condrasky & Hegler, 2010; Lang & Caraher, 2001; Mac Con Iomaire & Lydon, 2011; Pettinger, Holdsworth, & Gerber, 2006). This, then, raised the theory of diminishing in cooking skills in the younger generation as those skills were less performed. However, the “high tech” hypothesis argued that the cooking skills were not really diminished. The skills transformed from cooking from scratch into utilizing more technology to cook (Lang & Caraher, 2001; Short, 2003b).

Apart from the theories of whether the skills were declined or transformed, cooking skills were seen as an important determinant of food choice and so consequently to overall health. Cooking skills were recognized as one of the most important drivers of choosing convenience food products including fast food (Brunner, Van der Horst, & Siegrist, 2010; Hartmann, Dohle, & Siegrist, 2013; Lang & Caraher, 2001; Mac Con Iomaire & Lydon, 2011; Van der Horst, Brunner, & Siegrist, 2011). Not being able to cook limits one’s ability to choose healthier meal and increases

dependence on fast food or prepared foods (Lang & Caraher, 2001; Mac Con Iomaire & Lydon, 2011). Having proper cooking skills was associated with increased vegetable consumption (Hartmann et al., 2013).

One of the barriers in cooking was lack of knowledge about how to cook. (Lang & Caraher, 2001; Soliah, Walter, & Antosh, 2006). It was argued that an intervention program in the form of nutrition education alone will not be implemented effectively if there is no hands-on skills demonstration (Caraher & Lang, 1999). Today, there are several cooking skills interventions which combine nutrition education and practical cooking skills. These programs feature goals to improve nutrition knowledge and cooking skills, and more importantly, improve poor eating habits. One program offered nationwide is the Expanded Food and Nutrition Education Program (EFNEP) (M. Condrasky, 2006).

EFNEP is a community-based nutrition education program that has been running nationwide in the US since 1969. The program's focus is to assist the low-income participants to improve their nutritional well-being. One of the hallmark EFNEP activities is a healthy cooking class delivered simultaneously with nutrition education (USDA-NIFA, 2015).

As mentioned above, cooking skills programs that combined nutrition education and cooking skills have been conducted. However, the evaluation of their impact has not been properly demonstrated. One of the reasons was due to the lack of validated tools to measure the impact of a cooking skills program (Barton, Wrieden, & Anderson, 2011). Some studies were done outside the US to develop a validated tool designed to measure the impact of cooking skills program (Anderson, Bell, Adamson, & Moynihan, 2002; Barton et al., 2011), and to measure the food skills (Vrhovnik, 2012).

Evaluation is an important part of EFNEP's success. There is a nation-wide evaluation system for EFNEP that is used for evaluating various components of the program, including the nutrition education program (Condrasky, 2006). Although the behavior checklist and the 24-hour dietary recall (the evaluation tools of EFNEP) already cover some items related to cooking skills (Short, 2003; Short, 2003a), the tools were not designed specifically for evaluating cooking skills. Therefore, using these tools alone would not be effective to measure the impact of a cooking skills intervention. It is

important to design or identify a specific tool so that the impact of cooking programs can be measured properly.

## **B. Literature Review**

### ***Defining Cooking and Cooking Skills***

Although they are easily recognizable, the terms ‘cooking’ and ‘cooking skills’ are not simple to explain. This chapter reviews recent studies and discussions about defining cooking and cooking skills.

As mentioned earlier, there was a debate about whether cooking skills were diminished or transformed. The theory of diminishing cooking skills argues that the heavy reliance on fast foods and ready meals, as well as using new technology in cooking, has led to the decrease in cooking skills. This is claimed to have happened mainly in younger generations. This theory is supported by factors such as the withdrawal of cooking skills curriculum in UK; the more women working that could lead to decreased cooking skills, since women were historically the ones who taught the skills to the next generation; and the introduction of a wide range of ready foods and ingredients (Caraher & Lang, 1999).

Conversely, the theory of transformed cooking skills or high tech theory emerged with some supports. Although the use of relatively new technologies in cooking, such as microwaving, was seen as impacting in “de-skilling” the ability of people to cook, it was argued that involving new technology actually means learning new cooking skills. Whether using a microwave or stove to prepare food and cook, both techniques require cooking skills (Lang & Caraher, 2001; Short, 2003)

The other supporting argument of high tech theory was based on the extent of skills used. It was argued that all of the cooking types: cooking with raw ingredients, cooking with pre-prepared food or frozen ingredients, and cooking with the combination of raw and pre-prepared ingredients need some extent of cooking skills. Cooking pasta with ready sauce needs more or less the same extent of skills compared to making sauce from raw ingredients (Short, 2003; Short, 2003). Cooking with the combination of



raw and prepared ingredients was found as a common practice (Mac Con Iomaire & Lydon, 2011).

However, it is possible that not all the cooking activities that involve pre-prepared food need cooking skills. A study of over a thousand adults in Switzerland showed that having lower cooking skills was significantly associated with higher intake of ready-meals. In this study, what is meant by ready-meal is that the meal that requires only a few other or even no additional ingredients and it is intended to replace the main home-based food. Preparing this type of meal, which only needs a very few touches such as reheating, obviously required less skills and effort (Van der Horst et al., 2011).

The debate of changes in cooking skills has triggered the question about what cooking and cooking skills mean. It is argued that cooking skills are not merely technical skills, but rather a complex combination of different tasks and abilities. Other than mechanical skills, cooking skills are comprised of “perceptual and conceptual abilities”, “creative and organizational skills”, “academic knowledge”, and the “difficult to classify” skills (Short, 2003a; Short, 2003b). This division of cooking skills was then confirmed in a review. The term cooking competence was added and defined as a combination of knowledge about nutrition and food preparation skills (Ternier, 2010).

Mechanical skills consist of various food preparation techniques such as boiling, poaching, grating, flipping, microwaving, unwrapping, and others. The example of perceptual and conceptual abilities is knowing the physical properties and tendencies of ingredients when they are raw and cooked, or knowing the exact time when certain food is fully cooked with a desirable texture, or being able to conceptualize the final product of food. Creative skills include, for example, using leftover or available food to create meal or trying new recipe based on food eaten outside home. Organizational ability is exemplified as the time management in cooking or cooking different meals at the same time. Academic knowledge was defined as a broad spectrum of knowledge about food safety, nutrition, food chemical and physical properties, and others. The “difficult to classify” skills were, for example, the ability to do multiple tasks while cooking, and the ability to prepare food that meet people’s satisfaction and preference, and the ability to cook under stress (Short, 2003a).

In the other study, the author (Short, 2003b) added one dimension of cooking skills, tacit skills, which were defined as the skills of "judgement, timing, planning, designing meals". These skills were linked to cooking confidence -- that is, having these skills was associated with higher cooking confidence (Short, 2003b).

The terms 'cooking from scratch,' 'cooking from raw ingredients,' 'eating pre-prepared foods,' or 'eating ready meals,' were often time used to describe and categorize the way people prepared their food. For example, the study that compared cooking practices among French and English populations used the term "cook from raw ingredients" and "using ready meals" to distinguish two different ways of cooking at home (Pettinger et al., 2006). However, the extent of difference between the two was not clearly explained in that study or in other studies. For example, if the respondent combined raw and pre-prepared ingredients, it was not explained under which way this practice would fall (Pettinger et al., 2006).

It was reported in a study about cooking skills among college students that the researcher had a difficulty in defining 'cooking' and 'cooking skills' (Kourajian, 2015). Researchers of a study in Australia used the term of cooking as "the everyday tasks of preparing and providing healthy food for a household" (Foley, Spurr, Lenoy, De Jong, & Fichera, 2011).

One study (Lavelle et al., 2016) urged the need of defining "cooking from scratch" from health authority because of the ambiguity in this term. It was not easy to understand the relationship between cooking skills, cooking skills intervention, and healthy eating. This is possibly due to the lack of the standardized methods of cooking skills evaluation (Reicks, Trofholz, Stang, & Laska, 2014) which is then linked to the inconsistency of the definition of cooking and cooking skills.

Currently, there is no specific definition or a consensus to define the meaning of cooking and cooking skills. The current situation of widely available pre-prepared food as well as the growing technology involve in cooking make it hard to define what cooking is. It is argued by many researchers that there is a need to redefine cooking and cooking skills because of the heavy reliance on both technology and pre-prepared food. (Lang & Caraher, 2001; Mac Con Iomaire & Lydon, 2011; Short, 2003; Ternier, 2010).

## ***Factors that Impact Eating and Cooking***

### ***Socioeconomic Dimension of Eating and Cooking***

Eating patterns and cooking practices were associated with socioeconomic dimensions. A study of working parents with preschool children in Canada showed that parents with university degrees were rarely eating in fast food restaurants and rarely using takeout service or buying ready meals. They were also more likely to plan ahead the menu for the upcoming week (Morin, Demers, Turcotte, & Mongeau, 2013). The study of Australian households indicated that higher education and higher socioeconomic background were associated to having higher cooking confidence (Winkler & Turrell, 2010). The same finding was stated in the study of UK population that adults of lower socioeconomic status had lower cooking confidence (Adams et al., 2015).

### ***Gender***

It was reported in a study in Switzerland that males ate ready-meal food more often than females (Van der Horst, Brunner, & Siegrist, 2011). A relatively large study conducted with Swiss adults discovered the similar result -- that women had significantly higher perceived cooking skills than men in all age groups (Hartmann, Dohle, & Siegrist, 2013). A study done with UK adults revealed that adult women had higher cooking confidence than men (Adams et al., 2015). This was coherent with a study of households in Australia (Winkler & Turrell, 2010). A study about cooking skills among college students in the US reported that college-aged women cooked more and ate fast food less frequently than men (Kourajian, 2015).

### ***Cooking Skills***

Cooking skills might be a determinant of eating pre-prepared food. Study of adults in Switzerland found that having lower cooking skills was associated to high intake of ready-meal (Van der Horst et al., 2011). A qualitative study in Scotland found that high cooking confidence was linked to the ability to cook wider variety of food, higher food preparation knowledge, and being more adventurous in trying new recipes. Conversely, lower confidence was linked to a reluctance of trying new recipes, lower

knowledge about food preparation, and the high frequency of using ready meals that only required a microwave to prepare (Stead et al., 2004). Although the relationship was not causative, it indicated that lower cooking skills was related to the increasing intake of ready-meals or convenient food. Participants in an Ireland study believed that the absence of cooking skills means one will be dependent on take-away food or pre-prepared food (Mac Con Iomaire & Lydon, 2011).

### *Self-Efficacy and Cooking*

Studies found the association between self-efficacy with cooking and eating patterns. Higher self-efficacy was associated with eating home-based food, while lower efficacy was related to eating away and fast food consumption. Having higher self-efficacy was also related to better menu planning (Morin et al., 2013). Similar finding confirmed that self-efficacy was found to having positive relationship with cooking from scratch (Lavelle et al., 2016). A study also found that higher self-efficacy was linked to higher intake of vegetables (Kourajian, 2015).

### *Age*

Age was found to be a predictor of convenience food consumption. It showed that the older the subjects, the less likely they were to consume convenient products and the youngest group of respondents ate ready-meal more often (Brunner et al., 2010; Van der Horst et al., 2011). Younger adult population was reported as having lower cooking confidence compared to older adult population in UK (Adams et al., 2015).

Even though studies showed that age was a strong predictor of cooking and eating patterns, it might not be applied to all community. Studies that compared the cooking practices in younger adult and older adult in one part of the Scotland showed an interesting finding that the practice of cooking between younger and older participants was very similar. There were significant differences, for example the frequency of washing and peeling vegetables were more often in older participants, and the older participants were also less likely to eat out. However, other practices were not very different between older and younger participant, and some practices such as baking in oven was more frequent in younger participants. That study implied that older

people might have adjusted their way of cooking to become more modern, using microwave, for example, and dried vegetables (Lyon et al., 2011).

### ***Nutritional Knowledge***

Study found that the higher the knowledge about nutrition, the lower the consumption of convenient food products (Brunner et al., 2010). A study among a group of college women indicated that the main reasons why the participants were unable to prepare basic food were the lack of knowledge about how to prepare foods and the lack of attitude or interest in learning new cooking skills (Soliah et al., 2006).

### ***Responsibility***

Some studies showed that those who lived alone ate ready-meals more often compared to those who lived with other people (Van der Horst et al., 2011). Compared to female participants, cooking skills were more related to cooking enjoyment in males which led to the hypothetical view that cooking for males was seen as the mood-based activity, in contrast to females who practiced cooking as a part of daily responsibility (Hartmann et al., 2013).

It was indicated that having higher cooking confidence might be due to one's role and responsibility as the main person who prepares food for the family (Adams et al., 2015). A study in Australia showed that cooking confidence was higher among the respondents who lived with child (or children). It was indicated that the sense of responsibility that one should prepare food for others might cause an increase of cooking confidence. Also, those who did not live with other adults reported less confidence in cooking vegetables, which also reflected that less responsibility may lead to less cooking confidence (Winkler & Turrell, 2010).

### ***Cooking Enjoyment***

It was indicated that cooking activity was related to psychological determinant. Cooking enjoyment, compared to other psychological variables, was found to be the strongest motivation for cooking, especially in male participants (Hartmann et al., 2013).

### ***Other Factors Impacting Cooking***

The findings of a study about the barriers and the facilitators of cooking from scratch noted that the barriers included time constraints, saving money and preventing food waste, convenience, family choice, and the effect of low self-efficacy. The facilitators including the willingness of living healthy, cooking inspiration from many sources, meal management, and self-efficacy (Lavelle et al., 2016). College participants in a cooking skills study agreed that cooking was a time consuming activity and "takes too much time" even though most of the participants said they liked to cook (Kourajian, 2015). Having concern about eating natural food was associated with less consumption of convenience food (Brunner et al., 2010).

### ***Measuring Cooking Skills***

Because there is no universal definition of cooking skills, the measurement of these skills was varied across studies. This section shows and discuss the studies that involving cooking skills measurement.

A study about determinants of ready-meal consumption in Switzerland measured cooking skills by the ability of preparing different types of food (Van der Horst et al., 2011). In that study, cooking skills were defined not by the process of cooking itself, but by the final products of cooking. Similar type of measurement was used in Swiss' study which connected cooking skills with consumption, sociodemographic, and psychological variables. A relatively simple questionnaire consisting of seven questions about the ability of preparing types of food was used (Hartmann et al., 2013).

As cooking skills incorporate many different skills, measuring cooking skills needs to take into account of those skills. In order to begin the tool development, a comprehensive list of questions about cooking skills was proposed. It included self-assessment of different mechanical skills (e.g. steaming, stir-frying, boiling, poaching, stewing, etc.), meal planning, an ability to visualize the final meal, doing other tasks while cooking, food handling knowledge, knowing the time needed for preparing meals, using leftovers to create other meals and other skills (Ternier, 2010).

The term 'food skills' was used in the literature interchangeably with cooking skills. A pilot study was done in Canada to develop cooking skills measurement tool for

a specific population. The result was a validated questionnaire consists of 37 questions of attitude and behavior towards cooking, time spent for cooking and purchasing food, factor that influences cooking, and the biggest part was the confidence of different skills in cooking. The last questions in the questionnaire were about personal and sociodemographic traits (Vrhovnik, 2012). The items covered in this validated tool were coherent with the suggested tools by previous studies (Short, 2003; Ternier, 2010)

A study examining cooking skills among college women and those skills' relationships with eating and BMI incorporated some measurements designed to capture cooking skills and cooking practices. Cooking responsibility and grocery purchasing were asked. The food preparation frequency section consisted of five questions about the frequency of preparing different types of meal with a five-point scale ranging from daily to never. Different cooking skills including managing or planning menus ahead of time, following recipes, and using more than three ingredients were incorporated in the tool. There was also a section measuring cooking attitude with four scales from strongly agree to strongly disagree. The last part was the perceived cooking skills which was measured by four confidence scales. This part consisted of questions rating respondents' confidence in preparing different meals and using different methods of preparation (Kourajian, 2015).

The other study from the UK quantified cooking skills by several measurements. First was the measurement of confidence on performing eight cooking techniques. It was followed by asking confidence of cooking ten different food ingredients. These confidence tools were not scale-based, but rather yes or no questions. The respondents were also asked about their ability in preparing ready-prepared food, making meals from pre-prepared ingredients, and cooking from basic ingredients. They were asked if they could cook without help, with little help, with a lot of help, or not able at all. A question about cooking frequency was also asked (Adams et al., 2015).

### ***Measuring the Effectiveness of Cooking Skills Program***

Designing a tool to measure the effectiveness or impact of a cooking skills program needs to consider the context of each program. Tools to evaluate the impact of

cooking skills class for children (Anderson et al., 2002) should be different than those used with the adult cooking class. Measuring the impact of a cooking skills intervention that targets the lower socioeconomic group (Barton et al., 2011) would need to be different than an intervention used with the general population.

Wrieden et al. (2007) did an evaluation of community-based cooking skills programs in low socioeconomic community. At the end of evaluation, the retention rate was low. It was argued that the evaluation, especially the length and the detail in questionnaire had created the subject burden and therefore resulted in low retention rate. With this barrier, the true impact of the intervention might not be accurately evaluated.

In another study, a new simplified tool was created and validated to measure the impact of cooking skills program for the lower socioeconomic group. It was designed as a simple self-administered evaluation tool for pre and post program. It includes the items of cooking confidence, eating habits, knowledge about good practices, and the demographic questions. When all questions but the demographic ones were considered, there were 19 in total (Barton et al., 2011).

The nineteen remaining included questions about participants' current cooking style, cooking frequency, four confidence questions, six questions of the frequency of eating groups of food, food consumption questions and food safety questions. The last page of the questionnaire incorporates personal information. For the post intervention questionnaire, there is a rubric of participant's opinion on the cooking course/program (Barton et al., 2011). The tool was adapted and modified by Garcia et al. (2014) for their study of evaluating cooking skills program on a deprived area in Scotland.

Jamie Oliver's Ministry of Food was one of the largest community-based cooking skills program. This is a 10-week program that was first held in UK in 2008. It was then applied in Queensland, Australia, in 2011 (Flego et al., 2014). The Australia program did not target specific audience. However, the program is designed to reach the lower socioeconomic group in communities and groups with higher prevalence of obesity. The evaluation to measure the program's impact was conducted three times: before, immediately after, and 6 months after the program to determine the medium term impact. The program emphasized cooking from scratch. It involved the teaching of



cooking techniques, nutrition knowledge, and discussion about issues such as menu planning. The main outcomes were the spectrum of cooking confidence and the actual practice of cooking and eating. Positive outcomes were reported in the increase of cooking confidence, increase of vegetable consumption, more cooking from basic ingredients, and less consumption of take-out meals (Flego et al., 2014). The secondary outcomes of the cooking skills intervention included measuring the attitude and behavior of food purchasing, the knowledge, attitude, and behavior of cooking and healthy eating, the enjoyment and satisfaction of cooking, and the social eating. Beside the quantitative evaluation of primary and secondary outcomes, the qualitative evaluation was also conducted in order to have a deeper understanding about program's impact on participants (Herbert et al., 2014).

The evaluation of the same program, Jamie Oliver's ministry of Food in Leeds, UK, used both quantitative and qualitative evaluation. The quantitative evaluation comprised of simple indicators of fruits and vegetables intake, snack intake, and cooking confidence, whereas the qualitative evaluation comprised of the structured open-ended questions. By using the qualitative evaluation, wider impacts of cooking skills were discovered. The social connectivity of cooking was one impact that was notably reported by participants. This outcome could have been possibly discovered because of the inclusion of open-ended questions in qualitative evaluation (Hutchinson, Watt, Strachan, & Cade, 2016).

A purely qualitative evaluation was used to determine the impact of a cooking workshop -- a cooking skills class with nutrition education in Australian urban indigenous community. Participants of cooking class shared their experiences and perceived benefits of the class in discussion settings. There was no information for why the researchers applied the qualitative method only. However, it was mentioned that the intervention was targeted to indigenous population with low socioeconomic background and low literacy. The use of discussion rather than self-assessment method to evaluate the program's effectiveness might be due to the consideration of participants' characteristic (Foley, Spurr, Lenoy, De Jong, & Fichera, 2011).

Measuring the impact of cooking skills intervention might also depend on the goal of the program itself. Intervention program that focuses on improving participants'

healthy eating might need to evaluate the impact of the program on food or nutrients intake. The example was the study in UK in which the main goals were to increase the intake of carbohydrate, especially starchy food, and to reduce the intake of fat. Because the main goal was the amounts of nutrients intake, the evaluation on program's impact was conducted by analyzing participants' food diary. In this case, effective program was marked by the improvement of starchy food eating and the reducing of fat intake (Curtis, Adamson, & Mathers, 2012).

### ***Expanded Food and Nutrition Education Program (EFNEP)***

The Expanded Food and Nutrition Education Program (EFNEP) is a federally-funded, community-based nutrition education program in the US focusing on the low-income community. This nationwide program was initiated in 1968-1969 in four states: Illinois, Michigan, Minnesota, and New York (Brink, 2000). Today, EFNEP has grown as one of the most sustained national program through the land-grant university system in all of the states, including District of Columbia and US territories (USDA-NIFA, 2015).

EFNEP has been helping low income families to reach nutritional well-being. What it means by low income family is the family who earns 185% or less of the federal poverty guidelines. Families who enroll in any of the federal assistance programs such as Women, Infants, and Children (WIC), Supplemental Nutrition Assistance Program (SNAP) or Head Start are automatically eligible to be EFNEP participants. This is because these federal assistance programs are also using the same federal poverty guidelines for the recruitment process (UHawaii, 2012; USDA-NIFA, 2015; UTEExtension, 2012).

There are four priorities in EFNEP including the improvement of diet quality and physical activity, improvement of the ability in food resource management, improvement of food safety and the improvement in the family food security. EFNEP participants ranging include low income adults, caregiver, low income pregnant women, low income adolescents, and low income children or pre-adolescents (USDA-NIFA, 2015).

Evaluation has been an important part of EFNEP. Evaluation is done pre and post program completion for the results need to be submitted to federal report (Hoerr et

al., 2011). The national evaluation is the behavior checklist consists of ten item questions with the five range answers from never to always/almost always. The ten behavior questions including the frequency of plan meals ahead of time, doing comparison of food prices, the frequency of running out of food, doing grocery list, let the perishable foods sit out for more than two hours, thawing frozen food not in the fridge, considering healthy choices in food, adding salt, reading nutritional fact, and eating within two hours of waking up (USDA). In the state of Kansas, there are four more questions in addition to the national checklist. They are the questions of the frequency of buying low-salt food products, washing hands before preparing food, soda consumption, and eating with family. In addition to the checklist, the 24-hour intake recall sheet is also used to evaluate the actual food consumption.

### **C. Methodology**

The aim of this report is to develop a self-administered tool or questionnaire that could be used to measure the impact of cooking skills intervention among EFNEP participants. Because EFNEP participants are low income population, the challenge of designing the tool is to incorporate the complexity of cooking skills and at the same time respecting the need to be easily administered so that the tool will not put a huge burden on participants. As it is mentioned in a study that a very detailed evaluation tool might be ineffective to measure the impact of cooking skills program in participants with lower socioeconomic background (Wrieden et al., 2007).

Beside the consideration of the socioeconomic background of the participants, the proposed cooking skills questionnaire is designed to be administered by the adult participants, because the tool is going to be used to evaluate the cooking skills intervention for adult. The last consideration will be the location. Although there is a nation-wide behavior checklist, every state (with District of Columbia and US territories) has its own evaluation in addition to the existing checklist. This proposed tool will be focusing on EFNEP participants in the state of Kansas, although it is possible that the tool can be used for any state with some adjustments.

Before designing a new tool to evaluate cooking skills, it is essential to look into the Kansas EFNEP's evaluation tool, what are the measurement items that are already covered, to ensure the efficiency of evaluation and to prevent the overlapping evaluation. The items that have already been covered in the EFNEP behavior checklist are: 24-hour dietary recall; food resource management items (plan meals ahead of time; compare food prices before buying; shop with grocery list); diet quality items (think about healthy food choices; add salt; read/use nutrition fact; buy low salt foods; drink soda regularly; eat with family); food safety items (let perishable food sit out; thaw frozen foods at room temperature; wash hand before preparing food); food security items (run out of food; eat something within two hours of waking up); daily physical activity item; money spent on food last month; and participant's basic personal information which is also covering the ethnicity, education level, and average income.

Several parts of the Kansas EFNEP behavior checklist fall into cooking skills evaluation domain. The food resource management items are considered as part of the cooking skills' "menu planning" and "meal management" (Flego et al., 2014; Kourajian, 2015; Morin et al., 2013; Short, 2003; Ternier, 2010) b; Ternier, 2010). Two of the diet quality items in EFNEP behavior checklist, think about healthy food choices and read/use nutrition fact as well as the food security items are considered to be part of cooking skills' "knowledge" (Barton et al., 2011; Flego et al., 2014; Herbert et al., 2014; Short, 2003; Ternier, 2010).

Although EFNEP regular evaluation tool accommodates cooking skills components, using the existing tool alone would not be enough to evaluate the impact of cooking skills intervention. The reason is because the checklist is not purposely designed to evaluate cooking skills intervention, but as a universal tool to evaluate different types of intervention. Therefore, the behavior checklist alone will not be adequate to picture the change brought by the intervention on cooking and eating aspects.

The proposed tool/questionnaire to measure cooking class or cooking skills program among adult EFNEP participants will incorporate the confidence of cooking using basic ingredients, confidence of following simple recipe, confidence of tasting new foods, and confidence of cooking new foods and trying new recipes. These items were

adapted using the validated and simplified tools that was designed to be administered by the low income participants (Barton et al., 2011). The same confidence measurement was also reported on other studies in Scotland (Garcia et al., 2014) and Australia (Flego et al., 2014). The measurement of confidence will use seven Likert scale. It was mentioned that using more than 4 Likert scale will be more desirable for confidence measurement (Kourajian, 2015).

The frequency of cooking main meal from raw or basic ingredients (Barton et al., 2011; Flego et al., 2014; Kourajian, 2015) will be asked in the questionnaire. The importance of adding this component is to be able to see the difference of participants' cooking practice before and after the program. The attitude towards cooking will also be asked in the questionnaire by adding the questions of cooking enjoyment and cooking satisfaction scales (Herbert et al., 2014).

#### **D. Proposed Cooking Skills Questionnaire**

There are total seven questions in cooking skills questionnaire (see Appendix 1). This is a self-reported questionnaire that is designed to assess the cooking skills of EFNEP participants which are the low socioeconomic population. Therefore, it is designed to be short, simple, and easily administered. The questions are derived from former validated questionnaires (Barton, Wrieden, & Anderson, 2011; Flego et al., 2014; Herbert et al., 2014; Kourajian, 2015). There are two versions of the questionnaire, English and Spanish versions (see Appendix 1 and 2). The availability of a Spanish version will encourage the participation of EFNEP's participants who speak Spanish as their mother language and may lack in English language proficiency.

The questions include four questions of confidence: the confidence of cooking from raw or basic ingredients, confidence of following a simple recipe, confidence of tasting foods that haven't been eaten before by the participant, and confidence of preparing and cooking new foods and recipes. Participants will indicate how confident they are by choosing one of seven Likert scale from 1 (extremely confident) to 7 (not confident at all).

The next question is the frequency of cooking the main meal using raw ingredients. Participants will indicate their practice by choosing one of six measurements (daily, 4-6 times a week, 2-3 times a week, once a week, less than once a week, and never). The two following questions are the attitude measurements, including cooking enjoyment and cooking satisfaction. Participants will indicate if they enjoy cooking and if they got a lot of satisfaction from cooking by choosing one of four scales (strongly disagree, somewhat disagree, somewhat agree, and strongly agree).

There is a need for piloting this proposed questionnaire before actually implementing it. Therefore, the questionnaire was piloted to parents of Head Start participants in Manhattan, Kansas. The pilot study was reviewed by the Institutional Review Board (IRB) for Kansas State University under the proposal number 8408 (see Appendix 7). The Head Start participants were chosen as the pilot group because of the similarity in socioeconomic background with EFNEP participants. Nine people completed the questionnaire testing as part of a series of nutrition education with cooking demonstration program. One person who spoke Spanish as their native language completed the Spanish version questionnaire.

The approximate time needed to finish the questionnaire is 5 minutes. There is no difficulty in filling the questionnaire, both the English and the Spanish version. It is concluded that this tool, both English and Spanish version, is easily administered by people from low socioeconomic background.

Although the questionnaire has been tested, it still needs to be studied and tested further. The tool will need testing for reliability and validity and its performance with the EFNEP audience.

Further study should incorporate questionnaire testing in EFNEP participants and utilize the questionnaire in pre and post the program, and if possible, for program's follow-up to see the difference in confidence, attitude, and practice of cooking among EFNEP participants.



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# **Appendix 1. Class Curriculum**

## **Curriculum for Nutrition Education Food, Families, and Fun Nutrition Classes**

Designed by: Nike Frans

### **Class 1 – What’s on Your Plate?**

#### **A. Purposes**

1. Increase parents’ knowledge about basic nutrition including nutrient components, the sources of nutrients in food, and the functions of nutrients in human’s body.
2. Increase parents’ awareness about how food has vital role in growth and development of the children.
3. Improve parents’ self-efficacy by showing a simple demonstration of cooking and preparing snacks

#### **B. Strategies**

1. Encourage parents’ participation in class
2. Repeatedly exposing the parents about the principal of healthy food which is balance, varied, colorful, whole food
3. Sharing practical tips to promote healthy eating
4. Demonstrating easy meal preparation and encourage parents to cook and try new ingredients.

#### **C. Media**

1. Class interaction
2. Power-point presentation
3. Game and quiz
4. Cooking demonstration
5. Materials in a folder

#### **D. Discussion Guide**

1. Why healthy food is very important for the kids?
2. What is healthy food and what is non healthy food?
3. Does anybody know about MyPlate?

**Table 1. Class 1 Activities**

Time	Activities	Media and Tools
05:30 - 06:00	Welcoming parents; checking names;	Participants' checklist, pen
	Pre-test filling	Pretest copies
	Enjoy dinner together with parents and kids	Food, plates, bowls, glasses, drinking water
	The kids are directed into another room; Kids' activities with Manhattan Area Technical College students	Activity tools for kids
06:00 - 06:05	Program introduction and today's plan	
06:05 - 06:40	Presentation and discussion	LCD projector, laptop, presentation file
	Introduction of nutrients group, nutrients in food, and their function	
	Discussion: Why healthy food is very important for the kids?	
	Healthy food vs non healthy food Activity: Discussion about the characteristics of healthy food and non-healthy food/junk food. Either class or group discussion	Flipchart/Whiteboard and marker Sticky notes
	Optional: MyPlate activity: fill up each food group with the food that is served in family	MyPlate printout
	Game: What's in there?	LCD projector, file Or printout material
06:40 - 06:55	Cooking demonstration: Rainbow Quinoa and preparing a healthy snack (quinoa is pre-cooked to save time)	Ingredients and utensils
	Discuss on the other ingredients that fit the recipe	

06:55 - 07:00	Quiz: Mention main points Sum up the important points today	Quiz prize
	Door prize jar Parents write their name on a piece of paper and then put it in the door prize jar.	Paper and pen
	Program evaluation: parents write down their expectation about the class; General comments and concerns.	Program evaluation sheet

#### E. Preparation Checklist

- Meals for dinner and dishes
- Notebook for parents
- Printed handout: MyPlate tip sheet for preschooler, recipes, class presentation
- Cooking demonstration (electric skillet, food ingredients, knife, cutting board, spatula, bowls, spoon, fork, serving plate, storing containers, measuring cups)
- Quiz and prize
- MyPlate printout
- Flashcards, sticky notes, and pens/pencils
- Door prize jar
- Flipchart and markers
- Kids activity tools
- Pretest evaluation copies
- Program evaluation sheet

#### F. Post Class Self Evaluation

- Some people cancelled the attendance because their children were sick
- Meal preparation involved the kids, need a person who can watch the children to not get close to the skillet.
- Game was cancelled because of the small class size
- Participant commented about learning new things

## **Class 2 - Eating Healthy on a Budget**

### **A. Purposes**

1. After the participants understand about basic nutrition, the next aim is to increase parents' understanding that it is possible to choose healthier food while still on a budget
2. Increase parents' knowledge and understanding about labeling in packaged food and nutrition fact
3. Increase parents' knowledge about the options of inexpensive healthy foods
4. Improve parents' self-efficacy on cooking at home by showing a simple demonstration of cooking using low-cost but healthy ingredients

### **B. Strategies**

1. Encourage parents' participation in class
2. Review the principal of healthy food and the importance of healthy food for children, especially for parents who did not attend the first class
3. Share practical tips and tricks on how to choose healthy food inexpensively
4. Motivate parents to choose healthier foods and carefully read the foods label before purchasing
5. Demonstrate easy meal preparation and encourage parents to cook and try new ingredients

### **C. Media**

1. Class interaction
2. Power-point presentation
3. Cooking demonstration
4. Materials in a folder

### **D. Discussion Guide**

1. Is healthy food more expensive?
2. What kinds of produce that are in season now?
3. What are the benefits of cooking at home?
4. Tips on being on budget

**Table 2. Class 2 Activities**

Time	Activities	Media and Tools
05:30 - 06:00	Welcoming parents	Participants' checklist, pen
	Administer the questionnaire for parents who just joined the class	Pretest copies
	Enjoy dinner together with parents and kids	Food, plates, bowls, glasses, drinking water
	The kids are directed into another room; Kids' activities with Manhattan Polytechnic students	Activity tools for kids
06:00 - 06:05	Program introduction and today's plan	
06:05 - 06:40	Presentation and discussion	LCD projector, laptop, presentation file
	Review of the first class materials, especially for the parents that did not attend the first class	
	Discussion: Is healthy food more expensive?	
	Presentation and discussion about in-season foods	
	Benefits of cooking at home. Discussing why cooking at home is important and showing the price comparison between home-cooked meal and restaurant foods	
	Share tips on choosing less expensive but healthy food	
06:40 - 06:55	Cooking demonstration: Creamy pasta with peanut butter sauce and vegetables (pasta is pre-cooked to save time)	Ingredients and utensils
	Discuss on the other ingredients that fit the recipe	



	Extra time: presentation about reading food labels	
06:40 - 06:45	Door prize drawing	Price for the winner
	Program evaluation: parents write down their expectation about the class; General comments and concerns.	Program evaluation sheet

#### E. Preparation Checklist

- Meals for dinner and dishes
- Notebook for parents
- Printed handout: class presentation, recipe, What's on the Nutrition Fact Label and Sodium Facts by FDA
- Cooking demonstration (electric skillet, food ingredients, knife, cutting board, spatula, bowls, spoon, fork, serving plate, containers, measuring cups)
- Flashcards, sticky notes, and pens/pencils
- Door prize jar and the prize
- Kids activity tools
- Pretest evaluation copies
- Program evaluation sheet

#### F. Post Class Self Evaluation

- Parents were very active in class discussion. They shared their stories and tips on budget shopping
- There were eight adults from seven families and twelve children who attended the class
- The presentation time is not enough for the extra material about reading food labels
- Kids and parents love the pasta that was cooked at the class

## **Class 3 - Think Your Drink**

### **A. Purposes**

1. Increase parents' knowledge about naturally occurring sugar and added sugar
2. Increase parents understanding about the health risk of consuming added sugar
3. Increase parents' knowledge about the limit of added sugar for children, women, and men
4. Increase parents' skills of reading nutrition facts, and translate the amount of sugar from grams into teaspoons
5. Increase parents' awareness about the amount of added sugar in various drinks, including flavored milk and 100% fruits juice
6. Increase parents' awareness that even the well-known "healthy drinks" such as milk, tea, and 100% fruits juice can contain a large amount of sugar
7. Increase parents' knowledge about healthy drink options
8. Improve parents' self-efficacy by showing the demonstration of 3 smoothies recipes making

### **B. Strategies**

1. Repeat the lessons from first and second classes
2. Encourage parents' participation in class
3. Showing the amount of sugar from different type of soft drinks using power point presentation
4. Teach the skill of converting grams of sugar in the table of nutritional fact into teaspoons
5. Demonstrate the making of three smoothies recipes
6. Promote drink more water, making infused water, homemade juice and smoothies

### **C. Media**

1. Class interaction
2. Power-point presentation
3. Cooking demonstration
4. Materials in a folder

D. Discussion Guide

1. What drinks do you have every day?
2. Are they healthy and safe?
3. What is the recommendation of sugar intake in a day?
4. Why we should limit sugary drinks?
5. What about 100% juice?
6. How about sports drinks after exercise?
7. How much sugar in there?

**Table 3. Class 3 Activities**

Time	Activities	Media and Tools
05:30 - 06:00	Welcoming parents	Participants' checklist, pen
	Administer the questionnaire for parents who just joined the class	Pretest copies
	Enjoy dinner together with parents and kids	Food, plates, bowls, glasses, drinking water
	The kids are directed into another room; Kids' activities with Manhattan Polytechnic students	Activity tools for kids
06:00 - 06:05	Program introduction and today's plan	
06:05 - 06:40	Presentation and discussion	LCD projector, laptop, presentation file
	Review of the first and the second classes' materials	
	Discussion: what drink do you have everyday? Are they healthy and safe?	
	Presentation about naturally occurring sugar and added sugar	
	Many names of added sugar	
	Discussion: what is the recommendation for sugar intake in a day?	

	Presenting the recommendation for added sugar by American Heart Association compare to the actual Americans' sugar consumption	
	Discussion: Why we should limit sugary drinks?	
	Health risks due to high sugar consumption	
	Discussion: What about 100% juice? How about sports drink after exercise?	
	The limit of 100% juice consumption and the sport drinks' advertisements	
	Class activity: converting amount of sugar from nutrition facts in grams into teaspoons measurement	Calculating sugar sheet
06:40 - 06:55	Cooking demonstration: Creamy pasta with peanut butter sauce and vegetables (pasta is pre-cooked to save time)	Ingredients and utensils
	Discuss on the other ingredients that fit the recipe	
	Extra time: presentation about reading food labels	
06:40 - 06:45	Door prize drawing	Price for the winner
	Program evaluation: parents write down their expectation about the class; General comments and concerns.	Program evaluation sheet

#### E. Preparation Checklist

- Meals for dinner and dishes
- Printed handout: class presentation, recipes, Show Me the Sugar, Calculating Sugar
- Cooking demonstration (smoothies' ingredients, blender, knife, cutting boards, measuring cups, cups for tasting the smoothies)
- Flashcards, sticky notes, and pens/pencils
- Door prize jar and the prize
- Kids activity tools
- Pretest evaluation copies
- Program evaluation sheet

#### F. Post Class Self Evaluation

- Parents learn new things about sugary drinks and how much sugar that popular drinks contain
- Parents learn that even the 100% fruit juice has many teaspoons of sugar
- Parents know the limit of added sugar for their kids. A posttest was done by asking questions.
- If buying 100% fruit juice, it is recommended to give only half a cup per day for children and dilute it with water
- Kids enjoy the smoothies

## **Class 4 - Picky eating and Healthy Snack Party**

### **A. Purposes**

1. To wrap up the lesson learnt from previous classes
2. To discuss general questions about healthy eating
3. Encourage parents' healthy parenting especially when facing a picky eater
4. Enrich parents' knowledge about healthy snacks and healthy snack options
5. Increase parent' knowledge about the recommended amount of fruit and vegetable consumption for children
6. Improve parents' self-efficacy by showing the healthy snack preparation

### **B. Strategies**

1. Repeat all the important messages from the previous classes
2. Encourage parents' participation in class
3. Showing the examples and pictures of healthy snack ideas
4. Class discussion and sharing session about favorite snacks and picky eater
5. Ask parents to bring their favorite snacks and introduce it to the class. This is not mandatory. Parents are informed one week earlier.
6. Demonstrate the making of fruit crepes and dipping sauce

### **C. Media**

1. Class interaction
2. Power-point presentation
3. Cooking demonstration
4. Materials in a folder

### **D. Discussion Guide**

1. Do you remember? (Characteristics of healthy food, why healthy food is very important especially for kids, the health risks of consuming added sugar regularly, the recommendation of added sugar limits, healthy drink options)
2. How much fruits and vegetables per day for adults and for children?
3. What are your favorite healthy snacks?
4. What's most important at meals?

**Table 4. Class 4 Activities**

Time	Activities	Media and Tools
05:30 - 06:00	Welcoming parents	Participants' checklist, pen
	Administer the questionnaire for the new participant(s)	Pretest copies
	Enjoy dinner together with parents and kids	Food, plates, bowls, glasses, drinking water
	The kids are directed into another room; Kids' activities with Manhattan Polytechnic students	Activity tools for kids
06:00 - 06:05	Program introduction and today's plan	
06:05 - 06:40	Presentation and discussion	LCD projector, laptop, presentation file
	Discussion: Do you remember? Test parents' knowledge about previous materials while reminding them again about the important messages	
	The essentials of consumption	
	Discussion: How much fruits and vegetables per day for children and adults?	
	Healthy snacks ideas	
	Discussion: What are your favorite healthy snacks?	
	Short presentation from parents who bring their snacks to the class	
	Discussion: Tell your stories about picky eater	
	Discussion: What's the most important at meals?	
	Tips on good parenting	

06:40 - 06:55	Cooking demonstration: Fruit crepes and peanut butter & yogurt dipping sauce	Ingredients and utensils
	Discuss on the other ingredients that fit the recipe	
06:40 - 06:45	Door prize drawing	Price for the winner
	Posttest evaluation	Posttest copies
	Program evaluation: parents write down their expectation about the class; General comments and concerns.	Program evaluation sheet

#### E. Preparation Checklist

- Meals for dinner and dishes
- Printed handout: class presentation, recipes, Super Snacks
- Cooking demonstration (Ingredients for fruit crepes, ingredients for peanut butter and yogurt dipping sauce, cooking utensils)
- Flashcards, sticky notes, and pens/pencils
- Door prize jar and the prize
- Kids activity tools
- Pretest and posttest evaluation copies
- Program evaluation sheet

#### F. Post Class Self Evaluation

1. Parents are actively discussing about picky eating
2. One parent bring a homemade snack “fruits and marshmallow”. She presents the snacks and everyone tries it. She admits that it is not a very healthy snack because of the addition of marshmallow and says the snack is not for everyday consumption since it is considered a treat. That shows her understanding of the principal of healthy food.
3. One parent shows a photo of her home made smoothies that she learned from the previous class.



## Appendix 2. Pre and Posttest in English

### **Inform Consent for Class Evaluation**

You are being asked to take part in a study about the application of cooking skill's questionnaire.

You will be asked to answer seven questions about your personal experience.

Your participation is voluntary. You are free to withdraw or discontinue your participation in this survey at any time without affecting your class activities.

Your identity will be kept private

If you have any question either before it begins or after you have participated, please contact the researcher: Nike Frans (971-277-8139)

### **Please sign after reading the agreement below:**

I have read the above description of this study. Furthermore, I have been assured that any future questions I may have will also be answered by a member of the research team. I voluntarily agree to take part in this study. I understand I will receive a copy of this consent form.

---

Name

---

Signature - Date

**Evaluation Form**

Name: \_\_\_\_\_

Date: \_\_\_/\_\_\_/\_\_\_

Tell me how you feel about cooking! (Please circle one)

- 1. How confident do you feel about being able to cook from raw or basic ingredients?  
Extremely Confident 1 2 3 4 5 6 7 Not confident at all
- 2. How confident do you feel about following a simple recipe?  
Extremely Confident 1 2 3 4 5 6 7 Not confident at all
- 3. How confident do you feel about tasting foods that you have not eaten before?  
Extremely Confident 1 2 3 4 5 6 7 Not confident at all
- 4. How confident do you feel about preparing and cooking new foods and recipes?  
Extremely Confident 1 2 3 4 5 6 7 Not confident at all

Tell me about what you usually do! (Please circle one)

- 5. How often do you prepare and cook a main meal using raw ingredients (for example, cooking soup using fresh vegetables, or cooking chili using raw meat and fresh vegetables)?
  - a. Daily
  - b. 4-6 times a week
  - c. 2-3 times a week
  - d. Once a week
  - e. Less than once a week
  - f. Never

Tell me how you think about cooking! (Please circle one)

- 6. I enjoy cooking
  - a. Strongly disagree
  - b. Somewhat disagree
  - c. Somewhat agree
  - d. Strongly agree
- 7. I get a lot of satisfaction from cooking meals
  - a. Strongly disagree
  - b. Somewhat disagree
  - c. Somewhat agree
  - d. Strongly agree

## Appendix 3. Pre and Posttest in Spanish

### Consentimiento Informado para la Evaluación de la Clase

Se le pide que participe en un estudio que implica la conducción de un cuestionario sobre el uso de habilidades de cocina.

Se le pedirá que responda a siete preguntas sobre su experiencia personal.

Su participación es voluntaria. Usted es libre de retirar o discontinuar su participación en esta encuesta en cualquier momento sin afectar las actividades de su clase.

Su identidad se mantendrá privada

Si tiene alguna pregunta antes de que comience o después de haber participado, por favor contacte al investigador: Nike Frans (971-277-8139)

### Por favor firme abajo después de leer el acuerdo:

He leído la descripción anterior de este estudio. Además, me han asegurado que cualquier pregunta futura que pueda tener también la va a responder un miembro del equipo de investigación. Yo voluntariamente acepto participar en este estudio. Entiendo que recibiré una copia de este formulario de consentimiento.

---

Nombre

---

Firma - Fecha

## Evaluación de la Clase de Nutrición Divertida

Nombre: \_\_\_\_\_

Fecha: \_\_\_/\_\_\_/\_\_\_

¡Cuénteme cómo se siente acerca de cocinar! (Por favor circule uno)

1. ¿Qué tan seguro se siente acerca de poder cocinar con ingredientes crudos o básicos?

Extremadamente Seguro 1 2 3 4 5 6 7 Nada Seguro

2. ¿Qué tan seguro se siente de poder seguir una receta simple?

Extremadamente Seguro 1 2 3 4 5 6 7 Nada Seguro

3. ¿Qué tan seguro se siente al probar alimentos que no ha comido antes?

Extremadamente Seguro 1 2 3 4 5 6 7 Nada Seguro

4. ¿Qué tan seguro se siente acerca de preparar y cocinar nuevos alimentos y recetas?

Extremadamente Seguro 1 2 3 4 5 6 7 Nada Seguro

¡Cuénteme lo que hace habitualmente! (Por favor circule uno)

5. ¿Con qué frecuencia prepara y cocina una comida principal usando ingredientes crudos (por ejemplo, cocinar sopa con verduras frescas, o cocinar chili usando carne cruda y verduras frescas)?

- a. Diariamente
- b. 4-6 veces por semana
- c. 2-3 veces por semana
- d. Una vez por semana
- e. Menos de una vez por semana
- f. Nunca

¡Cuénteme lo que piensa sobre cocinar! (Por favor circule uno)

6. Disfruto al cocinar

- a. Totalmente en desacuerdo
- b. Parcialmente en desacuerdo
- c. Parcialmente de acuerdo
- d. Totalmente de acuerdo

7. Siento mucha satisfacción al cocinar comidas

- a. Totalmente en desacuerdo
- b. Parcialmente en desacuerdo
- c. Parcialmente de acuerdo
- d. Totalmente de acuerdo

## Appendix 4. Example of Program Evaluation Sheet

### Evaluation Form

Family:

Date: 3/7/17

1. What did you enjoy most about this event:

the Food and smoothies and the  
new recipes

2. Did this event meet your expectations:  Yes or  No Explain:

Yes it did, thank you

3. What could have been done differently?

I didn't ever check the nutrient facts on  
labels but Now I will be making sure  
I read them

4. Other comments, concerns, suggestions, or questions:

I will make it and make sure I  
watch what I give my kids and myself  
for now on.

# Appendix 5. Class Presentation

## Class 1



### What's on Your Plate?

Nike Frans  
02/14/17

**K-STATE**  
Research and Extension

1

### Nutrient Classes

1. Carbohydrates (including fiber)
2. Fat
3. Protein
4. Minerals
5. Vitamins
6. Water



More information provided...

2

### Why healthy eating is very important for kids?



3

### The Brain...



90% of a child's brain development happens before age 5

- White matter (up to 1)
- Grey matter (up to 1)

www.k-state.edu

4



### Fit growing body

5

### Natural protection against diseases



6

What is healthy food?  
What is non-healthy food?



7

Healthy food is:

- ♥ Balanced
- ♥ Varied
- ♥ Whole
- ♥ Colorful



8

Balanced Food



9

Tips



- Make half of your plate fruits and vegetables
- Vary your veggies: colorful vegetables can be steamed, sauteed, roasted, or eaten raw
- Vary your protein. Protein doesn't have to be meat!
- Drink water instead of sugary drinks (Class 3)
- Choose food wisely: low fat, no sodium added (Class 2)

10

Fill your Plate!



11

Varied food



Why we need to eat different food?

Challenge yourself!  
Cook with new foods, herbs, and spices that you've never tried before!  
(Class 3)

12

### Whole food

- ✓ Foods that are as close to their natural form as possible
- ✓ Whole foods are foods that are unprocessed and unrefined, or processed and refined as little as possible, before being consumed

Example:  
 Fresh fruits and vegetables VS vitamin and supplement  
 Food that is cooked from raw and fresh ingredients VS microwavable entrée  
 Home made baked potato VS potato chips

13

### Colorful

Eat a Rainbow of Vegetables and Fruits each day

14



15

### Conclusion

- Healthy food is very important for growth and development of the children
- Healthy food is **Balanced, Varied, Whole, Colorful** (anything else?)
- Challenge: Cook with new foods, herbs, and spices that you've never tried before

16



17


Thank You and Happy Valentines Day!

Nike Frans (971-277-8139)  
 Email: [nikefrans@ksu.edu](mailto:nikefrans@ksu.edu) / [nikefranssz@gmail.com](mailto:nikefranssz@gmail.com)  
 Extension Office: 785-537-6350

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## Class 2



### Eating Healthy on a Budget

Nike Frans  
02/28/17

**K-STATE**  
Research and Extension

1

### Review of the First Class

2

### Is Healthy Food More Expensive?

3

### Save Your \$!

#### Seasonal Food and All Seasons Food



Winter	Spring	Summer	All Seasons Food
Grapefruit Pears Pumpkin Sweet Potato Yams Oranges Winter Squash	Apricots Broccoli Colored Greens Lettuce Mushrooms Peas Radishes Swiss Chard Strawberries	Appricots Bell peppers Blueberries Blackberries Beets Cantaloupe Cherries Egg Plants Green Beans Honeydew Melon Kiwifruit Okra Peaches Plums Watermelons	Bell Peppers Brussel Sprouts Cauliflower Cranberry Grapes Pumpkins Sweet Potatoes Green Beans Farsnip

All Seasons Food: Banana, Apples, Celery, Carrots

4



Spend more time at produce isles  
(who knows there's a great deal)

5

### Make it at Home

What are the benefits of cooking at home?



**VS**



6

### Cooking at Home...



- ❖ Can be cheaper
- ❖ You know what you give to your kids
- ❖ Way of sharing and love
- ❖ Increase family bonding
- ❖ Appropriate portion
- ❖ More knowledgeable about food and cooking
- ❖ Avoid too much salt, fat, other food additives
- ❖ Food safety
- ❖ Adventurous: trying new recipes and ingredients
- ❖ Nutritious and healthy → important INVESTMENT

7

### ~PIZZA~



- Home made pizza: \$3
- Take out pizza: \$10

8

### Smart choices for being healthy and save money

- ✓ Buy apple instead of soda (focus on healthier food)
- ✓ Canned food, BUT the low salt or no salt added
- ✓ Store brand compared with popular brands
- ✓ Cook large portion
- ✓ Use the leftover
- ✓ Don't shop when you're hungry
- ✓ Whole foods (whole fruits over cut)
- ✓ Frozen fruits and vegetables
- ✓ Replace meat with other protein




9

### Appreciate Less Expensive Food



**Protein:**  
Pinto beans, Eggs, Almonds, Peanuts, Chicken Breast, Black beans, Lentils, Garbanzo beans, Tofu, Pumpkin seeds, Canned salmon & tuna.

**Whole Grains:**  
Brown rice, Whole-wheat pasta, Quinoa

**Fruits:**  
Grapes, Watermelon, Bananas, Cantaloupe, Apples, Oranges

**Vegetables:**  
Carrots, Broccoli, Spinach, Sweet potatoes, Edamame



10

### Beware of Small Purchase Bring it from Home


Buying five coffees per week will cost you \$325 per year! Make it from home and pack it in a travel mug for \$26 per year.

Ways To Save:		
	Take-out	From Home
Coffee	\$1.25 - \$2.00 (small)	\$ .10 - \$.15
Water	\$1.00 - 1.99 (bottled)	\$ 0



11

### There are many ways to be healthy even on a very tight budget!



12

## Food Label

Do you carefully read the food label and nutrition facts before purchasing?

Why it is important?



13

## Reading Nutrition Facts

- ❖ Serving Size
- ❖ Servings Per Container
- ❖ Calories
- ❖ Nutrients
- ❖ % Daily Value



Nutrition Facts	
Serving Size 1 package (100g)	
Servings Per Container 1	
Amount Per Serving	
	Calories from Fat 10
	<b>% Daily Value</b>
Total Fat 10g	20%
Saturated Fat 5g	10%
Trans Fat 0g	
Cholesterol 10mg	20%
Sodium 100mg	20%
Total Carbohydrate 10g	20%
Dietary Fiber 5g	10%
Sugars 5g	
Protein 10g	
Vitamin A 10%	
Vitamin C 10%	
Calcium 10%	
Iron 10%	

14

## The Facts of Nutrition Facts

- Ingredients are listed in descending order by weight
- Nutrients to get less of: Saturated fat, trans fat, cholesterol, sodium
- Nutrients to get more of: dietary fiber, vitamin A, vitamin C, iron, calcium

General Rule:

5% DV or less of a nutrient per serving is low  
20% DV or more of a nutrient per serving is high



15



## Limit Your Sodium/Salt

- Look for light, low sodium, reduced sodium, or no-salt-added versions of packaged foods, when available
- Limit packaged sauces, mixes, and "instant" products (including flavored rice, instant noodles, and ready-made pasta)
- Rinse sodium-containing canned foods, such as beans, tuna, and vegetables before eating.
- Limit the amount of salt you add to foods when cooking, baking, and eating. Instead, flavor foods with herbs and spices and no-salt seasoning blends.
- Choose fresh meats, poultry, and seafood, rather than processed varieties.

16

Thank You,  
Wish you be happy and healthy



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## Class 3

**K-STATE**  
Research and Extension

# Think Your Drink

Nike Frans  
03/07/17



1

## Reviewing the previous classes

2

## What drink do you have everyday? During breakfast, lunch, snack, and dinner



3

## Different types of drink

- ❖ Water
- ❖ Tea
- ❖ Coffee
- ❖ Milk
- ❖ Soda/Pop
- ❖ Cocoa
- ❖ Sport drinks



- ❖ Energy drinks
- ❖ Lemonade
- ❖ Infused water
- ❖ Juices
- ❖ Breakfast drinks
- ❖ Vitamin water

4

## The question is: are they healthy and safe?



What are the components of my drink?

5

## Naturally occurring sugar VS Added sugar

"Naturally occurring sugar is the sugar found in whole, unprocessed foods, such as milk, fruit, vegetables, and some grains. One of the most common natural sugars is fructose, which is found in fruit. Another common natural sugar is lactose, which is found in milk.

Added sugar is the sugar that is added to processed foods and drinks while they are being made. Food manufacturers may add both natural sugars (for example, fructose) and processed sugars (for example, high-fructose corn syrup) to processed foods and drinks. The sugar you add to your food at home is also added sugar"

Familydoctor.org

6

### Many names of Added Sugar

- dextrose
- brown sugar
- powdered sugar
- corn syrup
- fructose
- high-fructose corn syrup (HFCS)
- honey
- invert sugar
- Lactose
- Caramel
- malt syrup
- maltose
- maple syrup
- molasses
- nectars (e.g., peach nectar, pear nectar)
- pancake syrup
- raw sugar
- sucrose
- white granulated sugar

7

### Added Sugar is Everywhere

Sugary drinks are the largest source of added sugar in American diet



8

What is the recommendation of sugar intake in a day?

9

### Recommendation for added sugar Based on American Heart Association

- Children = Limit to 3-4 teaspoons per day
- Adult women/teens = Limit to 5 teaspoons per day
- Adult men/teens = Limit to 8-9 teaspoons per day

10

However...

An American adult consume about 20 teaspoons of added sugar per day!

In 2011-2014, 63% of youth and 49% of adult drank a sugar-sweetened beverages every day

11

### Why we should limit sugary drinks?

#### Too Much Sugar Isn't So Sweet for Your Health

- ❖ Increase body weight, leading to overweight and obesity
- ❖ Sugary drinks contribute to increase risk of type II diabetes and heart disease
- ❖ Causing dental caries in both children and adult
- ❖ Kidney disease, liver disease, gout and arthrities.

12



Name some sugary drinks in your diet!



Soda/pop, sport drinks, energy drinks, juice drinks, flavored milk (chocolate, strawberry, vanilla), coffee drinks with sweetener/flavoring, blended coffee drinks, vitamin-added water, milk tea, sweetened teas, yogurt drinks

13

What about 100% juice?

- Large amounts of 100% fruit juice can lead to excessive weight gain in children
- Eating fruit is much healthier than drinking juice
- Infants under 6 months of age should not be given juice
- Children 1 to 6 years old should have no more than 4 to 6 oz (one-half to three-quarters of a cup) of juice per day
- Children 7 to 18 years old should have no more than 8 to 12 oz (1 to 2 cups) of juice per day

14

Sport drinks after exercise?

- ❖ Do not believe the sport drinks or energy drinks advertisements
- ❖ The reality: they are high in calories and sugar
- ❖ WATER should be the main source of hydration after sports



15



16



### Nutrition Facts

Serving Size: 1 Can	
Amount Per Serving	
Calories 140	
	% Daily Value*
Total Fat 0g	0%
Sodium 45mg	2%
Total Carb. 39g	13%
Sugars 39g	
Protein 0g	

Not a significant source of fat, sat. fat, trans fat, cholest., fiber, vitamin A, vitamin C, calcium and iron.

\*Percent Daily Values are based on a diet of 2,000 calories a day.

Caffeine Content: 34 mg

17

WHEN YOU READ  
FOOD LABELS  
REMEMBER:

4G OF SUGAR

1 TEASPOON



18

How much sugar in there?



Coca cola  
 12 oz/ can = 39 grams  
 20 oz/bottle = 65 grams  
 1 liter (34 oz) = 108 grams

19

How much sugar in there?




Mountain Dew  
 20 oz/bottle = 77 grams  
 1 liter (34 oz) = 124 grams

42% more caffeine than Coke, and 15% more sugar

20

How much sugar in there?




Rockstar Energy Drink  
 8 oz (serving) = 31 grams  
 16 oz/can = 62 grams

About the same amount of sugar as soda

21


How much sugar in there?



Vitamin water  
 8 oz/serving = 13 grams  
 20 oz (bottle) = 33 grams

22

How much sugar in there?



Snapple lemon iced tea  
 8 oz/serving = 23 grams  
 16 oz (bottle) = 46 grams

The "best stuff on earth" includes a lot of sugar

23

How much sugar in there?



Minute Maid Lemonade  
 8 oz/serving = 27 grams  
 20 oz (bottle) = 67 grams

24

How much sugar in there?



Orange Juice  
8 oz/serving = 24 grams  
16 oz (bottle) = 48 grams

25

How much sugar in there?



Apple Juice  
8 oz/serving = 26 grams  
16 oz (bottle) = 52 grams

26

How much sugar in there?



Capri Sun, Pacific Cooler  
6.75 oz/pouch = 18 grams

27

How much sugar in there?



Nesquik Chocolate Milk  
8 oz/serving = 29 grams  
16 oz (bottle) = 58 grams

28

How much sugar in there?



Westsoy Vanilla Soy Milk  
8 oz/serving = 8 grams

29

How much sugar in there?



Coca Cola  
7-Eleven 64 oz Double Gulp  
(55 oz soda + 9 oz ice)  
Sugars, total: 186g  
Calories, total: 764  
Calories from sugar: 764

That's about a cup of sugar! It's hard to believe anyone could drink that much soda.

30



### Healthier drinking options

- First of all: WATER
- Make your own flavored water (infused water)



31

### Healthier drinking options

- Home made fruits and vegetables juice, smoothies, slushies
- Limit the 100% store bought fruit juice



- Low fat milk; not flavored milk; soy milk; almond milk
- For adult: unsweetened tea or coffee

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### Some tips on cutting the sugar intake

- Serve fruits as dessert
- Always bring water bottle wherever and whenever possible
- Be a good role model for kids by drinking more water
- Read nutritional fact of the product, look at the sugar content
- Make sugary drinks less available in home



33

### Do You Remember?

34

### Sources

- <http://www.cdph.ca.gov/programs/cpns/Pages/RethinkYourDrinkCurriculum.aspx>
- <https://www.choosemyplate.gov/what-are-added-sugars>
- <http://yalehealth.yale.edu/sugardetective>
- [http://www.heart.org/HEARTORG/HealthyLiving/HealthyEating/Nutrition/Added-Sugars\\_UCM\\_305858\\_Article.jsp#WL20fbQqYUU](http://www.heart.org/HEARTORG/HealthyLiving/HealthyEating/Nutrition/Added-Sugars_UCM_305858_Article.jsp#WL20fbQqYUU)
- <https://authoritynutrition.com/how-much-sugar-per-day/>
- <https://www.cdc.gov/nutrition/data-statistics/sugar-sweetened-beverages-intake.htm>
- <http://www.sugarstacks.com/beverages.htm>

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Thank You,  
Wish you be happy and healthy




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Class 4

**K-STATE**  
Research and Extension

## Picky Eating and Healthy Snacks



Nike Frans  
03/14/17

1

### Reviewing the previous classes

*Do you remember?*

- Characteristics of healthy food
- Why healthy food is very important especially for kids?
- The health risk of consuming added sugar regularly
- The recommendation of added sugar limits
- Healthy drink options

2

### Healthy Snacks



3

### The essentials of consumption

**Fruits and Vegetables**  
ALWAYS, every day



TIP:  
Stick with the fresh one as much as possible

4

### How much fruits and vegetables per day?

**Children under five till eight years old:**  
One to one and a half cup of fruits  
And  
One to one and a half cup of vegetables



5



Offer fruits and vegetables in every meal and for snacks  
Prepare them ahead of time

6

## Healthy Snack Ideas



- Crunchy vegetable sticks (carrots, celery) with low-fat ranch dip (for older preschoolers)
- Ants on a Log: Peanut butter on celery with raisins
- Whole-wheat crackers or whole-wheat tortilla with salsa
- Hummus and pita wedges
- Baked sweet potato
- Fruits popsicles

7

## What are your favorite healthy snacks?



8

## Picky Eating



9

Teaching healthy eating  
=  
teaching a habit for a lifetime

10

## Tell your stories!



11

## Positive eating environment at home



12

## What's most important at meals?



13

## You!



14

## Some Tips



- Eating as a family while encourage healthy eating to kids
- Trying new food together
- Eating home cook meals
- Focus on the food, turn off the screen

15

## Be a good example

Children are more likely to eat a healthy diet and to exercise if they see that their parents are doing the same.



16

## Be patient



Introduce and reintroduce new foods

Continue to offer healthy varieties as it may take 10-12 tries until a new food is liked.

17

## Avoid 2B: Bribing and Begging

Don't pressure, bribe, begging, restrict or control

**Trust** rather than control



18

## Tips on Picky Eating: Class Activity

19

## Questions?



20

## Sources

- <http://www.buildhealthykids.com/tips.html>
- <http://www.buildhealthykids.com/genrequirements.html>
- <https://erlkc.ohs.acf.hhs.gov/hslc/ita-system/health/docs/health-services-newsletter-201503.pdf>
- <http://www.goodhousekeeping.com/life/parenting/tips/a22217/healthier-school-lunch-tips/#>
- <http://www.healthyeating.org/Schools/Parent-Nutrition-Education/Picky-Eaters.aspx>
- <http://www.pbs.org/parents/food-and-fitness/eat-smart/stay-on-track-with-healthy-snacks/>
- <http://www.foodandfun.org/resources/pdf/handouts/Super%20Snacks.pdf>

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Thank You,  
Wish you be happy and healthy



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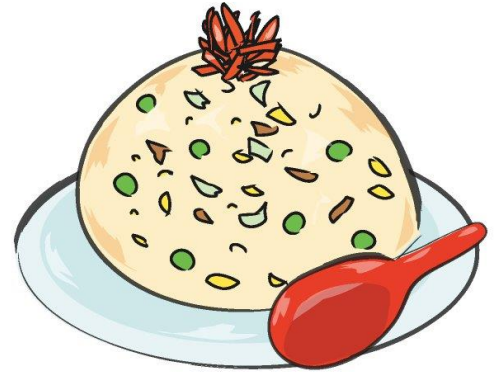


## Appendix 6. Recipes

### Rainbow Quinoa\*

#### Ingredients:

- 1 cup cooked quinoa
- ½ cup fresh onion, peeled and diced
- 2 cloves garlic, peeled and minced
- ½ cup fresh carrot, peeled, diced
- 6 to 8 snap peas, cut in small pieces
- ½ cup red bell pepper, diced
- 3 Tbsp corn (no sodium canned corn or fresh one)
- 1 Tbsp vegetable oil
- 1 Tbsp soy sauce
- Hint of salt (less than 1 teaspoon)
- Hint of ground black pepper
- Hint of cayenne pepper (optional)



#### Directions:

1. Heat vegetable oil in a medium heat.
2. Cook onion and garlic until fragrant and translucent.
3. Add carrot, snap peas, red bell pepper, mix together and add ¼ cup of water.
4. Cook until the vegetables are softened.
5. Add cooked quinoa, salt, black pepper, and cayenne pepper (optional).
6. Add soy sauce and stir until the color is even.
7. Serve hot.

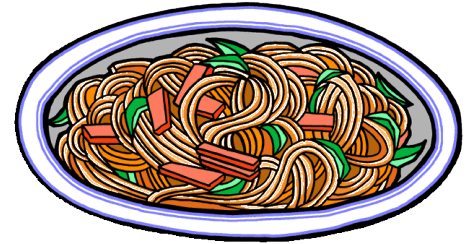
#### Note:

- Quinoa may be replaced by rice, couscous, or even pasta noodle.
- This recipe can use different vegetables.
- To add protein, cook together with chickpea or serve with scrambled egg.

# Creamy Pasta with Peanut Sauce and Vegetables

For 3-4 servings - Prep time: 5 mins - Cook time: 30 mins

Adapted from *thestir.cafemom.com*



## Ingredients:

- 1/2 cup vegetable broth or water
- 1/4 cup peanut butter (smooth or chunky)
- 1/4 cup reduced sodium soy sauce
- 2 tbsp. brown sugar (can be replaced with honey)
- 2 tbsp. rice vinegar (or apple cider vinegar or lemon juice)
- 2 tsp. grated peeled fresh ginger
- 2 tsp. chili paste with garlic (such as Sriracha, just a little to taste)
- 4 garlic cloves, minced
- 8 ounces uncooked pasta
- 2 cups chopped broccoli
- 1 cup (2-inch) sliced green onions
- 1 cup shredded carrot

## Directions:

1. Combine the first eight ingredients in a small saucepan. Cook over medium heat for five minutes or until smooth, stirring frequently (you can also do this in a glass bowl in the microwave, 10 or 15 seconds at a time).
2. Remove from heat. Cook pasta in boiling water eight minutes, without salt and oil. Add broccoli, onions, and carrot; drain when soft.
3. Place pasta mixture in a large bowl. Add peanut butter mixture; toss gently.

## Tips

- ✓ Vegetables can be steamed instead of boiled together with pasta.
- ✓ Use different types of vegetable.
- ✓ Use your favorite type of pasta! Try to use the whole wheat pasta.

## 1. Peach Banana Smoothie

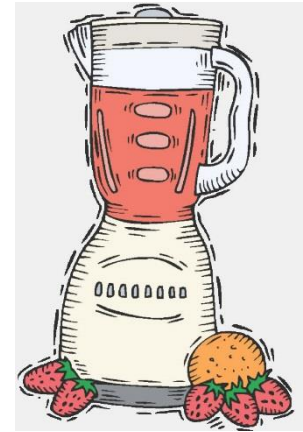
Makes: 3 Servings

Ingredients:

- 1 banana (medium, peeled and sliced)
- 2 peaches (medium, peeled and sliced)
- 1 pear
- 1 cup fat-free milk (or 1 cup low-fat milk)

Directions:

Combine banana, peaches, canned pears, and milk in a blender.  
2. Blend until smooth.



## 2. Blueberry Blast Smoothie

Makes: one serving

Ingredients:

- 1/2 cup vanilla yogurt
- 1/2 cup low fat/fat free milk
- 1 cup frozen blueberries
- 1 teaspoons honey if needed

Directions:

Combine all ingredients in a blender and blend until combined and frothy. Serve immediately.





### 3. Simple Green Smoothies

Makes: 2 servings

Ingredients:

- 2 cup – spinach
- 2 cup – water
- 1 cup – mango cubes, frozen
- 1 cup, chunks – pineapple, frozen
- 2 medium – banana



Directions:

- In a blender, combine water and spinach. Blend until smooth and an even consistency.
- Add remaining ingredients to the blender and run until smooth.

#### TIPS

- Try with different fruits and vegetables.
- Substitute milk and yoghurt with almond milk, soy milk, or even coconut milk.
- Adjust the consistency to your liking! Add more water/milk if it is too thick.
  - You can use a little bit of honey; only if needed!
  - Enjoy your colorful-healthy drinks! 😊

## 1. Peanut Butter Fruit Dip

*Adapted from [www.cookingclassy.com](http://www.cookingclassy.com)*

### Ingredients

- 2 (5.3 oz) containers Vanilla Greek Yogurt
- 1/3 cup creamy peanut butter
- 1 Tbsp honey, or to taste

### Directions

Add all ingredients to a bowl and whisk to blend until smooth. Serve with fruit (recommended bananas, apples, raspberries or strawberries). Store in refrigerator in an airtight container.



## 2. Creamy Blender Avocado Dip

*Adapted from [www.superheathykids.com](http://www.superheathykids.com)*

### Ingredients

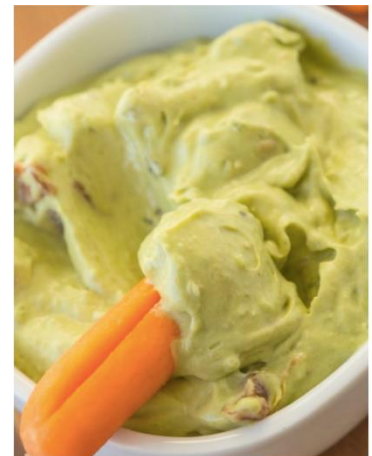
- 2 medium avocado
- 1 medium tomato, red
- 1 clove garlic
- 1/2 medium lime juice
- 1/2 teaspoon paprika
- 1/2 teaspoon black pepper, ground
- 1/8 teaspoon sea salt
- 1/2 cup Greek yogurt, plain

### Directions

Add all ingredients, except for Greek yogurt in a high-speed blender.

Blend until smooth and add the Greek yogurt.

Blend until fully incorporated and serve immediately.



### Notes:

If dip is too thick, add a dash more yogurt.

Adjust salt accordingly.  
Taste test after blending and simply mix in by hand.

### 3. Crepes without egg

*Adapted from [www.thevegancorner.com](http://www.thevegancorner.com)*

Makes about 6 crepes



#### Ingredients

- 5 teaspoons of brown sugar
- ½ lemon zest, grated
- 7/8 cup (almost 1 cup) of almond milk
- ½ teaspoon of vanilla extract
- ¾ cup of flour (if too watery, add a bit more)
- ⅓ teaspoon of baking soda

#### Directions

- ♥ Place the sugar, the lemon zest, the milk, the vanilla extract, the flour and the baking soda into a bowl, and whisk the ingredients well to obtain the final the batter.
- ♥ Let the batter sit for about 5 minutes so that the flour will properly hydrate and create a lump-free mixture.
- ♥ Place a non-stick pan over a low heat, and as soon as it's hot, pour in a small amount of the batter, spread it with a tablespoon using circular motions, and cook the first side for about 30 seconds.
- ♥ Once the first side is cooked, flip the crepe over and gently press it all around the surface to achieve some extra coloring. You might find that 30 seconds is not enough or too much for your personal taste, so feel free to experiment with longer or shorter cooking times as you proceed with the cooking.
- ♥ In regard to the quantity of batter needed, use 15ml or 1 tablespoon for small crepes, and about 50ml or 3 tablespoons for larger crepes.
- ♥ Serve with fruits.

## Appendix 7. IRB Exemption



University Research Compliance Office

TO: Sandy Procter  
Nutrition Program  
204 Justin

Proposal Number: 8408

FROM: Rick Scheidt, Chair  
Committee on Research Involving Human Subjects

DATE: 09/09/2016

RE: Proposal Entitled, "Cooking Skills in Expanded Food and Nutrition Education Program (EFNEP) Participants"

The Committee on Research Involving Human Subjects / Institutional Review Board (IRB) for Kansas State University has reviewed the proposal identified above and has determined that it is EXEMPT from further IRB review. This exemption applies only to the proposal - as written - and currently on file with the IRB. Any change potentially affecting human subjects must be approved by the IRB prior to implementation and may disqualify the proposal from exemption.

Based upon information provided to the IRB, this activity is exempt under the criteria set forth in the Federal Policy for the Protection of Human Subjects, **45 CFR §46.101, paragraph b, category: 2, subsection: ii.**

Certain research is exempt from the requirements of HHS/OHRP regulations. A determination that research is exempt does not imply that investigators have no ethical responsibilities to subjects in such research; it means only that the regulatory requirements related to IRB review, informed consent, and assurance of compliance do not apply to the research.

Any unanticipated problems involving risk to subjects or to others must be reported immediately to the Chair of the Committee on Research Involving Human Subjects, the University Research Compliance Office, and if the subjects are KSU students, to the Director of the Student Health Center.