

Habit Formation for Parenting Practices Designed to Change Youth Vegetable
Intake

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Dedication

This thesis is dedicated to Charlie and Susan Ritter for their infinite love and support.

Abstract

Objective: Adequate vegetable consumption is a marker for diet quality. Vegetable consumption among low income children is well below recommendations. A controlled intervention involving a cooking component was conducted to improve vegetable preparation and consumption by families with pre- and post-assessment to determine effectiveness. This study used assessment data from the intervention group only to evaluate relationships between parent and child vegetable liking, home availability of vegetables, and habit formation for parenting practices to improve child vegetable intake.

Study Design, Setting, Participants, Intervention: Within group (intervention group only), pre-/post-test design, low-income parent/child pairs (n = 44) in the Minneapolis/St. Paul metropolitan area. Parents were primarily women and non-white, with a high school education or less; children were 9-12 years. Six parent behavioral practices intended to be implemented at home to encourage child vegetable consumption were incorporated into a series of 6 Cooking Matters for Families classes (one practice/class/week). Habit formation was encouraged by describing the practice, modeling within a shared dinner meal, and having parents plan and report home implementation.

Outcome Measures and Analysis: Vegetable liking ratings for parents and children were evaluated with a ten-point Likert scale. Vegetables present in the homes were measured using an inventory form completed by parents. Both vegetable liking and availability were measured immediate post-intervention. The week after a behavioral practice was

introduced, parents rated the ease of use and frequency on a 4-point scale and habit strength using a Self-Report Habit Index (4-point disagree/agree scale). Habit strength was measured again immediate post-intervention, and 6-month and 12-month post-intervention. Paired t-tests were used to compare habit strength for 6 practices implemented from 1-6 weeks.

Multiple regression models were created for each behavioral practice to determine associations between habit strength at the immediate post-intervention assessment, and environmental factors (home availability of vegetables), behavioral factors (frequency of eating meals together, planning behaviors), and individual factors (child cooking interest and cooking efficacy, parent and child vegetable liking, parent attitudes about cooking, parent attitudes about cooking with their child).

Results: Most vegetables were rated as highly liked for both parents and children. The average count of vegetables in homes was 18. One week after introduction, all practices were rated as easy to complete. The frequency of performing the practices was rated at midpoint between “never” and “always”. Habit strength increased from one week after introduction to post-intervention for 3 of the 6 practices assessed: having children help prepare vegetables for meals (2.6 to 2.9; $p= 0.008$), making vegetables more easily available and visible than other foods at meals (2.6 to 2.8; $p= 0.007$), and serving at least two vegetables with a meal (2.8 to 3.1; $p=0.0004$). Serving at least two vegetables

decreased from immediate post-intervention to 6-month post-intervention (3.1 to 2.7; $p=0.005$).

Only four of the mediating variables significantly predicted habit strength. More positive parent cooking with child attitude was associated with habit strength for the practice of having your child help prepare vegetables. The frequency of eating meals together was associated with habit strength for the practice of using MyPlate for dinner meals. Parent vegetable liking was associated with the habit strength for serving two vegetables; and planning behaviors were associated with habit strength for serving vegetables first.

Conclusions and Implications: This approach was effective in helping parents develop habitual parenting practices to encourage vegetable consumption among children. Further evaluation is needed to determine whether these habitual practices can improve child vegetable intake. Outside influence from environmental, behavioral, and individual factors should be considered, as they affect the process of habituation.

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Chapter 1: Literature Review

Youth Obesity Status

Prevalence and Trends

The United States continues to be burdened by obesity among its youth.

According to the National Health and Nutrition Examination Survey (NHANES) conducted in 2011-2012, 34.5% of adolescents (12-19 years) and 34.2% of children were overweight or obese.¹ The prevalence of obesity has been at this level since the 2003-2004 cycle of data collection.¹ NHANES classifies obesity status into Body Mass Index (BMI) categories. Class I indicates a BMI between 30.0-34.9, class II between 35.0-39.9, and class III at 40.0 and above.² Skinner *et al.*³ conducted a trend analysis of the NHANES data on obesity prevalence from 1999-2014. Data from children (2013-2014) showed that 17.4% were categorized in class I, 6.3% in class II, and 2.4% in class III. No significant differences were found in the prevalence among the classes of obesity by sex.³ Unlike sex, different trends appeared across race/ethnicity groups. Among Black and Hispanic children, overweight and class II obesity rates were higher compared to non-Hispanic Whites.³ For non-Hispanic Asians, obesity affected only 8.6% of youth.¹ These findings show the need for efforts to improve the weight status and health of America's children.

An emerging association between socioeconomic status/food insecurity and weight status was first identified a decade ago.⁴ Food insecurity remains a large problem for the United States. National data from 2014 were collected by the Economic Research

Service (ERS) branch of the United States Department of Agriculture (USDA).⁵ In 2014, more than 14% of households were classified as food insecure. This translates to around 17 million households that did not have access at all times to enough food for an active, healthy lifestyle.⁶ Larson and Story's review of the literature showed that food insecure women were more likely to be obese compared to their food secure counterparts.⁶ However, the relationship between children's weight status and socioeconomic status was inconsistent among studies. Only 6 of 25 studies found that food insecurity was related to excess weight in children.⁷ Although the association between child socioeconomic position and weight status is questionable, Senese *et al.* confirmed a relationship between poverty as a child and obesity in adulthood.⁸ The risk of obesity has been attributed to certain dietary behaviors such as high consumption of calorie-dense foods, sugar-sweetened beverages, and fast food.⁹ According to a review by Drewnowski *et al.*, families in poverty tend to consume higher amounts of these types of foods,¹⁰ which may explain the paradox of low food security and higher rates of obesity. This at risk population needs to be the focus of obesity-related interventions.

Vegetable Intake Among Youth

Vegetable Intake and Health

Fruits and vegetables are generally regarded as fundamental components of a healthy diet. An important benefit of vegetable intake is the provision of necessary vitamins and minerals as well as phytochemicals that act in a protective manner against oxidative stress and pro-inflammatory agents.¹¹ Several studies have linked the presence of antioxidants and anti-inflammatory agents and lower prevalence of chronic diseases

such as type 2 diabetes, cardiovascular disease, and certain types of cancer.¹²⁻¹⁴ Hornick *et al.*¹⁵ used the USDA, What We Eat in America's Food and Nutrient Database for Dietary Studies to determine the energy and nutrient content for vegetables commonly consumed in the U.S. Most had low energy density and high fiber content.¹⁵ Fiber is known to slow gastric emptying and thus increase satiety when foods with high fiber content are eaten, such as vegetables.^{11,16} When vegetables prolong satiety, fewer high energy dense foods may be consumed.¹¹ Hornick *et al.* concluded that nutrient content of vegetables is variable and thus a healthy diet should include a wide variety of vegetables.¹⁵

Several studies exist that evaluate the relationship between vegetable intake and weight status. Miller *et al.* studied this relationship by administering a 34-item subsection of the Diet History Questionnaire to 39 mothers in order to assess vegetable intake.¹⁷ Mothers responded for themselves and their child. A major finding included a significant positive association between mother and child fruit and vegetable intake ($p < 0.001$). Additionally, overweight or obese children consumed significantly fewer servings of fruits and vegetables ($p = 0.02$) compared to normal weight children.¹⁷ Epstein *et al.* further studied this association by randomly assigning families to two treatment groups (increasing fruits and vegetables or reducing intake of high energy-dense foods) intended to treat pediatric obesity. Children who improved fruit and vegetable intake had greater declines in BMI at 12-months (-0.30 vs. -0.15 zBMI units; $P = 0.01$) and 24-months (-0.36 vs. -0.13 zBMI units; $P = 0.04$) compared to those who reduced energy-dense foods

at one and two year follow-up sessions.¹⁸ More interventions that aim to increase vegetable intake in children should be conducted to confirm effects on weight status.

Recommended and Actual Intakes of Vegetables

The current USDA recommendation for vegetable intake is two or more cups per day depending on energy requirements, which are determined according to age, sex and level of physical activity. Unfortunately, recommendations do not always translate into action. Reports based on What We Eat in America, NHANES nationally representative dietary intake data for one day (2011-2013), indicate that intake was below recommendations for total vegetable consumption (boys 6-11 = 0.9 cups; boys 12-19 = 1.3 cups; girls 6-11 = 0.8 cups, girls 12-19 = 1.0 cups)¹⁹. An analysis of the 2002-2003 NHANES 24-hour dietary recall data found that the percentage of adolescents meeting the vegetable recommendation was 5.8%.²⁰ The subtypes consumed at the lowest levels included dark green and orange vegetables and legumes, while the highest was white potatoes. A report conducted by the Center for Disease Control (CDC) also examined 1-day 24-hour dietary recall data to report fruit and vegetable consumption in U.S. children from 2003-2010.²⁰ The longitudinal data revealed no significant difference in vegetable consumption between 2003 and 2010 data collection periods. On the day dietary intake data were collected, 93% of children ages 1-18 did not meet the recommended daily vegetable intake. Of the total vegetable intake, 30% was comprised of white potatoes, mostly in the form of fried potatoes or chips.²¹ Total vegetable intake across different races was comparable, except for minimal but significant differences for Mexican American and non-Hispanic black children eating fewer vegetables.²¹ The low number of

adolescents meeting vegetable recommendations provides a target for significant improvements.

Liking

It is generally accepted that children's food choices largely depend on taste preferences.²²⁻²⁴ Low vegetable intakes may be related to lower liking ratings compared to other foods. Di Noia and Byrd-Bredbenner reviewed 58 papers to identify determinants of fruit and vegetable intake for low income children.²⁵ They identified 85 determinants. Vegetable preference was a prominent determinant of intake based on the literature reviewed.²⁵ A study conducted in The Netherlands with 19 children (mean age 7.5 years) tested flavor-nutrient learning with two vegetable drinks using a within-subject design.²⁶ There were three phases: pre-test, conditioning, and post-test. Due to low consumption during the conditioning phase, researchers were not able to draw conclusions about flavor-nutrient learning. However, they suggested that children have an aversion to pure vegetable tastes, which led to decreased consumption of vegetable juices.²⁶ A potential limitation of this study was the small sample size. Another larger study of 816 students explored fruit and vegetable intake using a questionnaire.²⁷ Bere and Klepp compared baseline and follow-up data over nine months among students in 20 control schools (mean age 11.8) and found that the two largest influences were accessibility and preference.²⁷ Liking, accounting for 29% of the variance, was considered an important predictor of future fruit and vegetable intake. As a part of a cross-sectional study (Raising Healthy Eating and Active Living Kids in Alberta), a total of 3,398 children between ages 10 and 11 completed the Harvard food frequency

questionnaire.²⁸ From these data, researchers used random effects models to test for associations between fruit and vegetable intake and preference. They reported significantly higher intakes of fruits and vegetables ($p < 0.001$) with greater liking scores. Children who highly rated liking of a certain vegetable, consumed on average, 0.5 to 2 more servings of that vegetable than those who had lower rating scores.²⁸ Modifying taste preference may be the key to increasing consumption of vegetables.

Food likes and dislikes are shaped by a number of factors including innate and learned factors. For survival, humans have had to discern potentially harmful foods from safe foods. As children grow, they learn which foods are safe by instinctive drives and learned preferences.²⁹ An inherent preference for sweet over bitter flavors contributes to this survival mechanism. Sugar signifies high caloric content while bitter may indicate toxic compounds within the food.²⁹ An innate draw to sweet foods seems to be present from birth. Schwartz et al. studied infant acceptance of sweet, salty, bitter, sour, and umami tastes and analyzed liking by body language and amount of solution consumed.³⁰ The study showed that infants at all ages preferred sweet and salty flavors, umami was neutral, and bitter and sour were least accepted.³⁰ Many vegetables contain thioureas and similar compounds, which contribute to their bitterness. Sensitivity to thioureas is linked to genetics. Around 70% of White individuals in the U.S. and Western Europe have a moderate to intense reaction to bitter flavors,²⁹ possibly contributing to low vegetable liking.

The introduction of new foods allows for a person to expand personal food preferences. Neophobia, the fear of anything new or unfamiliar, can prevent people from

trying new foods. One study assessed food neophobia in 5,390 twin pairs (ages 8-11) using the Child Food Neophobia Scale.³¹ Parents responded to questions about their children's eating habits, which included neophobic tendencies surrounding food. The results showed a distinct correlation between neophobia and heritability.³¹ The low liking ratings of vegetables could originate from a number of biologic, genetic, and personal factors.

Repeated exposure has been shown to increase liking. Several studies have established that it may require 10 or more exposures to change food liking.³²⁻³⁵ One controlled-intervention study focused on changing liking of fruits and vegetables in grade school-aged children through repeated exposure over eight weeks.³⁶ On alternating weeks, 379 children tasted four fruits or vegetables with follow-up measures four and ten months post-intervention. The repeated exposure led to increased liking scores of less-liked fruits and vegetables. Five tastes were needed to change liking of fresh green bell peppers, carrots, and tomatoes, while cooked, canned peas required six. The increases were maintained for the year duration of the study.³⁶ Another school-based intervention examined the impact of the continued offering of vegetables on liking scores.³⁷ Fourth- and fifth-grade students were served fresh carrot, tomato, and green bell pepper, and cooked, canned green peas and asked to try each, one at a time. They completed a one-page survey determining 1) if they ate it and 2) if they liked it. After 10 weeks of exposure, children disliking the vegetables at the beginning increased liking scores for carrots, peas, and tomatoes.³⁷ These studies demonstrate the possibility of increasing vegetable liking through repeated exposure.

Income Level and Vegetable Intake

Income level has been shown to impact vegetable intake. To determine an association between income and intake, Dubowitz *et al.*³⁸ analyzed the relationship between consumption of fruits and vegetables (servings) based on NHANES 24-hour recall data and neighborhood socioeconomic status (NSES) for whites, blacks, and Mexican Americans in the U.S. A positive relationship between NSES and fruit and vegetable intake was found. More specifically, for each one standard deviation increase in NSES, children ate nearly two more servings of fruits and vegetables per week.³⁸ Vegetable intake data for this study came from NHANES III (1988-1994), but a more recent study using data from NHANES 2009-2010 found a similar relationship.³⁹ Storey and Anderson looked at intake of dietary fiber from vegetable sources and found that lower income families have lower consumption rates compared to higher income counterparts.³⁹ Lower income families are consuming fewer servings of vegetables, and the vegetables they are consuming may not be healthy. Although not significant, Lorson *et al.* noted a trend for adolescents consuming high energy-dense vegetables (French fries) if they lived in households below 350% poverty level ($P=0.101$).⁴⁰ These studies support a positive relationship between socioeconomic status and vegetable intake. Families with higher income, education, employment levels have children who eat more vegetables compared to lower income counterparts.

Some studies could not determine an association between socioeconomic status and vegetable intake. Howard *et al.* followed 5,670 children ages 10-13 for three years and tracked fruit and vegetable intakes through a food frequency survey. The study

examined the association between socioeconomic status and intake of green salad, carrots, potatoes, and other vegetables and found no significant relationship.⁴¹ An analysis of 92 low income families' food security status and fruit and vegetable consumption was conducted with similar results.⁴² Vegetable intake in these families was not affected by socioeconomic status. Although no differences were observed between food secure and insecure families, both groups were eating few fruits and vegetables.⁴² Based on several studies, a link between income and food security on fruit and vegetable consumption among children is not evident.

Several barriers exist that prohibit food insecure families from consuming the recommended servings of vegetables. The high cost of fresh produce may impact the number of servings of vegetables lower income families can consume. A study conducted by ERS, USDA determined that it costs approximately \$2-2.50 per day to meet the Dietary Guidelines recommendations for fruit and vegetable intake.⁴³ With fruits and vegetables comprising half of a balanced diet, this may place a financial burden on food insecure families. Data show that lower income families opt for higher energy-dense foods.¹⁰ However, most fruits and vegetables are not energy-dense. A study focusing on barriers and facilitators of fruit and vegetable consumption reported results of focus groups conducted within multi-ethnic populations of the U.S.⁴⁴ Results show that, regardless of ethnicity, the high cost of fruits and vegetables was the most prominent barrier. Additionally, they found parents prefer prepackaged convenience foods over fresh fruits and vegetables which have higher spoilage rates. Inaccessibility to grocery stores was another barrier for parents.⁴⁴ Several other studies found accessibility to be an

important barrier to healthy eating.^{45,46} Powell et al.⁴⁵ conducted a study to determine availability of food stores nationally. A main finding was that lower income areas have 75% as many supermarkets compared to higher income neighborhoods.⁴⁵ Obtaining fresh produce may be increasingly more difficult with limited access to grocery stores. Barriers such as these help explain the association between income and vegetable intake.

Availability of Vegetables

Child vegetable intake is highly influenced by the types and amounts of vegetables available, especially in the home environment. Several studies have found an association between vegetable home availability and intake.⁴⁷⁻⁴⁹ Brug *et al.* identified several correlates of vegetable intake.⁴⁷ Among their findings was that children reported eating vegetables daily if the vegetables they liked were available in their home.⁴⁷ Home availability influences other aspects of vegetable intake as well. A survey administered through Project EAT (a population-based, cross-sectional study in the Twin Cities, MN) measured socio-environmental, personal, and behavioral factors to identify potential associations with dietary intake of adolescents (intake measure with a food frequency questionnaire).⁴⁸ Data from 4746 socio-economically diverse adolescents in Minnesota showed that taste preference was correlated with home availability.⁴⁸ In addition, a test of interaction showed that even if preference for fruits and vegetables was low, the presence of fruits and vegetables increased children's intake.⁴⁸ Another component of Project EAT included a longitudinal analysis of eating patterns as the participants transitioned to young adulthood.⁴⁹ After five years, home availability was one of the few factors that impacted fruit and vegetable consumption. However, after further adjusting for

socioenvironmental and individual factors, longitudinal increases for vegetable intake were no longer significant.⁴⁹ Home availability not only influences current child vegetable consumption, but also future adolescent consumption when they become more autonomous in regard to their food choices.

Parent Practices and Vegetable Intake

Children and adolescents rely on parents and caregivers to provide the necessities, especially food. What children eat is largely based on their parents' preferences.²⁵ In addition to preferences, parenting practices shape how a child eats. Many parents struggle to get children to eat vegetables⁵⁰ using various parenting practices. Baranowski et al. studied parenting practices related to vegetable intake of preschool children to identify ineffective and effective methods to improve vegetable intake.⁵¹ One notable, effective practice was a habit of involving the child in selecting a vegetable. Conversely, the habit of using controlling parenting practices (i.e. yelling at child to finish vegetables, preventing activities, and rewarding with sweets) was found to be ineffective.⁵¹ Other studies have concluded that parental pressure and control negatively correlate with consumption of vegetables.^{52,53} An analysis of data from 755 Head Start families explored the influence parenting style has on vegetable consumption.⁵⁴ Cluster analysis of three groups—Indiscriminate Food Parenting, Non-directive Food parenting, and Low-involved Food Parenting— showed that less firm discipline styles were significantly associated with higher intake of fruits and vegetables.⁵⁴ Although some parenting methods are successful at increasing vegetable consumption, continued efforts to identify approaches are needed.

Parenting practices can be considered habits when performed in an automatic manner without reflection. Baranowski et al.⁵⁵ studied the relationship between variables from a Model of Goal Directed Behavior to four habits (actively involving child in selection of vegetables; maintaining positive vegetable environment; positive communications about vegetables; controlling vegetable practices) involving vegetable parenting practices for young children. The four habits were predicted primarily by the corresponding parenting practice scale, but also by selected barrier, self-efficacy, emotion, and perceived behavioral control variables. This was the first study to examine variables that were associated with parenting practice habits. These findings have implications for the development of interventions to discontinue ineffective parenting practice habits and encourage effective parenting practice habits.

Defining Habit

Many daily actions such as putting a seatbelt on after getting into a car or brushing teeth before going to bed are engrained into a routine. These actions are called habits, which are considered automatic responses to an environmental cue requiring no forethought.^{56,57} People's daily routines are made up of many habits.⁵⁸ The ability to create reflexive behaviors surrounding parenting practices that ensure healthy food choices among children could improve dietary quality of children with no deliberate effort. Further intervention studies could lead to effective parenting practice habits becoming as engrained as putting on a seatbelt.

Psychology of Habit

Dual process theory refers to the psychological concept that behaviors are promoted by two pathways: deliberate and automatic.^{59,60} Actions that require forethought and cognition are categorized under the deliberative or reflective pathway. In contrast, automatic or impulsive behaviors are performed under circumstances in which an environmental cue is present, but awareness and effort are not.⁵⁹ Efforts for long term change must begin in this pathway because these behaviors tend to be habits engrained in a person's daily routine. Previously, the behavior processes were thought to transpire independently, but now the two-system model suggests a simultaneous concurrence with a competitive element.⁵⁹

A characteristic that separates deliberate and automatic behaviors is intention. Behavioral intentions have a dynamic relationship with these two pathways.^{58,61} A behavior evolves as circumstances change. Every behavior originates in a reflective state of mind, meaning that it needs a degree of intention in order to be completed.⁵⁸ Over time, an action can transition into the automatic system if the context allows. Repetition is one element that can generate a shift to automatic characteristics. A behavior repeated in the same circumstances with the presence of static environmental cues eventually becomes automatic in nature.⁶² As a behavior evolves, it relies more on the environmental cues and less on intrinsic motivation.⁶³ Thus, as automaticity increases, behavioral intention decreases.⁵⁸ Participants in focus group interviews indicated that less and less deliberate effort was needed with frequent and consistent execution of tips related to dietary and physical activity behaviors.⁶⁴

Formation Process

Habits fall under the automaticity pathway. Gardner, Lally, and Wardle⁶⁵ created a research-based guide for clinicians that aids patients in developing healthy habits. Their review of the literature identified three phases in successful habit formation— initiation, learning, and stability.⁶⁵ When intending to develop a new habit, the first stage includes selecting a behavior to transform into a habit and the environment in which this behavior will be consistently performed. Similar to any behavior change attempt, habit formation requires motivation. The initiation phase requires the most motivation compared to the other two phases.⁶⁵ A study interviewed ten participants after they were given a leaflet with tips designed to promote habit formation. A main finding was that situational context (daily routine) was helpful in the initiation of habit formation.⁶⁴ Often times the context is referred to as a “cue” for the behavior. A cue can be any environmental influence such as a particular time of day (before dinner) or an event (when I enter the kitchen).⁶⁴ Participants found that a successful cue is an aspect of their environment that is regularly encountered because it is an established reminder to perform the desired action.⁶⁴ The research-based guide developed by Gardner, Lally, and Wardle⁶⁵ indicated that habit does not form in the initiation phase, rather in the learning phase. In order for a habit to develop, the behavior needs to be repeated in the specified context to reinforce the association between the context and behavior.⁶⁵ Once the behavior has been completed in a stable context for an appropriate amount of time, it becomes a habit. Thus, it reaches the stability phase.⁶⁵ A study of habit development identified an overall trend for the progression of habit formation.⁵⁷ Ninety-six participants selected a health-related behavior to complete every day for 12 weeks. Early repetitions yielded large gains in

automaticity, but as the weeks progressed, automaticity diminished and eventually plateaued.⁵⁷

Contributing Factors of Habit

During the process of habit formation, motivation and intention are factors that contribute to its overall success. The major element to any type of behavior modification is the motivation to undertake such a task. A meta-analysis of 22 studies performed by Gardner and Lally⁵⁶ found that habit will supersede motivational determinants of behavior. As habit ratings strengthen, intrinsic motivation of a behavior weakens.⁵⁶ One study aimed to discern the relationship between habit and intrinsic motivation among adults 18-30 years by measuring motivation, intention, behavior, and habit strength surrounding physical activity via a questionnaire.⁶⁶ Both past behavior and intrinsic motivation to be physically active were predictive of habit strength. In addition, they found that habit and intention were strongly correlated ($r=0.75$).⁶⁷ De Bruijn et al.⁶⁷ further examined the relationship between habit and intention using the theory of planned behavior. They administered an online questionnaire to college students about intent to eat fruit and average fruit consumption per week. Habit strength was then measured using the Self-Report Habit Index (SRHI). Results showed that intention to perform a behavior decreases as habit strength ratings increased.⁶⁸ For habits selected by an individual related to healthy eating, drinking or exercise among university students, the authors concluded because no extrinsic rewards were provided, they are not necessary for habit formation.⁵⁷ Instead, intrinsic factors motivated change. According to Rothman *et al.*,⁶⁰ behavior initiation is propelled by a confidence in successful behavior achievement and

the notion that the behavior will positively impact a person's life. In turn, maintaining a behavior relies on whether past experiences actually fulfill anticipated lifestyle improvements.⁶⁰ Motivation is what kick starts the habit formation process, but other factors are needed to maintain it.

The cornerstone to establishing and maintaining automatic behaviors is repetition. Based on the literature, Rothman et al.⁶⁰ indicated that behavior changes occur when an action persists under a stable environment in which a cue is consistently present. In order to secure this associative connection, people, places, or time of day must remain constant.⁶⁰ Few statistics exist surrounding the 'magic' number of repetitions, but in relation to health changes, Lally *et al.*⁵⁷ showed that it takes an average of 66 days to reach 95% of the asymptote for a participant-selected eating, drinking, or physical activity behavior. Minimum and maximum values ranged from 18 to 253 days.⁵⁷ This study relied on participants to complete the chosen action every day. Due to human error, this may not always be possible. Lally *et al.* were the first to study the effects of missing an opportunity to carry out the habit on habit strength scores.⁵⁷ Their results indicate that after a missed opportunity to perform a behavior, automaticity scores barely changed, with an average decrease of 0.29 points on the SRHI scale. When the behavior was resumed the following day, scores increased from the day before the missed opportunity.⁵⁷ This demonstrates that an occasional omission to perform the behavior has little impact on habit strength. Methods used by Armitage⁶⁶ differed slightly from Lally et al.⁵⁷ because they evaluated physical activity behaviors in weekly blocks and considered a lapse as an entire week of unperformed behavior. Future performance was negatively

affected by this lapse.⁶⁶ In this case, when repetition ceased to occur for an entire week, the necessity of repetition was demonstrated for the process of habituating actions.

Habit Formation Facilitators

The concept of habit formation is simple, but proper execution can be a challenge. Certain aspects can help or hinder habit acquisition. The most significant aspect that promotes habits is an environmental cue. When a strong, stable cue is associated with a behavior, a habit will form if repeated a sufficient number of times.⁵⁶ Other practices have also been shown to increase habit formation. One well-documented practice is forming implementation intentions. Rothman and colleague's reviewed several habit studies showing that implementation intentions prepare a person for situations when he or she encounters a potential setback by having an if-then plan in place.⁶⁰ Webb and Sheeran's meta-analysis⁶⁹ focused on the underlying mechanism of forming implementation intentions. The statements follow the format of *if opportunity arises, then ideal behavior is implemented*. Entering a situation with implementation intentions increases the rate of desired behavior performance.⁷⁰ For example, to decrease snacking habits, a person might rehearse that "if I go to the movies, then I will not order popcorn." Implementation intentions are able to connect the automatic and deliberative pathways by creating awareness of possible outcomes.⁶⁰ In the context of changing health behaviors, Chapman *et al.* tested the impact of forming implementation intentions by randomly allocating students to three groups— control, if-then plans, and general planning. Students completed a pre-test specific to their treatment group about increasing their fruit and vegetable intake over the following week. Results showed that fruit and vegetable

intake increased by 0.50 servings when participants formed implementation intentions compared to general planning (0.31 servings) and control (0.01 servings).⁷¹

Habit Formation Barriers

Habit formation can be disrupted by a number of factors ranging from environmental factors to personal mind set. The most significant barrier to habit formation involves inconsistent or nonexistent environmental cues. Without these cues, people will not be prompted to perform the behavior reflexively. A meta-analysis of 47 experimental studies indicated that lack of resources was another barrier to habit formation. Without the necessary resources or supplies, intentions do not get translated into action.⁶⁹ In addition to resources, a person must have adequate time in which to perform the chosen behavior. Time constraints can deter the execution of a new behavior.⁶⁰ Old habits persist because they require no forethought. The environment is not the only factor that disrupts the process of habit formation. Self-regulatory problems—never beginning, getting off track, becoming stressed—block habit formation by impeding intentions.⁷⁰ Oettingen et al. carried out three experiments to understand how self-regulation impacts goal attainment. All three found that goals are attained by turning desires into goals and then achieving the intended goal, which requires self-regulation.⁷² Persistence is key to habit formation because it can help individuals overcome barriers and strengthen the facilitators.

Potential Role of Habit in Health Changes

Habits can be beneficial or detrimental to health. When habits have formed, not performing them requires cognitive capacity. In addition, humans rely on habits when

cognitive capacity is limited. Time constraints, distractions, and exhaustion lead to reduced cognitive capacity.⁶⁰ Habits become the ‘autopilot’ of behavior. Exploiting this concept of habit could have major positive health outcomes. For example, if a person habitualizes cleaning and cutting vegetables after grocery shopping, the likelihood of reaching for prepackaged foods, because vegetables have become just as convenient, is reduced. Not all habits contribute to a healthy lifestyle. One challenge for health professionals is eliminating poor health habits, such as smoking and sedentary lifestyle, and replacing them with new habits. Fortunately, just as there are ways to create habits, strategies exist to reverse habits as well. Vigilant monitoring of daily behavior can attenuate bad habits by acknowledging their existence.⁶⁰ Just as cues are the crux of habit formation, they also can be used to terminate bad habits. This is done by identifying the environmental cue and blocking it when encountered.⁶⁰ The environment in which a person lives silently directs many daily behaviors. Approaching health education in a way that equips a person to recognize environmental cues, good or bad, could help people live healthier lifestyles by being aware of surroundings.

Habit Measurement Tools

Researchers utilize several distinct methods for quantifying habitual behavior. Each method measures different aspects of habit, contributing to a comprehensive understanding of this behavior. Verplanken and colleagues developed one of the first methods for assessing habitual behaviors which they called response frequency measure (RFM).⁷³ In a later study by Verplanken, they further developed the RFM into a

technique that rapidly displays habit-related situations to participants and asks them to select a behavior which they associate with the situation.⁷⁴ Another study by Verplanken and Orbell compared different methods of measuring habit.⁷⁵ They noted that RFM testing requires a participant to respond quickly to habit-related questions, which reveals automatic tendencies in the presented scenarios. This type of survey measures habits in daily life as opposed to conditions generated in a research setting. The survey is able to quantify the strength of a generalized habit.⁷⁵ Due to the need for a rapid response, this method requires research staff to monitor a participant continually throughout the duration of the survey to ensure proper timing. Additionally, RFM can only assess generalized behaviors (car use for traveling to different locations⁷³), and does not work for quantifying change in specific behaviors and situations.⁵⁷ Verplanken and Orbell⁷⁵ provided additional critique of the RFM explaining that an extensive piloting phase is needed to establish appropriate situational questions for each behavior.⁷⁵ Other methods have been created to assess different aspects of automatic behaviors. Wood et al.⁷⁶ first calculated habit strength by multiplying the frequency of a behavior by the consistency to assess habit strength of various activities of college students (TV watching, newspaper reading, and exercising).⁷⁶ This method is referred to as the multiplicity measure. As with RFM, this only measures the strength of a particular habit and cannot track the formation of a habit.⁶⁵ In addition to response frequency and multiplicity measures, a third method exists that can detect development of automatic activities known as the Self-Report Habit Index.⁷⁵

Self-Report Habit Index

In a four-part study, Verplanken and Orbell developed the Self-Report Habit Index (SRHI).⁷⁵ It is a 12-item questionnaire that utilizes a seven point Likert scale with varying levels of agreement or disagreement. The 12 items are based on three characteristics of habit: history of repetition (frequency), automaticity, and relevance to self-identity (Table 1).⁵⁶ History of repetition refers to the frequency with which a behavior was performed, the mindlessness of a task describes automaticity, and self-identity conveys the relationship between a behavior and daily routine. Automaticity of a behavior occurs when a task is efficient, and needs no control or awareness to be completed.⁵⁷ In order for the SRHI to yield successful results, it must contain five or more response categories (typically strongly disagree to strongly agree). Unlike the response frequency measure and multiplicity measure, the SRHI can discern if an action increases or decreases in habitual qualities as well as establish the strength of the habit.⁵⁷ A systematic review of the use of the SRHI found this to be the most common tool for measuring energy-balance related habits.⁵⁶ The SRHI has several advantages over the response frequency measure and multiplicity measure methods.

Table 1. Twelve questions of the Self-Report Habit Index categorized under the three characteristics of habit: automaticity, self-identity, and frequency. Sentences are inserted into “Behavior X is something... []” on questionnaire.

<p>Automaticity</p> <p>I do automatically. I do without having to consciously remember. I do without thinking. ...that would require effort not to do. I start doing before I realize I’m doing it. I would find hard not to do. I have no need to think about doing.</p>
<p>Self-Identity</p> <p>...that makes me feel weird if I do not do it. ...that belongs to my (daily, weekly, monthly) routine. ...that’s typically “me.”</p>
<p>Frequency</p> <p>I do frequently. I have been doing for a long time.</p>

The strengths of the SHRI make it desirable for health-focused studies. After developing the SRHI, Verplanken and Orbell⁷⁵ found it to have high reliability when retested. In addition, results based on its use correlate well with findings from other measures such as the RFM. They also found that the SRHI can distinguish subtle differences in habit frequency among several behaviors.⁷⁵ Predicting future behavior is essential when attempting to create a new habit because new habits take time to form. The SRHI is able to identify the beginning stages of habit formation by detecting subtle changes in strength.⁵⁷ Another advantage of the SRHI is being able to detect when a behavior gains or loses habitual qualities throughout the process of habit formation.⁷⁵ Lastly, this type of survey does not require research staff or participant training due to its high usability.

A limitation shared by all three methods is the reliance on participants' subjectivity regarding habit development. Acknowledging the possibility of inaccuracy from self-report is necessary with the RFM, multiplicity measures, and the SRHI.^{57,75} Automaticity is the underlying mechanism of habit,⁷⁷ but none of these methods can completely quantify this.^{57,65,75}

Self-Report Behavioral Automaticity Index

The 12-item length of the SRHI is burdensome for participants when multiple behaviors are tested. An example of this occurred in a weight loss intervention that assessed 14 behaviors over three time points, requiring participants to complete 504 questions.⁷⁸ Gardner *et al.* began streamlining the Self-Report Habit Index after automaticity was determined to be the key characteristic of habit.⁷⁷ Their goal was to shorten the 12-item SRHI by removing unnecessary measures. To identify the necessary automaticity indicators that capture habit formation, a panel of psychology researchers judged how well the 12 items aligned with literature-based definitions of automaticity, frequency, and self-identity. The four highest rated automaticity items (Behavior X is something... 1) I do automatically 2) I do without having to consciously remember 3) I do without thinking 4) I start doing before I realize I'm doing it) comprised a new shortened index called Self-Report Behavioral Automaticity Index (SRBAI).⁷⁷

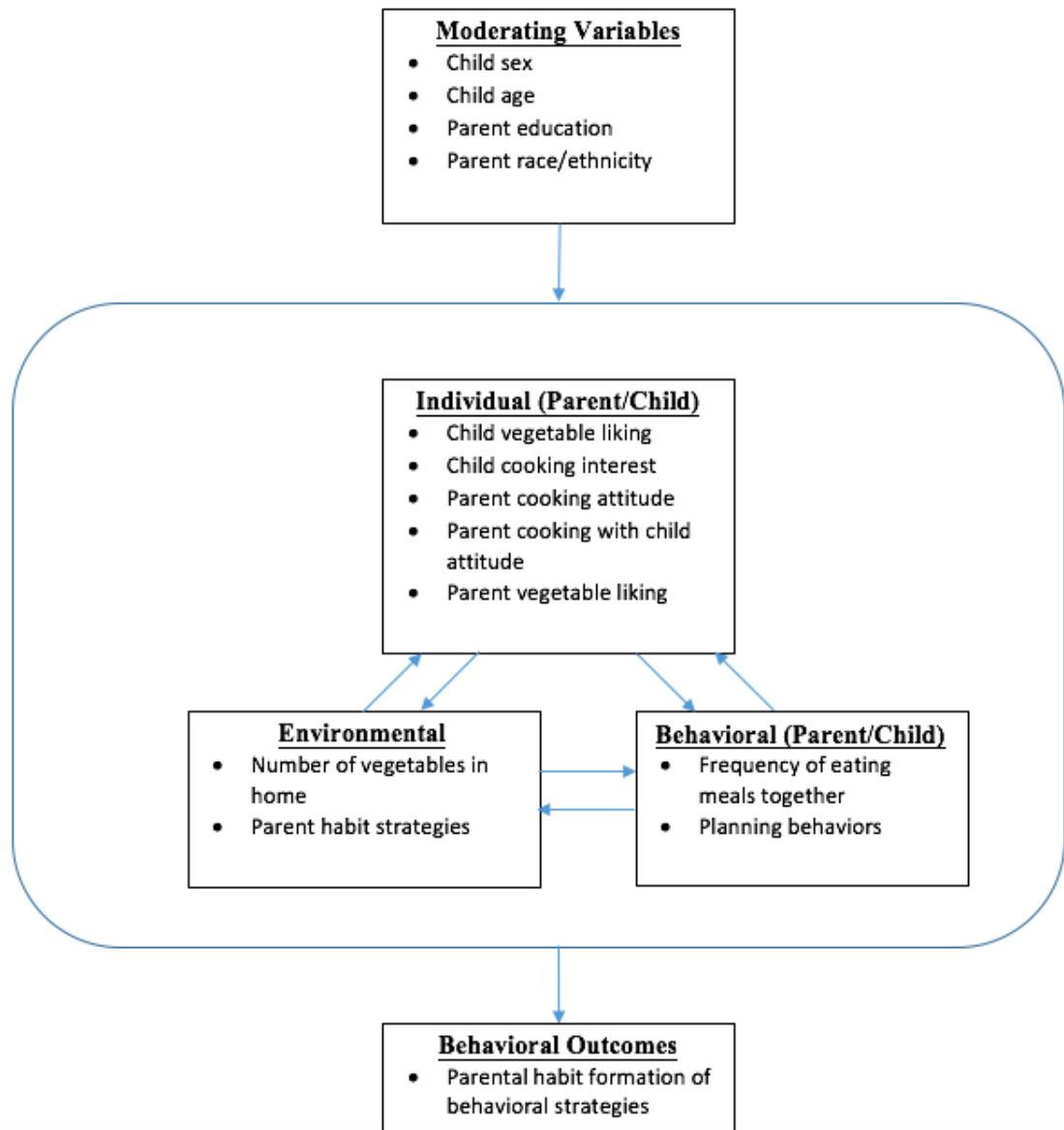
The decision to remove frequency and self-identity from the SRHI was founded in research. The original SRHI questionnaire contains three questions about self-identity (

Table 1). One study examined binge-drinking with factor analysis by adding more identity questions to the SRHI. Two factors were identified, suggesting that automaticity and self-identity are distinct from each other. In addition, self-identity did not relate to habit intention as strongly as automaticity.⁷⁹ Many researchers agree that high frequency of a behavior is caused by automatic tendencies, thus frequency does not actually gauge habitual behaviors.^{57,80} Using the shorter, validated SRBAI is recommended for data acquisition and quality when habit strength for multiple behaviors is measured at the same time.

Conceptual Model of Factors Influencing Parenting Practices

Parenting practiced can shape dietary behaviors of children, thus study of the influences that impact habitual use of parenting practices may be beneficial. Some factors that influence the habit strength of parenting practices include demographic information which be changed, while others can be manipulated such as environmental, behavioral, and individual factors. We developed a conceptual model of factors influencing parenting practices based on a modification of an existing social/cognitive/reciprocal determinism framework.⁸¹ The model illustrates that all three factors may be interrelated (Figure 1). Several variables were selected and categorized under each influential factor (environmental, behavioral, and individual) in this model. These variables were primarily based on potential barriers and facilitators to parenting practice habits.

Figure 1. A social cognitive/reciprocal determinism framework of influences on strength of parental habits – A mediating variable model. Modified from Cullen *et al.*⁸¹



Environmental Factors

One of the two environmental variables included in the model was the number of vegetables in the home. The availability of vegetables has been identified as an important environmental influence on vegetable intake of children and adolescents in previous studies⁴⁷⁻⁴⁹ in support of parent or child preparation for meals and/or snacks. In this thesis research, parents had to have vegetables present in the home to practice all the behavioral strategies.

The second variable comprising the environmental factor included behavioral strategies that parents employed in their home food environment. The implementation of these strategies was expected to modify the home meal environment to make vegetables more visible and/or available, and to alter the preparation, amount or manner in which vegetables were served. The strategies were selected based on research to assess feasibility and effectiveness in a previous intervention.⁸⁶ The six behavioral strategies included having the child help prepare vegetables, using MyPlate as a guide, making vegetables more visible and available at meals, serving at least two vegetables with meals, serving vegetables before a meal, and using a bigger serving spoon.

Child help

Involving children in the preparation of food, especially vegetables, may increase the likelihood they will try the foods. Baranowski et al. found that when parents had a parenting practice habit of having their child select a vegetable, child vegetable consumption was increased.⁵¹ Furthermore, several studies have identified a positive association between frequency of child participation in cooking and better dietary behaviors.⁸⁷⁻⁹¹ Using a cross-sectional study, de Jong *et al.*⁹⁰ studied determinants of fruit

and vegetable intake in children aged 4-13 years old who were at risk for being overweight. When parents and children cooked together five days per week, a positive effect on child vegetable intake was observed.⁹⁰

MyPlate

The Dietary Guidelines for Americans 2010 introduced MyPlate as a guide for healthy eating. This image of a divided plate serves as a guide to show the recommended serving for each food group.⁹² The image has been placed on plastic divided plates for distribution as a nutrition education resource. No studies were found that tested the effectiveness of the image or the plastic plate with the image on vegetable consumption among children. A similar concept was studied in school cafeterias by placing pictures of green beans and carrots within the compartments of a lunch tray to remind students to take these vegetables. The pictures of the two vegetables in the compartments successfully increased vegetable intake among students.⁹³

Making vegetables visible and available

Food displayed on a counter can serve as a cue to those who pass by. Wansink and colleagues studied the effects of candy dish placement on candy intake in an office setting.⁹⁴ The three locations for the dish were in the desk, on the desk, and two meters from the desk. Significant differences in consumption were found when the visibility and convenience of the candy changed. Candy on the desk led to consumption of 2.9 more candies per day compared to when candies were in the desk ($P < 0.04$), and 5.6 more compared to placement two meters away from the desk ($P < 0.01$).⁹⁴ The same concept of proximity of placement can be applied to healthy foods.

Serving two vegetables

Serving more than one type of vegetable with a meal is a well-established method to increase vegetable consumption.⁹⁵⁻⁹⁷ One study using this method asked children (7-10 years) to assemble a meal they would like to eat from three assigned buffet lines containing fake foods.⁹⁷ One buffet line contained both carrots and green beans while the other two only contained one of the vegetables. Children assigned to the buffet line with both vegetables took significantly more compared to children assigned to the other lines. Similar results were found in a crossover designed study serving preschoolers three different types of vegetables—cucumber, sweet pepper, and tomato.⁹⁶ On three testing days, one of the three vegetables was offered as a single choice and on the fourth day, all three vegetable types were available. On the days when a variety of choices were served, vegetable intake significantly increased by an average of 31 ± 5 g ($P < 0.002$).

Vegetables first

Serving vegetables before and with a meal provides two opportunities for the child to consume them. A controlled-intervention trial held within school cafeterias tested the hypothesis that serving vegetables before lunch would increase vegetable intake.⁹⁸ In order to test this hypothesis, researchers had a control day with normal lunch conditions. On a separate study day, students underwent the intervention where the only change was the placement of baby carrots in cups in front of students waiting in the lunch line. Compared to the control day, the intervention caused a net increase of 430% in carrot consumption. A similar design was repeated with red and yellow bell peppers and the results were consistently positive,⁹⁹ demonstrating that a strategy can be simple, yet effective.

Bigger serving spoon

One way to increase the amount of vegetables placed on a child's plate would be to increase the size of the serving spoon. Several studies have examined the effects of manipulating utensil and plate sizes.^{100,101} To assess the effect of varying the serving spoon size, Fisher *et al.* had children use either a teaspoon or tablespoon to serve themselves a pasta entrée.¹⁰¹ The serving spoon that was tripled in size yielded a 13% increase in the portion placed on the plate. One study found that increasing portion sizes of fruits and vegetables by 50% increased consumption of fruits and vegetables by elementary students.¹⁰² A simple environmental modification has the potential to generate change in eating behaviors.

Behavioral Factors

Variables pertaining to mealtime practices were classified under the behavioral factor (Figure 1). Frequency of eating meals together and planning behaviors were the two variables in this category. A number of the behavioral strategies are dependent on these variables. In order to use MyPlate, make vegetables visible and available, serve vegetables first and use a bigger spoon to serve vegetables, it is necessary to eat meals together. Two strategies, serving two vegetables and serving vegetables first, require additional planning. Depending on the mealtime behavior, the outcome could be positively or negatively impacted.

Individual Factors

Several individual variables for both parent and child were included in this category (Figure 1). The child variables included vegetable liking and interest in cooking.

Child vegetable liking may be important for the success of every strategy. Cooking interest may be a vital factor affecting whether children want to help prepare vegetables. The parental variables included vegetable liking, attitudes about cooking, and attitudes about cooking with a child.

In this thesis, selected behavioral strategies were introduced to parents within a cooking skills program. One of the objectives of this research was to determine which factors are associated with the habit strength of these behavioral strategies after parents completed the cooking skills program. The selected behavioral strategies were based on behavioral economics principles. Theories from both economics and psychology merge to create the concept of behavioral economics. Slightly manipulating the social and physical environment through “nudges” can influence the choices people make.⁸²⁻⁸⁴ Some behavioral economic strategies have had great success in changing child eating patterns. Much of the research is based in the school environment, while research in the home environment is limited.⁸⁵ Using the conceptual model (Figure 1) as a framework, this thesis research will examine how environmental, behavioral, and individual factors may be associated with habit strength for six behavioral economic strategies that can be implemented in the home environment by parents to improve child vegetable intake.

Summary

The high rates of childhood obesity support the need for effective, habitual parenting practices involving diet. The prevalence of obesity among children vary across

race/ethnicity, but remain high for most population groups. Diet is a key factor in addressing the high rate of obesity among children and adolescents. Vegetables have high nutrient content and low energy density making them an integral part of a healthy diet. Incorporating more vegetables into the diets of children could improve weight status and overall health.

Most children do not meet the daily recommendations for number of vegetable servings because of several potential factors. One of the main deterrents for vegetable consumption is liking. Vegetables are consistently rated lower than most foods, especially compared to those that contain high levels of fat and sugar. Income is another barrier that prevents children from meeting recommendations for vegetable intake. Lower income families report that the high cost and low availability of vegetables make it increasingly difficult to maintain a regular inventory of vegetables in their homes.

Parental involvement is key to changing a child's diet. Studies show that some vegetable parenting practices are ineffective. Discontinuing current ineffective vegetable parenting practices and creating new habits surrounding vegetables may help alleviate childhood obesity rates through increased vegetable intake. A specific formation process for new habits has been established through multiple studies. In addition, certain aspects of the process have been identified that can inhibit or enhance the formation of a habit. These research efforts use specific measurement tools to assess progress on habit formation. In this thesis, factors (vegetable liking and availability) affecting the performance of six parental behavioral strategies will be assessed, habit strength of the

behavioral strategies will be measured over time, and associations between habit strength and selected environmental, individual, and behavioral factors will be determined.

Objectives:

The first objective of this study was to assess vegetable liking and home availability. For this objective, the following research questions will be addressed:

- 1) What are children's and parent's liking ratings of vegetables?
- 2) What is the mean count of total vegetables for households?
- 3) How many households contain each type of vegetable?

The second objective is to determine parental habit formation of behavioral strategies presented through a modified Cooking Matters® program infrastructure. For this objective, the following hypothesis will be tested:

Parent habit strength will increase from the week after introduction to immediately post-intervention, and the habit strength will be maintained over 6 and 12-months.

The third objective is to identify associations between the strength of each habit and environmental, behavioral, and individual factors. For this objective, the following hypothesis will be tested:

Associations will exist between selected environmental, behavioral, and individual factors and the habit strength of each behavioral strategy. The proposed factors include parent attitudes about cooking, parent attitudes about cooking with their child, meal planning behaviors, frequency of eating meals together, vegetable liking of parent and child, availability of vegetables in the home, and child cooking interest and child cooking efficacy.

The data that will be used to test the hypotheses for the second and third objectives will be from intervention group participants (immediately post-course) in a larger controlled trial. The data to establish internal consistency for scales derived from the Cooking Matters for Families (CMF) evaluation instrument are from baseline measurements involving intervention and control participants in the larger controlled trial.

Chapter 2: Methods

Overview of Methods

The nationally available Cooking Matters for Families (CMF) program was revised to focus on vegetable preparation and acquisition. Six behavioral economic strategies were developed for parents to promote vegetable intake by their children. The design of the study was a controlled trial. Entire classes were designated as either control or intervention. Intervention and control parents and children participated in the enhanced CMF classes. Intervention parents received implementation instructions for the six in-home behavioral strategies during the CMF classes. Control parents were not asked to implement in-home strategies. The objective of the larger controlled trial was to determine if children in the intervention group increased vegetable consumption compared to children in the control group over the course of the program and if the change was sustained over a 6 and 12 month follow up period.

Participants

Families were recruited in the Twin Cities metropolitan area by fliers distributed at community program sites (Appendix 1) and recruitment events prior to the intended start dates. Families expressing interest were contacted by either the site coordinator or research staff to confirm eligibility using a prescreening form a month before the class start date (Appendix 2). Eligibility criteria included 1) parent or caregiver with a child 9-12 years old, 2) both parent and child spoke, read, and wrote English or Spanish, 3) parent was the main food preparer, 4) had not participated in a CMF course in the past

three years, and 5) received public assistance in the form of Supplemental Nutrition Assistance Program (SNAP), Women, Infants, and Children (WIC), free or reduced school lunch program, and/or frequent use of a food shelf. Families matching these eligibility criteria were enrolled in the CMF course at their corresponding community program site. Course enrollment ranged from 4-16 families per course.

Procedures

Session one was the first data collection session, where each parent/child pair was assigned a research identification number to ensure confidentiality. Before data were collected, parents and children signed informed consent and assent forms, respectively (Appendix 3 & Appendix 4). Parents and children were then separated to fill out questionnaires. Researchers administered surveys to parents regarding demographics, vegetable liking, and cooking outcomes based on a CMF 2014-2015 Participant Survey used by Share Our Strength, the organization responsible for developing the CMF program (cookingmatters.org). Children were interviewed by a trained research team member to collect a 24-hour dietary recall. Additionally, children filled out questionnaires about vegetable liking, cooking interest, and cooking self-efficacy. At the conclusion of session one, parents were compensated with \$20 for filling out questionnaires. An additional \$20 was given at session two if participants brought back a completed vegetable Home Food Inventory form. During a two week break between session one and two, two additional 24-hour dietary recalls were obtained from the children.

Sessions two through seven consisted of six CMF classes. A professional chef and Cooking Matters nutrition educator led a demonstration of the recipe for each class. Each class had a corresponding recipe and in-home behavioral strategy (intervention group only) (Table 2).

Table 2. Behavioral strategies (intervention group only), recipes, and supplies provided for each session (2-7).

	Session 2	Session 3	Session 4	Session 5	Session 6	Session 7
In-Home Behavioral Strategy	Having child help prepare vegetables	Using MyPlate as a guide	Making veggies more visible and available	Serve at least two vegetables with a meal	Serve vegetables before the meal	Using a bigger serving spoon for vegetables
Recipe Prepared	Turkey tacos	Baked flaked chicken with sautéed collard greens	Salmon pasta bake and orange glazed carrots	Chinese veggies and rice with steamed green beans	Veggie wraps and raw cauliflower and cherry tomatoes	Tuna melts with roasted vegetables
Additional Supplies Provided	Vegetable peeler	6 plastic MyPlates	Baking pan			3 oz. spoon

Following the cooking demonstration, families worked together at cooking stations to help prepare the meal with the help of research staff. Next, a nutrition lesson was taught by the nutrition educator.

For the intervention group, parents and children were separated at the conclusion of the nutrition lesson. The children were taken to a different room by a research staff

member to engage in activities unrelated to nutrition, such as coloring or puzzles. The parents in the intervention group participated in a behavioral strategy introduction segment also led by the nutrition educator. Parents completed a habit questionnaire preceding the strategy introduction based on strategies that were previously introduced (Appendix 5). Posters illustrating the strategies were displayed for the current and past weeks' strategies (Appendix 6). Next, the nutrition educator led a discussion of how the previous week's strategy had been implemented using a series of five questions: 1. How did you use last week's strategy? 2. What helped you use it? 3. What kept you from using the strategy? 4. Do you think this strategy helped your child eat more vegetables? and 5. Do you have any additional comments? The nutrition educator encouraged participants to continue using each strategy whenever they could. Then the next strategy was introduced, and participants were asked if they had any questions about the strategy or anticipated any problems with strategy implementation. Also, the nutrition educator asked participants to describe how they would use the strategy with an upcoming meal for that week. Suggestions were made to help participants better understand how to use the strategies. The nutrition educator followed a script for both the nutrition and behavior strategy introduction segment (Appendix 7). Some strategies required additional supplies that were provided by study staff, as noted in Table 2.

After the strategy introduction segment, families were reunited and the meal was served family style. The intervention classes practiced the behavioral strategies during the dinner meal. At the conclusion of the session, participants received the necessary food supplies to make the weekly recipe at home.

Participants took paper questionnaires home after session seven to complete and return during session eight. Session eight was an immediate post-course data collection session where parents and children filled out the same questionnaires as session one, with the addition of a habit questionnaire for the intervention group. Families ate dinner while they completed surveys on iPads. Parents were paid \$40 if they completed all questionnaires. Children completed two additional 24-hour dietary recalls after session eight and were paid \$20.

Session nine occurred six months post-course, and session 10 occurred 12 months post-course. Sessions nine and 10 were conducted in the same manner as session eight. Packets of questionnaires were mailed to participants' homes a few weeks before the session. After completion, parents were paid \$40 and \$80 for sessions nine and 10, respectively. Again, children completed two 24-hour dietary recalls after session nine and ten and were paid \$20.

Data Collection Tools

Tools to collect the data used in this thesis are described here and can be found in the appendix. For all surveys where applicable, parents were asked to provide responses based on the child participating in the study.

Parent Cooking Matters for Families 2014-2015 Participant Survey

The CMF course was evaluated with a survey that contained 38 questions to obtain information about parent/child demographic characteristics, food assistance use, and behaviors and attitudes regarding eating, shopping, and cooking (Appendix 8).

Parent US Household Food Security Questionnaire

An iPad-administered (QuickTapSurvey application) questionnaire about food security was completed by the parent for each household to measure food security. The assessment form was the U.S. Household Food Security Survey Module: Five Item Short Form created by the USDA Economic Research Service.¹⁰³ The 5-item survey captures core indicators of food security. The survey has been shown to be a reliable measure when time with participants is limited.¹⁰³ Appendix 9 shows the paper form of the survey which was adapted for the QuickTapSurvey Application for iPads (TableDabble Inc. Toronto, Canada).

Parent Liking Questionnaire

Using an iPad, parents were asked to rate their liking of 35 vegetables on a 10-point hedonic scale. End and middle points were marked with “Hate it” = 1, “It’s okay” = 5, and “Like it a lot” = 10. Three example questions asking about a food they love, a food they consider okay, and a food they hate preceded the actual survey to show participants how to use the rating scale. Before rating each vegetable, the first question asked if parents had ever tried the vegetable. If they answered yes, the scale appeared to rate liking, skipping to the next vegetable if they answered no. To measure vegetable variety, parents answered (yes/no) if they had consumed each vegetable in the past month after they rated liking. Appendix 10 shows the paper form of the survey which was adapted for the QuickTapSurvey® Application for iPads.

Child Liking Questionnaire

Using an iPad, children were asked to rate their liking of 35 vegetables on a 10-point hedonic scale. End and middle points were marked with “Hate it” = 1, “It’s okay” = 5, and “Like it a lot” = 10. Three example questions asking about a food they love, a food they considered okay, and a food they hate preceded the actual survey to show participants how to use the rating scale. Before rating each vegetable, the first question asked if children had ever tried the vegetable. If they answered yes, the scale appeared to rate liking and skipped to the next vegetable if they answered no. Appendix 11 shows the paper form of the survey which was adapted for the QuickTapSurvey Application for iPads.

Parent Home Food Inventory Questionnaire (HFI)

Parents were asked to report the availability of vegetables in their home on the day they completed the form using the Home Food Inventory packet (Appendix 12) adapted from Fulkerson et al.¹⁰⁴ The survey had 35 rows containing one vegetable per row and three columns to mark whether the vegetable was present in the fresh, frozen, or canned form. Parents were instructed to estimate the size of the fresh vegetables (small, medium, large), use a can diagram (Appendix 13) to approximate the size of cans, and list the number of ounces for bags of frozen vegetables. For all data collected after May 2016, parents were only asked to mark the box with an X to indicate availability. An example page preceded the actual survey. At each data collection (sessions 1, 8, 9, 10), a research staff member provided parents with instructions on how to complete the HFI. An example of a fresh, frozen and canned vegetable was shown, and a staff member led parents through the process of deciding which column to select and how to approximate

the size/amount of each example vegetable shown. Parents completed the HFI at home on one day following the data collection for session one. For the remaining data collection sessions, participants completed it before the session.

Parent Weekly Habit Questionnaires

Parents completed a weekly habit questionnaire to estimate frequency of use, difficulty of implementation, and habit strength for the strategy introduced the previous week (Appendix 5). Habit strength questions were adapted from the SRHI.⁷⁵ Because the questionnaire inquired about the previous week's strategy, the administration of the habit questionnaire was not initiated until session three (the week after the first behavioral strategy was introduced). The questionnaire also contained one question to assess habit strength for all the previously introduced strategies (Figure 2).

Session 5 Questionnaire

How often did you leave vegetables on the table and put the other foods on the counter last week at meals?	Never <input type="checkbox"/>	Once in a while <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
How hard was leave vegetables on the table and put the other foods on the counter last week at meals?	Not hard <input type="checkbox"/>	A little bit hard <input type="checkbox"/>	Somewhat hard <input type="checkbox"/>	Very hard <input type="checkbox"/>
I automatically have my child help me prepare vegetables for meals.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
I leave vegetables on the table and put the other foods on the counter during meals without even thinking about it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Session 6 Questionnaire (“Serving two vegetables” strategy added to survey)

How often did you serve two vegetables last week at dinner?	Never <input type="checkbox"/>	Once in a while <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
How hard was serving two vegetables with dinner last week?	Not hard <input type="checkbox"/>	A little bit hard <input type="checkbox"/>	Somewhat hard <input type="checkbox"/>	Very hard <input type="checkbox"/>
I automatically have my child help prepare vegetables for meals.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
I leave the vegetables on the table for my child and put the other foods on the counter during meals without even thinking about it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving two vegetables at meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

• Frequency and difficulty questions updated weekly

• Automaticity questions from previous sessions remain

• New automaticity question added

Figure 2. Modifications of frequency, difficulty, and automaticity questions exemplified by changes between sessions five and six weekly habit questionnaires.

Parent Follow-up Habit Questionnaire

A different version of the habit questionnaire was administered for sessions 8-10 that focused solely on habit strength (Appendix 14). It contained four automaticity questions for each of the six behavioral strategies and two unrelated topics for a total of 32 questions. Four different automaticity phrases were selected based on the Self-Report Behavioral Automaticity Index (Figure 3).⁷⁷ The two unrelated topics were reminding their child to floss his or her teeth and complete homework assignments.

Having my child help prepare vegetables for meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child help prepare vegetables for meals is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child help prepare vegetables for meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child help prepare vegetables for meals is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Figure 3. The four different automaticity phrases used for the Follow-up Habit Questionnaire as shown with the "Child Help" behavioral strategy.

Parent Cooking Confidence Questionnaire

The Cooking Confidence Questionnaire included six items relating to parental attitudes about cooking with their child.¹⁰⁵ Using the QuickTapSurvey application on an iPad, parents used a five-point scale ranging from strongly disagree to strongly agree to respond to each item. Appendix 15 shows the paper form of the survey which was adapted for the QuickTapSurvey Application for iPads.

Child Cooking Interest Questionnaire

Child cooking interest was assessed by the child using six items that asked children to rate how they felt about performing different cooking activities.¹⁰⁶ The QuickTapSurvey application displayed a vertically positioned 5-point scale ranging from "really like" to "really don't like." Appendix 16 shows the paper form of the survey which was adapted for the QuickTapSurvey Application for iPads.

Child Cooking Self-Efficacy Questionnaire

Cooking self-efficacy was assessed by the child using eight questions about whether he or she could perform certain cooking activities.¹⁰⁶ The QuickTapSurvey application displayed a vertically positioned 5-point scale containing the following choices: YES!, Yes, No, NO!, and not sure. Appendix 17 shows the paper form of the survey which was adapted for the QuickTapSurvey Application for iPads.

Chapter 3: Data Analysis

Immediate post-intervention data from the 44 parent/child pairs who completed the intervention were used in the data analysis. An exception to this was the use of combined baseline data for both the control and intervention groups to establish internal consistency for variables used in the multiple linear regression model.

Demographics

Means and frequencies were generated to report information for sex, race/ethnicity, age, education, use of household food assistance program, and household size.

Household Food Security

Level of food security was determined by tabulating all affirmative responses to the 5 question survey. Affirmative responses included “often true,” “sometimes true,” and all answers containing the word “Yes.” (Appendix 9) Each affirmative response was given a value of one point. Participants with a total of 0-1 points were considered food secure, 2-3 points signified low food security, and 4-5 points indicated very low food security.

Vegetable Liking Questionnaires

Parent and child vegetable liking was rated with a scale from 1-10. A rating greater than or equal to five was considered an indication that the vegetable was acceptable or liked. A value below five signified dislike. Using Microsoft® Excel, liking data were summarized and presented in graphs. To obtain a total number of vegetables

liked and tried, each type of vegetable liked or tried was assigned one point. To obtain a total number of vegetables tried by a participant, the number of vegetables tried across all vegetables was summed. To determine the variety of the different vegetables tried, the number of participants that had tried each vegetable was tallied. The total number of vegetables liked by a participant was obtained by counting the number of vegetables that participant had rated 5 or higher. Liking ratings across all vegetables were averaged to find mean liking ratings for each participant. Averaging the liking ratings for that vegetable across all participants yielded mean liking ratings for each vegetable. The number of vegetables liked, number of vegetables tried, mean liking rating, and standard deviations were calculated separately for parents and children. Graphs comparing parent and child liking were generated.

Home Food Inventory

Parents reported how many vegetable types they had in their household and in what form: fresh, canned, and frozen. To obtain a total number of vegetable types present in a household, each type of vegetable was assigned one point. The number of vegetables was summed across all vegetables. The vegetable inventory was further broken down by fresh, frozen, or canned with each vegetable form assigned one point if parents indicated they had the vegetables in their home. Points for each vegetable form were summed and averaged. Mean number of vegetables in the home, standard deviation, and range values were calculated using Excel.

Behavioral Strategy Habit Strength

Behavioral strategy habit strength data analysis was conducted using SAS statistical software, version 9.4 (2013, SAS Institute, Cary, NC). All dependent variables (the four habit strength ratings for each of the six strategies: child help, MyPlate, visible/available, two vegetables, vegetables first, bigger spoon) were tested for normality using the SAS Proc univariate procedure and found to be normally distributed.¹⁰⁷ This judgement was based on use of descriptive graphical methods (Normal Probability Plot of the data compared to a normal distribution) and numerical methods (limits for skewness and kurtosis values).

Data collected the week following strategy introduction are labeled as T1, immediately post-intervention (session 8) as T2, 6 month follow up (session 9) as T3, and 12-month follow up (session 10) as T4. For each behavioral strategy, three paired *t* tests were conducted between T1 and T2, T2 and T3, and T2 and T4. The mean of the four automaticity questions for each time point was used to create a single value for each behavioral strategy. The T1 data for the last strategy that was introduced (using a bigger spoon) were collected along with the T2 habit survey resulting in only two paired *t* tests. No comparisons were made among behavioral strategies due to variance in the number of weeks parents had to practice each strategy after introduction. Using the Bonferroni's correction method, a *p* value of 0.05 was divided by three, the number of paired *t* tests used per behavioral strategy, to obtain a new significance level of $p < 0.017$.

Associations Between Environmental, Behavioral, and Individual Factors and Behavioral Strategy Strength

Multiple regression models were created for each behavioral strategy to determine associations with environmental factors (total home availability of vegetables), behavioral factors (frequency of eating meals together, planning behaviors), and individual factors (child cooking interest and cooking efficacy, parent and child vegetable liking, parent attitudes about cooking, parent attitudes about cooking with their child) (Figure 1). Questions relating to each of the six behavioral strategies were selected from the surveys participants completed. Variables were then formed from like questions according to their topic. Table 3 displays the items comprising each variable, their origin, range of possible responses to the item, a Cronbach α coefficient representing the internal consistency of each variable (where applicable), and the number of participants providing data to determine the Cronbach α coefficient.

Five parental and two child variables were created and used in the analysis (Table 3). An individual factor called parent cooking attitudes was derived from the CMF participant survey. This variable contains three items comprising a scale that had an acceptable internal consistency (Cronbach $\alpha= 0.81$). A Cronbach α coefficient near or equal to 0.70 was considered acceptable.¹⁰⁸ The planning behaviors variable was also derived from the CMF participant survey with an acceptable internal consistency for the scale containing two questions (Cronbach $\alpha = 0.70$). Six questions were taken from Winkler *et al.*'s cooking confidence survey to create another variable referred to as parent attitudes about cooking with their child.¹⁰⁵ An acceptable Cronbach α coefficient of 0.69

established internal consistency for this variable. All Cronbach α values were calculated using responses from baseline measurement involving control and intervention participants (session one). Two variables contained only one question each from the CMF participant survey, thus it was not possible to test these variables for internal consistency. These variables included the frequency of 1) eating meals together as a family and 2) adjusting meals to be healthier.

The child cooking interest variable and the child cooking efficacy variable had acceptable internal consistencies of 0.72 and 0.69, respectively. Questions for both variables were obtained from a survey by Lohse *et al.*¹⁰⁶ Each variable used in the models is categorized as either an environmental, behavioral, or individual factor (Figure 1).

Table 3. Reliability results for psychosocial variables

	Item(s)	Range	Mean±SD n=44	Cronbach α	N ^a
Parent Variables					
Cooking attitudes ^b	Cooking takes too much time; Cooking is frustrating; It is too much work to cook.	1-5 ^c	2.3±1.0	0.81	101
Planning behaviors ^b	How often do you plan meals ahead of time?; How often does your family plan meals together?	1-5 ^d	3.4±1.0	0.70	103
Attitudes about cooking with child ¹⁰⁵	How much do you agree or disagree with the following statements about cooking with the child you are participating with in this study? Enjoy cooking with my child; cook with my child often; would like to cook more with my child; cooking with my child takes too much time; cooking with my child can be frustrating; cooking with my child is too much extra work.	1-5 ^c	3.3±0.6	0.69	107
Meal Behaviors ^b	How often does your family eat meals together?	1-5 ^d	4.2±1.0	N/A	
Adjusting meals to be healthier ^b	How often do you adjust meals to be healthier for your family?	1-5 ^d	3.4±1.0	N/A	
Child Variables					
Cooking interest ¹⁰⁶	How do you feel about... Cooking; foods that you helped cook; measuring ingredients; making snacks; making food with your friends; making food with your family	1-5 ^e	4.4±0.5	0.72	110
Cooking self-efficacy ¹⁰⁶	I can... Make a snack with fruit; make a snack with vegetables; use a recipe; help my family make a meal; make a salad; cut up food; measure ingredients; follow recipe directions	1-4 ^f	3.5±0.4	0.69	110

^a Responses used from baseline measurement involving control and intervention participants (session 1).

^b Cooking Matters for Families Participant Survey

^c Strongly disagree – Strongly agree

^d Never - Always

^e Really like – really don't like

^f YES! – NO!; Those who selected 'Not sure' were excluded in the analysis.

Four variables per behavioral strategy were selected based on their potential relationship to each strategy. Previous research has shown that a ratio of 4 predictor variables to a sample size of 38 is recommended for a good prediction level when the squared population multiple correlation coefficient is 0.25.¹⁰⁹ Before considering which variables to include in each model, Pearson correlation analysis was used to determine correlations between each possible explanatory variable (Appendix 18). To avoid a suppression effect on one another, independent psychosocial variables were not used in models where they were correlated with another variable ($r > 0.4$). For the child help strategy, child cooking interest and child cooking efficacy were correlated ($r = 0.47$, $P < 0.004$), therefore only one of those variables were used in the child help model (child cooking interest). Planning behaviors was correlated with “adjusting meals to be healthier” ($r = 0.60$, $P < 0.0001$), therefore only one of these variables was used in the serve two vegetables model (planning behaviors).

To determine which demographic factors to use to adjust the models, Spearman correlation analysis was completed. Correlations between the various demographic factors (adult age, adult education, child age, child sex, Black/African American, White, Hispanic, Asian, Indian Alaskan, Other) are presented in Appendix 19. Black/African American, White, Hispanic, and Other race/ethnicity variables were correlated ($r \geq 0.36$), therefore, each model was only adjusted for Other race/ethnicity, Asian, and Indian Alaskan. Child age and child sex were correlated ($r = 0.36$); therefore only child age was used to adjust the models. Adult age and parent education were correlated ($r = 0.41$), therefore only parent education was used to adjust the models. Table 10 summarizes

which independent variables were used in the multiple linear regression models for each behavioral strategy.

Selected independent variables identified in Table 10 were entered into multiple linear regression models to determine associations between habit strength of the strategies and the independent variables adjusting for Asian, Indian Alaskan, Other, adult education, and child age.

Chapter 4: Results

Demographic Information

Parent/child pairs who completed the eight-week intervention cooking sessions totaled 44 (Table 4). Nearly all of the parents were female (90%), while 48% of the children were male and 52% were female. The average age of children was 10.2 years. Caregivers between the ages of 30-39 made up almost half of the total, one third were between 40-60 years, and the remaining 20 percent were 18-29 years. About two thirds of the children were 9 year-olds (34%) and 10 year-olds (27%). Close to one-third of both parents and children were Black/African American. The percentage of caregivers and children identifying as Hispanic was 36 and 39 percent, respectively. Twenty percent of families were White, while close to half of the participants did not identify with any of the racial categories (Table 4).

More than half of the participants had a high school education (20%) or less (34%). Over one-third had completed some college or two-year degree (36%), while the remaining had a four-year degree (7%). Participants relied mostly on free and reduced school lunch for food assistance (80%) followed by SNAP (52%) and then WIC (32%). Most households contained 4-5 members (68%), while the rest were evenly split between less than three (16%) or more than six people (16%). Information about demographic characteristics is displayed in Table 4.

Table 4. Numbers (counts) and percentages of demographic information including gender, race/ethnicity, age, education, food assistance usage, and household size for parents and children.

Demographic Characteristics	Parents		Children	
	n	%	n	%
<u>Gender</u>				
Female	40	91	23	52
Male	4	9	21	48
<u>Race/Ethnicity</u>				
Black/African American	13	30	15	34
Hispanic	16	36	17	39
Other	21	48	20	45
White	8	18	8	18
<u>Child Age (years)</u>				
9			15	34
10			12	27
11			9	20
12			8	18
<u>Parent Age (years)</u>				
18-29	9	20		
30-39	21	48		
40-60+	14	32		
<u>Education</u>				
<high school diploma	15	34		
High school diploma or GED	9	20		
Some college/2-year degree	16	36		
4-year college degree	3	7		
<u>Household food assistance</u>				
WIC ^a	14	32		
SNAP ^b	23	52		
Free or reduced school lunch	35	80		
<u>Household size</u>				
< 3	7	16		
4-5	30	68		
6 or more	7	16		

^a Women Infants, and Children Supplemental Food Assistance Program

^b Supplemental Nutrition Assistance Program

Household Food Security

Over half (55%) of the families included in the determination of food security status were categorized as highly food secure (Table 5). The remaining were categorized as having low (20%) and very low food security (20%).

Table 5. Household food security measured using a 5-response self-administered module produced by the USDA. n = 40

Food Security Level ^a	Number of families ^b
High food security	22
Low food security	9
Very low food security	9

^a A score of 0-1 was defined as high food security, 2-3 was low food security, and 4-5 was very low food security.

^b Four families responded with “I don’t know” or “prefer not to answer” and these were not included in the food security calculations.

Vegetable Liking and Variety

The mean count of vegetables liked for adults was 24, contrasting with the average child count of 15 vegetable liked (rated five or higher). Mean adult liking was 7.6 while mean child liking was 6.7 (Table 6). Parents and children had tried 31 and 25 vegetables, respectively. Corn, lettuce, carrots, tomato, potato, broccoli, cucumber, and beans all received high ratings by both parents and children (Figure 4). On average, artichoke, onion, and edamame were disliked (mean rating ≤ 5) for children compared to only bamboo shoots for parents. No average liking rating for any vegetable was lower than four for either children or adults. A visual representation for mean vegetable liking of both adults and children is presented in Figure 4.

The number of vegetables never tried by children ranged from 1-26. Bamboo shoots were the least likely to be tried by children. The only vegetables to be tried by all

children were potatoes, carrots, and broccoli. Parents responded that they had eaten, on average, 23 of the 37 vegetables in the past month. Responses ranged from 6-37. The most prevalent vegetables eaten in the past month were tomatoes, lettuce, corn, carrots, and broccoli. Corn was the only vegetable to be consumed by every parent in the past month.

Table 6. Mean values and standard deviations for vegetable liking, number of vegetables liked, and number of vegetables tried for parent and child.

Vegetable Liking and Variety	Parents		Child	
	Mean	SD	Mean	SD
<u>Liking score</u>	7.6	1	6.7	1
<u>Number liked</u>^a	24	7	15	6
<u>Number tried</u>	31	7	25	5
<u>Eaten in past month</u>	23	8		

^aRated five or higher

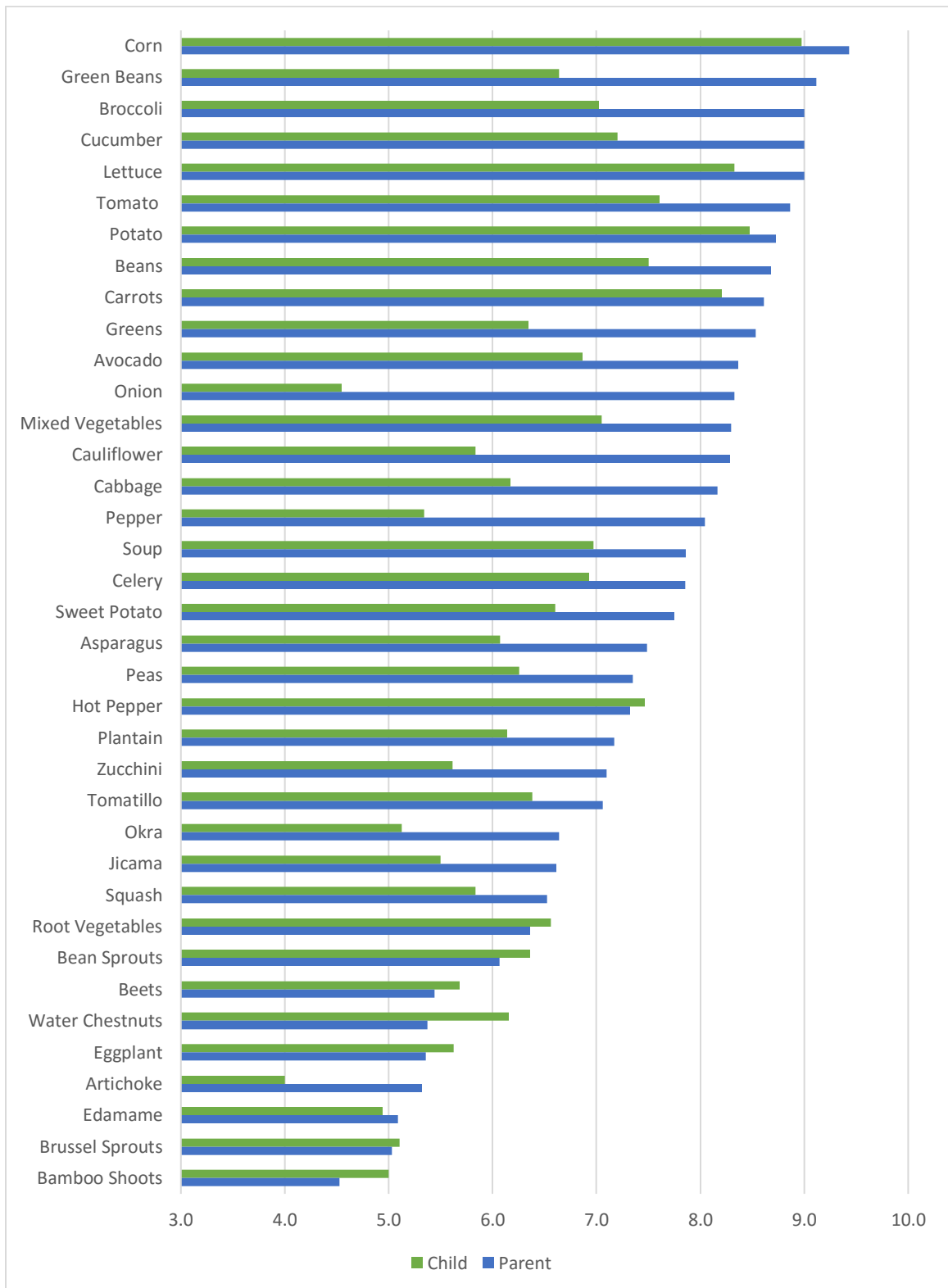


Figure 4. Parent and child mean liking ratings of 37 vegetables on a 10-point hedonic scale where 1 is “hate it” and 10 is “love it.” Data ordered by vegetables most liked by parents.

Home Food Inventory of Vegetables

The total number of vegetables in the household at the end of the CMF intervention ranged from 3 to 29 (Figure 5). The average total number of different vegetables per household was 18. Fresh vegetables were the most common form, followed by canned/jarred/dried. Frozen was the least prevalent (Table 7). Two-thirds of all households had beans, tomatoes, carrots, onion, potato, mixed vegetables, broccoli, corn, cucumber, lettuce, and greens (Table 8). Figure 5 displays the frequency distribution for total number of vegetables in the households.

The majority ($\geq 85\%$) of households had beans, tomato, carrot, onion, and potato (Table 8). The most common form of beans was canned (73%). Households with tomatoes were almost as likely to have fresh tomatoes (73%) as they were canned (65%). Ninety-seven percent of households had fresh potatoes and carrots. All households with onions had fresh onions, with 2 having fresh and another form. Ten percent or fewer households had bamboo shoots, jicama, Brussel sprouts, and edamame. Of the 35 listed vegetables, at least one household had each type.

Table 7. Average ($n = 41$) number of vegetables in households with minimum and maximum values by total and fresh, canned, and frozen.

Home Food Inventory	Mean	SD	Min	Max
Total Vegetable Inventory	18	6.0	3	29
Fresh	12.9	6.2	1	21
Can/Jar/Dry	5.2	3.5	0	13
Frozen	2.7	2.4	0	8

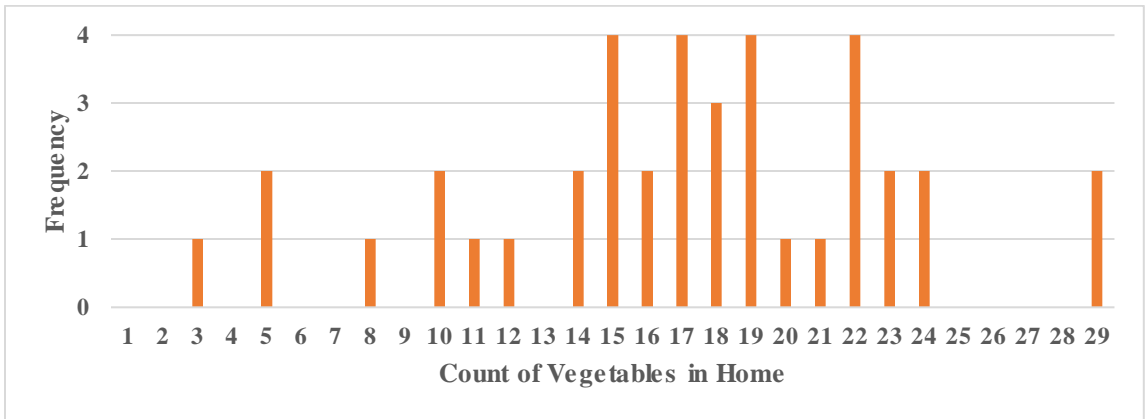


Figure 5. Frequency distribution of the total count of different vegetables in 41 households. Count refers to different types, not forms of vegetables.

Table 8. Vegetable inventory of 41 families shown by number and percentage of households containing 37 different types of vegetables.

Vegetable	n	%
Beans	37	90
Tomato	36	88
Carrot	35	85
Onion	35	85
Potato	35	85
Mixed vegetables	34	83
Broccoli	33	80
Corn	33	80
Cucumber	30	73
Lettuce	28	68
Greens	27	66
Avocado	26	63
Peppers	26	63
Soup	26	63
Green Bean	25	61
Peas	23	56
Cauliflower	22	54
Cabbage	21	51
Celery	21	51
Squash	18	44
Sweet Potato	17	41
Asparagus	16	39
Plantain	12	29
Beets	11	27
Tomatillo	11	27
Eggplant	7	17
Root vegetable	7	17
Beansprout	6	15
Okra	6	15
Water Chestnut	6	15
Artichoke	5	12
Bamboo shoots	4	10
Jicama	4	10
Brussels Sprouts	3	7
Edamame	1	2

Frequency and Difficulty of Implementation of Behavioral Strategies

Figure 6 shows average ratings of difficulty of implementation and frequency of use for each behavioral strategy. All strategies had a rating below two for difficulty meaning that parents did not consider them hard to implement. Mean frequency of use ratings were all above two, and below three, which signified use on an occasional to often basis.

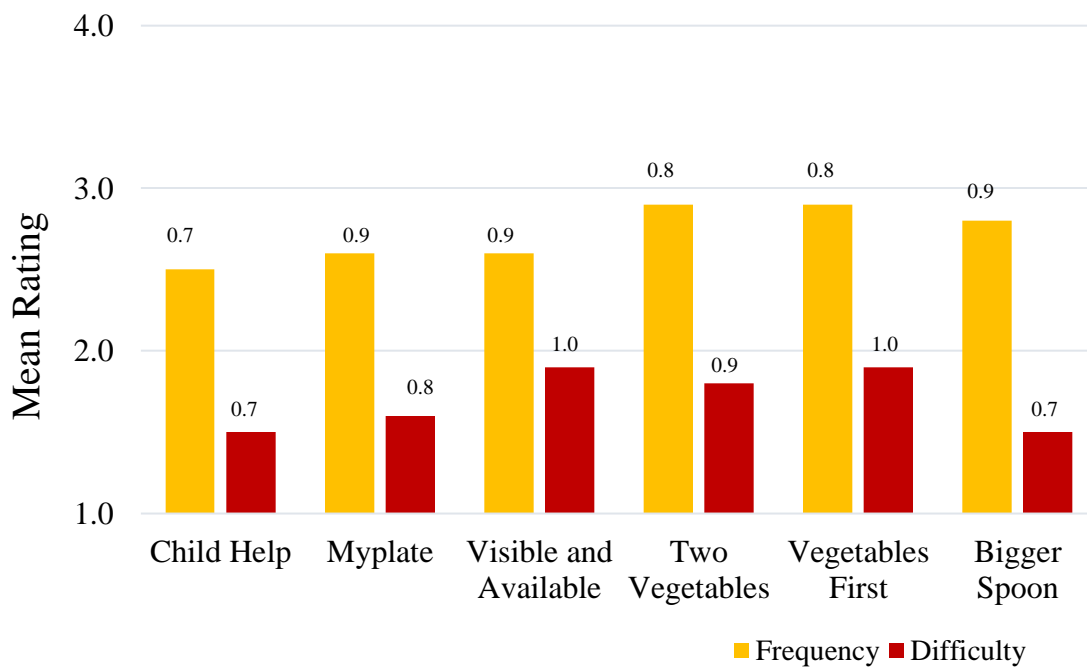


Figure 6. Average mean ratings and standard error of frequency and difficulty of implementation of the six behavioral strategies the week after introduction. Difficulty: 1=Not hard, 2=a little hard, 3=somewhat hard, 4=very hard; Frequency: 1=never, 2=once in a while, 3=often, 4=always.

Behavioral Strategy Habit Strength

The findings reported in Table 9 indicated that the hypothesis that habit strength would increase over time could be accepted for three of the six behavioral strategies (having child help, making vegetables visible and available, serving two vegetables). The hypothesis would be rejected for the remaining three strategies (using MyPlate, serving vegetables first, using a bigger spoon to serve vegetables).

Child Help

The week after the habit was introduced (T1), parents rated the habit strength of the child help strategy 2.6 on the 4-point scale, where three and four would indicate of habit formation (Table 9). At T2, habit strength increased to 2.9 ($p < 0.008$). Habit strength was not significantly different at 6-months and 12-months compared to T2.

Visible and Available

On average, parents rated the habit strength for the visible and available strategy 2.6 at T1, increasing to 2.8 ($p < 0.007$) four weeks later at T2. Ratings of habit strength did not change from T2 to either T3 or T4.

Two Vegetables

Between T1 and T2, the average habit strength rating for the serving two vegetables strategy increased from 2.8 to 3.1 ($p < 0.0004$), signifying habit formation. The rating at T2 decreased to 2.7 ($p < 0.0052$) six months later (T3).

MyPlate, Vegetables First, Big Spoon

Habit strength did not significantly change for the MyPlate, serving vegetables first, or using a bigger serving spoon strategies over time.

Table 9. Descriptive statistics for comparisons between four time points for the six behavioral strategies.

Behavioral Strategy	Following Week (T1) Mean (SD) ^a	Immediately Post intervention (T2) Mean (SD) ^a	Immediately post-intervention (# of Weeks after Intro)	6 month (T3) Mean (SD) ^a	12 month (T4) Mean (SD) ^a
Child Help	2.6 (0.8)	2.9 (0.7) ^b	6	2.8 (0.8)	2.8 (0.7)
MyPlate	3.1 (0.7)	3.1 (0.7)	5	2.9 (0.8)	2.6 (0.8)
Visible/ Available	2.6 (0.8)	2.8 (0.7) ^b	4	2.7 (0.7)	2.5 (0.9)
Two Vegetables	2.8 (0.7)	3.1 (0.6) ^b	3	2.7 (0.8) ^c	2.9 (0.7)
Vegetables First	2.9 (0.7)	2.9 (0.7)	2	2.7 (0.8)	2.6 (0.7)
Bigger Spoon		3.1 (0.6)	1	2.9 (0.7)	3.0 (0.7)

^a T1 n varied between 37-42 by strategy; T2 n varied between 42-44 by strategy; T3 n varied between 25-29 by strategy; T4 n varied between 16-17 by strategy.

^b Significant difference between T1 and T2 according to paired T-test where the significance level was set at $p < 0.017$. (Bonferroni correction applied with three tests per strategy ($0.05/3 = 0.017$))

^c Significant difference between T2 and T3 according to paired T-test where the significance level was set at $p < 0.017$.

Associations Between Behavioral Strategies and Independent Variables

Only four of the mediating variables significantly predicted habit strength: higher parent cooking with child attitude was associated with child help habit strength; frequency of eating meals together was associated with MyPlate habit strength; parent vegetables liking was associated with the habit strength for serving two vegetables; and planning behaviors were associated with habit strength for serving vegetables first. The multivariate linear regression (MLR) model explained 38% of the variance in habit strength for the child help behavioral strategy (Table 10). For the MyPlate behavioral strategy, the MLR model explained 51% of the variance. Thirty-six percent of the variance for the visible and available strategy was explained by the MLR model. No individual variables were related to the habit strength rating for this strategy. The MLR model explained 36% of the variance in the habit strength rating for the serve two vegetables behavioral strategy. The MLR model explained 44% of the variance for habit strength of the serve vegetables first strategy. For the use a bigger spoon strategy, 42% of the variance in habit strength was explained by the MLR model.

Table 10. Multiple linear regression model results for six behavioral strategies.

Behavioral Strategy Model	β^b	Parent Participants (n=44)	
		SE ^c	P value
Child Help^a			
Parent cooking attitudes	-0.05	0.11	0.65
Parent cooking with child Attitude	0.46	0.18	0.01
Child cooking interest	0.20	0.27	0.47
Model R²	0.38		0.07
MyPlate^a			
Often eat meals together	0.26	0.11	0.03
Number of vegetables in home	0.01	0.02	0.66
Child liking	0.08	0.10	0.41
Model R²	0.51		0.01
Visible and Available^a			
Child liking	0.06	0.11	0.55
Often eat meals together	0.20	0.12	0.10
Number of vegetables in home	0.03	0.02	0.10
Model R²	0.36		0.11
Two vegetables^a			
Planning behaviors	0.17	0.14	0.25
Child liking	-0.16	0.10	0.12
Number of vegetables in home	0.01	0.02	0.58
Parent liking	0.22	0.09	0.02
Model R²	0.36		0.20
Vegetables first^a			
Often eat meals together	0.06	0.12	0.60
Child liking	-0.01	0.10	0.93
Number of vegetables in home	0.03	0.11	0.08
Planning behaviors	0.32	0.15	0.05
Model R²	0.44		0.07
Big spoon^a			
Often eat meals together	0.01	0.09	0.28
Child liking	0.13	0.09	0.15
Number of vegetables in home	0.01	0.02	0.70
Model R²	0.42		0.05

^a Adjusted for child age, and parent education and race/ethnicity* (Race = Asian, Indian Alaskan, and other)

^b β coefficients are standardized and are interpreted as the amount of standard deviation (SD) change in habit strength associated with a 1 SD change in predictor variable

^c SE = standard error

Chapter 5: Discussion

Very few studies have focused on changing parental habits to influence their child's diet.¹⁰⁵ The results of this thesis research suggest that parents formed habits that could positively alter the eating environment of their child. The Cooking Matters for Families program broadly aims to change the eating patterns of the families that complete the course. Incorporating the six strategies, which have been shown to be successful at increasing vegetable consumption,^{90,96,98,101} would enhance the overall goal of Cooking Matters. During the cooking classes, parents discussed with research staff why different strategies were more successful for the families. Commonly stated factors contributing to this success include desire to make health changes, child enthusiasm (using MyPlate and Child Help), and ease of use. Equipping parents with a number of tools to choose from could help them encourage vegetable intake by their children.

The success of practicing the strategies largely relied on whether participants enjoyed eating vegetables and if vegetables were available to consume. Participants could not practice the strategies unless they had at least one type of vegetable available. The high cost of fresh produce is a recognized barrier to the intake of vegetables.⁴⁴ The current study found that participants had high amounts of fresh vegetables present in the home, higher than both canned and frozen vegetables. This may indicate that the availability and cost of vegetables was not a barrier to performing the strategies. However, in regard to forming habits, results show that home availability had no associations with any of the behavioral strategy habit strength. Liking also may not be a

barrier to performing strategies, as parents and children rated the liking of many vegetables above an acceptable level. Results showed that parent vegetable liking can impact their ability to form habits, as seen with serving two vegetables. Many of the same vegetables that were rated as highly liked were vegetables available in the homes. However, whether the vegetables present in the home affect liking or if liking promotes the presence of certain vegetables is not clear.

To increase automaticity of a behavior, it must be repeated in a consistent environment.⁵⁷ Overall, participants reported the frequency of performing the strategies on a slightly less than often basis, indicating that they had several opportunities for the strategies to be developed into habits. By one estimate, habit formation can occur as early as 18 days (average 66 days) after a behavior has been selected.⁵⁷ For the current study, the amount of time parents had to develop a habit for each strategy differed due to the staggered introduction of the strategies. For example, parents had an additional 42 days to practice the child help strategy compared to using a bigger serving spoon before the SRHI was used to measure habit strength. The three strategies that had significant increases in habit strength from T1 to T2 were introduced at week one, three, and four. This may suggest that the variation in time when the strategies were introduced may not be important. In contrast, this could indicate participants already habitually practiced similar techniques prior to the study. For the remaining strategies that did not have significant increases in habit strength by T2, there may not have been sufficient time for habit formation. A decrease in habit strength for the strategy of serving two vegetables was observed at six months, but no significant decreases in habit strength were observed

for the remaining strategies over the course of 6 or 12 months. Frequently practicing the behavioral strategies between T1 and T4 could have contributed to the increasing habit strength ratings.

The initial stages of developing a habit require motivation but this necessity wanes as automaticity increases.⁵⁶ The low difficulty ratings of the six behavioral strategies may help overcome the level of motivation needed to form the habit. The strategies making vegetables visible and available and serving two vegetables had the highest ratings for difficulty. This may suggest that difficulty did not impact the formation of habits for the strategies. However, automaticity scores decreased over time for serving two vegetables. Overall, average difficulty ratings were no higher than two, indicating the strategies were easy to use. The ease of implementation for the behavioral strategies could have helped initiate habit formation and reduce the motivation needed to form some habits. Future research should focus on determining the motivation level of parents and the impact this has on the automaticity scores.

Dietary intake of a child is largely impacted by parental factors. Parent feeding practices can be effective or ineffective with respect to impacting vegetable intake of children.⁵¹ All factors that were positively associated with the habit strength of the behavioral strategies were directly related to parents, including parent attitudes, vegetable liking, and eating meals together. Parent engagement was crucial for habits to develop. In addition, these results suggest that parent involvement is needed when aiming to change the diet of children. Along with vegetable intake, child vegetable liking is also influenced by parents. Maternal vegetable intake is a main determinant of child vegetable intake and

liking.²⁵ Interventions aimed at modifying children's vegetable intake should involve parents because of their large influence on vegetable liking and consumption.

Limitations

Some limitations should be taken into consideration when interpreting results. A limitation to this study is that all data were self-reported by participants, however, some data need to be self-reported, such as liking. Also, the intended population may not be representative of the general population for several reasons. The intervention group included 44 parent/child pairs, which is a small sample size. In addition, all families lived in the Twin Cities metropolitan area. This was mostly an urban environment, so it is unclear if a rural population would yield similar results. Because participants voluntarily signed up for the course, these families were likely more interested in cooking and making healthful changes compared to families who declined. Also, they could have a high motivation level since participation represented a large time commitment.

Automaticity questions on the weekly habit questionnaires were scaled back to one phrase due to time constraints during the cooking class. For the post-intervention questionnaires, the four validated phrases were used. Because participants answered only one question for the survey administered the week following introduction of the strategies, comparisons were only possible involving the four validated phrases between T2, T3, T4. Comparing habit strength among behavioral strategies at T1 and T2 was also not possible due to discrepancies in time following strategy introduction.

Future Research

Instilling healthy diet and physical activity habits in parents and children is a possible way to combat the obesity epidemic. Replacing high energy dense foods with vegetables has been proven to reduce obesity.¹⁸ The current Cooking Matters for Families curriculum teaches families a wide variety of skills and knowledge about how to prepare healthy meals. Teaching parents how to form the six behavioral strategies into habits would enhance this program. Before implementing the behavioral strategies into Cooking Matters classes, more research efforts are required to determine how to present the strategies in a way to promote habit formation, to develop techniques to encourage participants to use the strategies, and to identify barriers preventing habit formation. Also, more investigation is needed to establish a relationship between parents habitually performing the strategies and child vegetable intake. Further research is needed to determine if habitual use of the behavioral strategies can create lasting changes in children's eating habits and result in a reduction in obesity. Additionally, future studies should focus on testing which of the six behavioral strategies have the highest habit forming tendencies. Turning bad habits into better habits could ameliorate the obesity epidemic in the United States.

Chapter 6: References

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Appendices

Appendix 1 Cooking Matters for Families Participant Recruitment flier



Research study opportunity cooking Matters® For Families

The University of Minnesota will be conducting a study that offers an exciting research opportunity for parent/child pairs who will be participating in the **Cooking Matters® for Families**. *Cooking Matters for Families* is a cooking-based, nutrition education program for low-income audiences offered through University of Minnesota Extension.



Who is Eligible?

- Parent/child pairs where the child* is 9-12 years old
 - 8 pairs enrolled per course
 - “First-Come, First-Serve” enrollment basis at Session 1
- Parent/child pairs read, speak, and understand English
- Parent is able to be contacted via phone
- Parent/caregiver has primary responsibility for food acquisition and preparation for the child
- Parent or child meets low-income guidelines and is eligible for public assistance programs including, but not limited to:
 - SNAP, MFIP, NAPS, SSI, WIC, MAC, free or reduced lunches, public/subsidized housing

***only 1 parent per family and 1 child per that parent can enroll in the course**

Participant Involvement

- Attend 10 sessions (S1-S10)
- Sign Consent (adult) and Assent (child) and Participation Waivers
- Complete surveys at *sessions 1, 8, 9, & 10* collecting information on:
 - demographic, diet, food security, height/weight/physical activity (child only), food buying practices, food cooking practice, home food inventory
 - Sessions 1-8 are weekly
 - Session 9 is ~ 6 months after Session 1 and held at same location
 - Session 10 is 12 months after Session 1 and held at same location

Participant Compensation

Parents will be compensated upon completion of the surveys throughout the study:

- \$40 at session 1 (\$20 at session + \$20 after turning in paperwork required at S1)
- \$40 at session 8 (\$20 at session + \$20 after turning in paperwork required at S8)
- \$40 at the 6 months follow-up session (\$20 at session + \$20 after turning in paperwork required at S9)
- \$80 at the 12 months follow-up session: (\$60 at session + \$20 after turning in paperwork required at S10)

Total= \$200

Each child will receive \$20 at:

- AFTER completing 3 food recalls AFTER session 8
- AFTER completing 3 food recalls AFTER follow-up session 1 (S9)
- AFTER completing 3 food recalls AFTER follow-up session 2 (S10)

Total= \$60



Agency Involvement

- Provide childcare during class time as needed for non-participant children. If no childcare can be provided by Agency, then Agency will convey to participants that non-participant children are not allowed in study sessions.
- Assist with the recruitment of 10-12 child/parent teams per course (e.g., flyer postings & distribution, listserv announcement, etc)
- Collect and send contact information of potential participants to Study Coordinator.
- Help convey the importance of consistent attendance and class participation
- Provide the space necessary to conduct all sessions of the study and ensure the space is available, set up and clean prior to the teams arrival
- Provide transportation to participants as needed
- Help study staff communicate any concerns to participants (e.g., not following code of conduct)

*Participation is strictly **voluntary** and can be withdrawn at any time throughout the study. This study is approved by the Institutional Review Board (IRB) of the University of Minnesota.*

For more details:

Francine Overcash,
UMN Project Coordinator
overc006@umn.edu
Ph: 612-615-8831

Appendix 2 Participant Screening Form

ID	Name (First, Last)	Child	Phone number	Child 9-12 yrs old	You are the Main Food Preparer	Meets income guidelines	Parent and Child read/speak/understand English	Prev CM course
103								
104								
105								
106								
107								
108								
109								
110								
111								
112								

Appendix 3 Parent Consent Form

CONSENT FORM

The Cooking Matters for Families (CMF) Study

You and your child are invited to be in a research study to find out if Cooking Matters for Families will change your child's food choices. You and your child were selected as possible participants because your child is 9-12 years old and you are the main person responsible for preparing meals for this child. We ask that you read this form and ask any questions you have before agreeing to be in this study and before allowing your child to be in this study.

This study is being conducted by: Francine Overcash, Marla Reicks and Zata Vickers from the department of Food Science and Nutrition at the University of Minnesota.

Background Information:

Cooking Matters for Families is a cooking-based, nutrition education program offered through University of Minnesota Extension.

Procedures:

If you agree to be in this study, we will ask you and your child to participate in *Cooking Matters for Families* with 6 cooking classes each week for 6 weeks. We will also ask you and your child to attend a session 1 week before and after the Cooking Matters for Families classes and 6 months and 12 months after the last Cooking Matters for Families class. The research team will contact you to remind you of each upcoming session.

During the first session before the *Cooking Matters for Families* classes begin (Session 1), we will ask you will fill out surveys about yourself, your food preferences, how often you eat certain foods, and your food buying and cooking practices. We will ask your 9-12-year-old to answer similar questions. We will record what your child ate and drank the day before, and measure his or her height, weight and physical activity. After the first session, we will call you on two different days within two weeks and ask to speak with your child about what he or she ate and drank the day before. On the first call we will ask you about food that you have in your home.

One week after the last *Cooking Matters for Families* class (Session 8), we will ask you to fill out surveys about food preferences, your food buying and cooking practices and ask your 9-12-year-old to fill out a similar food preference form. We will record what your child ate and drank the day before. After the 8th session we will again call you on two different days within two weeks and ask to speak with your child about what he or she ate and drank the day before.

At 6 months and 12 months (Sessions 9 and 10), we will collect similar information from you and your child as in the session after the last *Cooking Matters for Families* class.

Risks and Benefits of being in the Study

There are no risks to participation beyond those normally involved in cooking. There are no benefits to participation.

Compensation:

You will receive payment of up to \$200 cash as follows:

1. After completing session 1 (\$20)
2. **Turning in all required paperwork for session 1 (\$20)**
3. After completing sessions 1 to 8 (\$20)
4. **Turning in all required paperwork for session 8 (\$20)**
5. After completing sessions 1 to 8 and session 9, which will occur 6 months after session 8 (\$20)
6. **Turning in all required paperwork for session 9 (\$20)**
7. After completing sessions 1 to 9 and session 10, which will occur 12 months after session 8 (\$60)
8. **Turning in all required paperwork for session 10 (\$20)**

Your 9 - 12-year-old child will receive \$60 cash

1. After completing sessions 1-8 and after the second phone call asking about what he or she ate and drank the day before (\$20)
2. After completing session 9 and after the second phone call asking about what he or she ate and drank the day before. [Session 9 will occur 6 months after session 8] (\$20)
3. After completing session 10 and after the second phone call asking about what he or she ate and drank the day before. [Session 10 will occur 6 months after session 9] (\$20)

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a participant. Research records will be stored securely and only researchers will have access to the records. Audio recordings will only be accessible to study investigators and will be destroyed after being transcribed or viewed.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota or the University of Minnesota Extension nutrition education programs. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researchers conducting this study are Marla Reicks, Zata Vickers, Project Directors and Francine Overcash, Coordinator. You may ask any questions you have now. If you

have questions later, you are encouraged to contact Francine Overcash at 612-615-8831 at the University of Minnesota.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study. I consent to have my child(ren) to participate in this study.

Name Of Participant (Printed)_____

Signature of participant:_____ Date_____

Signature of Investigator:_____ Date: _____

Appendix 4 Child Assent Form

Assent Form for Child
The Cooking Matters® for Families (CMF) Study

We are here today because we are trying to learn more about the foods kids your age like. We are asking if you want to be in a study because you are between the ages of 9 and 12. We hope that finding out which foods you like and what you eat at home will help us learn how to help families eat better in the future.

If you agree to be in this study, we will ask you to participate in *Cooking Matters for Families* and attend a total of 10 sessions. The first 8 sessions take place over the next 9 weeks. You will be asked to attend 2 more sessions, 6 months and 12 months after the 8th session.

During the first session, you will fill out surveys with questions about the foods you eat and your physical activity. We will measure your height and weight. We will record what you ate and drank yesterday. After this first session, we will call you two times within two weeks and ask the same questions about what you ate and drank the day before.

The next 6 sessions will be the *Cooking Matters for Families* lessons you will attend with your parent or caregiver where you learn how to prepare foods.

During the 8th session, we will again record what you ate and drank the day before. After this 8th session, we will call you two times within two weeks and ask the same questions about what you ate and drank the day before.

At six months and 12 months we will ask you the same questions as in the 8th session.

If you change your mind during the study, you can always let us know and stop participating. Being in this study is totally up to you, and no one will be mad at you if you don't want to do it.

You can ask any questions that you have about this study.

Signing here means that you have read this paper or had it read to you and that you are willing to be in this study. If you don't want to be in this study, don't sign. Remember, being in this study is up to you, and no one will be mad at you if you don't sign this or even if you change your mind later.

Name of Participant
(printed) _____

Signature of participant _____ Date _____

Signature of person explaining study _____ Date _____

Appendix 5 Weekly Habit Questionnaires

Participant ID: _____
Session 3

Cooking Matters Questionnaire

Check the box by the answer that is best for you. Answer the question about your 9-12 year old child in class with you.

How often did your child help prepare vegetables for meals last week?	Never <input type="checkbox"/>	Once in a while <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
How hard was having your child help prepare vegetables for meals last week?	Not hard <input type="checkbox"/>	A little bit hard <input type="checkbox"/>	Somewhat hard <input type="checkbox"/>	Very hard <input type="checkbox"/>
I automatically have my child help prepare vegetables for meals.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Session 4
Participant ID # 002

Cooking Matters Questionnaire

Check the box by the answer that is best for you. Answer the question about your 9-12 year old child in class with you.

How often did you have your child use the MyPlate last week at dinner?	Never <input type="checkbox"/>	Once in a while <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
How hard was having your child use the MyPlate last week at dinner?	Not hard <input type="checkbox"/>	A little bit hard <input type="checkbox"/>	Somewhat hard <input type="checkbox"/>	Very hard <input type="checkbox"/>
I automatically have my child help me prepare vegetables for meals.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Session 5
Participant ID #

Cooking Matters Questionnaire

Check the box by the answer that is best for you. Answer the question about your 9-12 year old child in class with you.

How often did you leave vegetables on the table and put the other foods on the counter last week at meals?	Never <input type="checkbox"/>	Once in a while <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
How hard was leave vegetables on the table and put the other foods on the counter last week at meals?	Not hard <input type="checkbox"/>	A little bit hard <input type="checkbox"/>	Somewhat hard <input type="checkbox"/>	Very hard <input type="checkbox"/>
I automatically have my child help me prepare vegetables for meals.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
I leave vegetables on the table and put the other foods on the counter during meals without even thinking about it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Session 6
Participant ID #

Cooking Matters Questionnaire

Check the box by the answer that is best for you. Answer the question about your 9-12 year old child in class with you.

How often did you serve two vegetables last week at dinner?	Never <input type="checkbox"/>	Once in a while <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
How hard was serving two vegetables with dinner last week?	Not hard <input type="checkbox"/>	A little bit hard <input type="checkbox"/>	Somewhat hard <input type="checkbox"/>	Very hard <input type="checkbox"/>
I automatically have my child help prepare vegetables for meals.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
I leave the vegetables on the table for my child and put the other foods on the counter during meals without even thinking about it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving two vegetables at meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Session 7
Participant ID #

Cooking Matters Questionnaire

Check the box by the answer that is best for you. Answer the question about your 9-12 year old child in class with you.

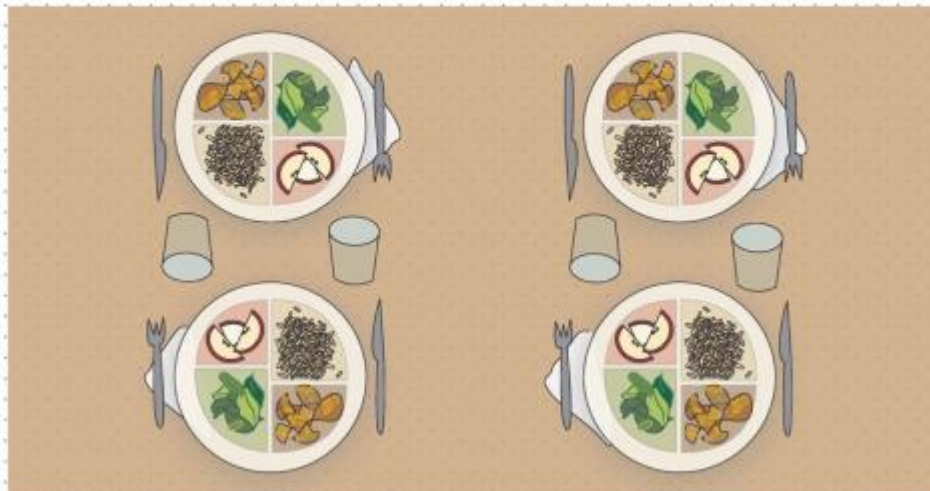
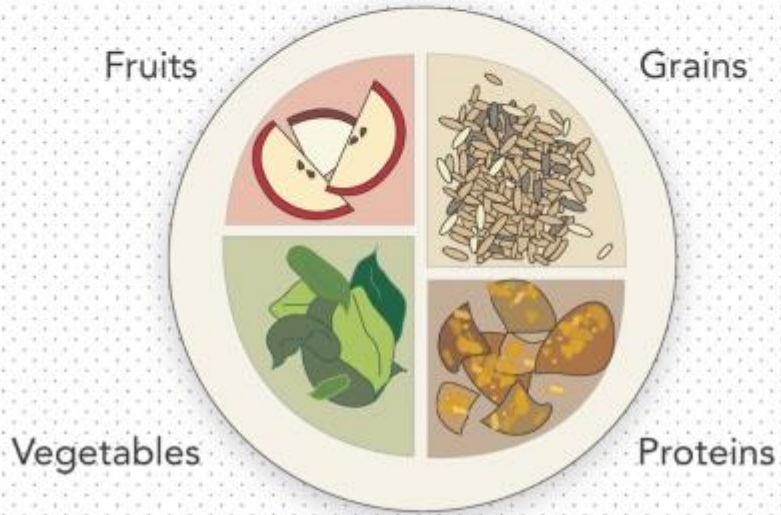
How often did you serve vegetables before meals last week?	Never <input type="checkbox"/>	Once in a while <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
How hard was serving vegetables before meals last week?	Not hard <input type="checkbox"/>	A little bit hard <input type="checkbox"/>	Somewhat hard <input type="checkbox"/>	Very hard <input type="checkbox"/>
I automatically have my child help prepare vegetables for meals.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
I leave the vegetables on the table for my child and put the other foods on the counter during meals without even thinking about it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving two vegetables at meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
I serve vegetables to my child before meals without having to purposely remember to do it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Appendix 6. In-Home Behavioral Strategy Posters

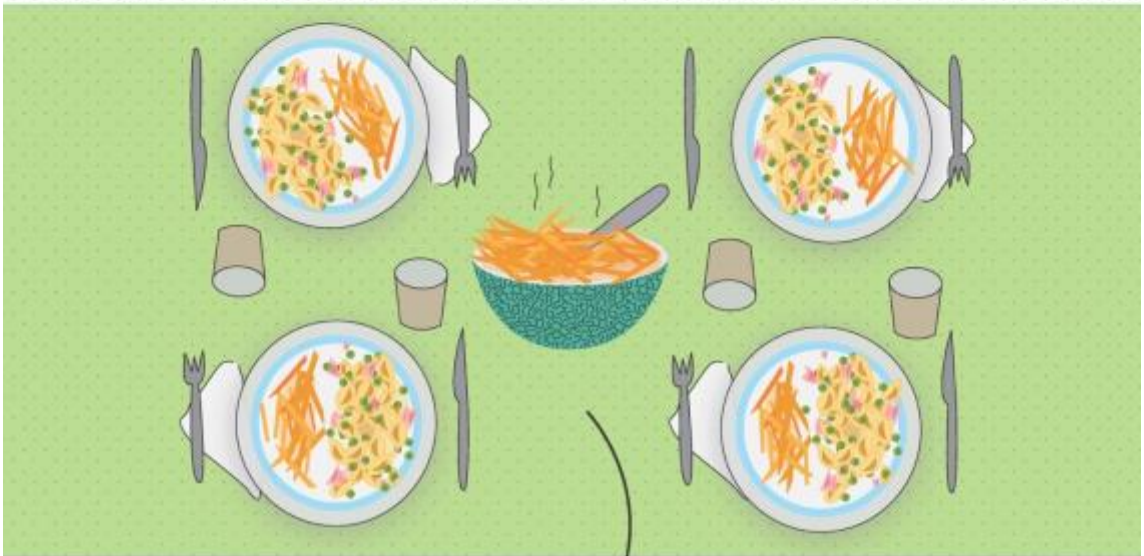
Have your child help prepare vegetables for meals



Use a plate that shows the amount of vegetables to eat for meals



Make vegetables more easily available and visible than other foods at meals



The carrots are on the table for everyone to reach

While the salmon pasta dish is left on the counter

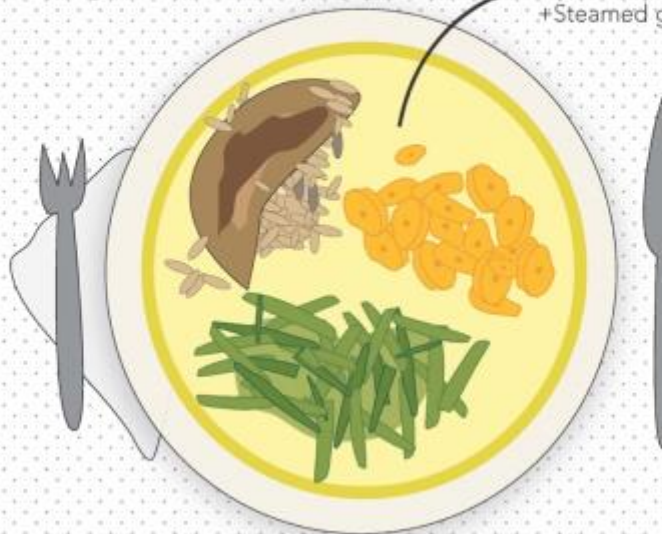


Serve at least two
vegetables with meals

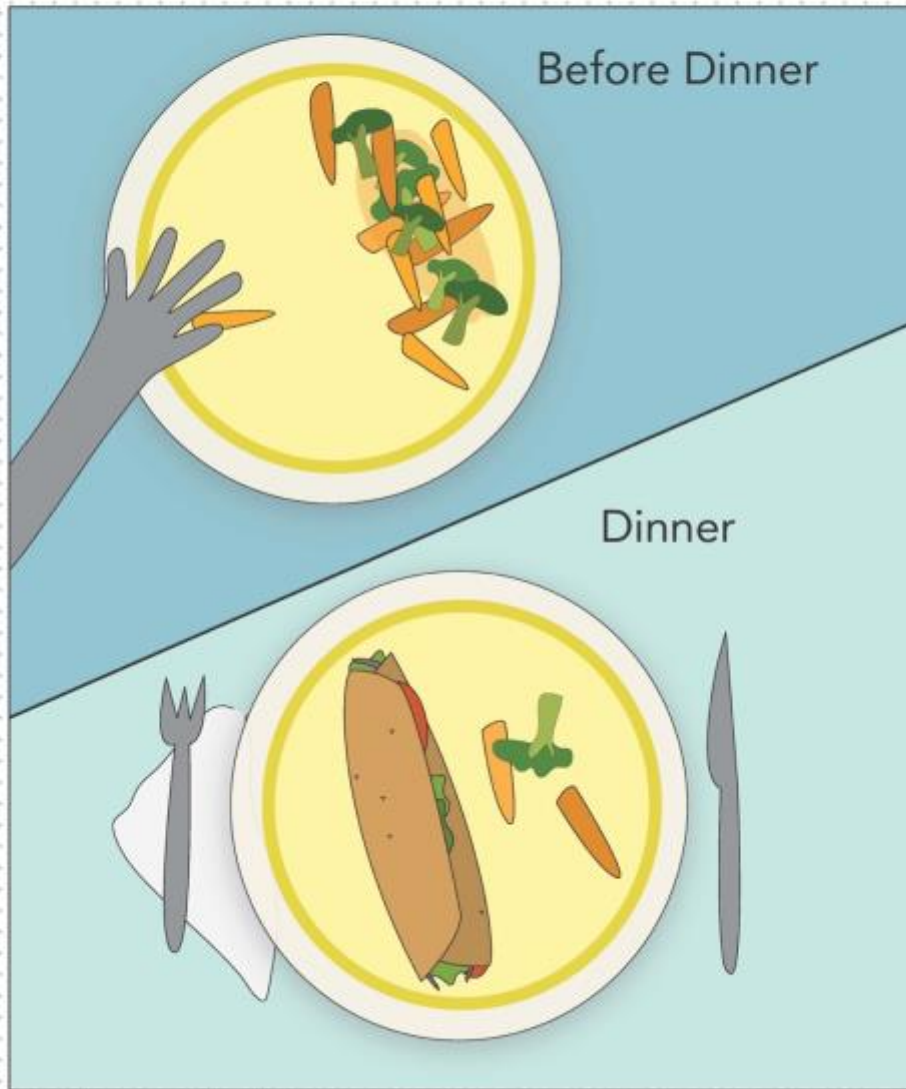


+Rice with mixed veggies
+Steamed green beans

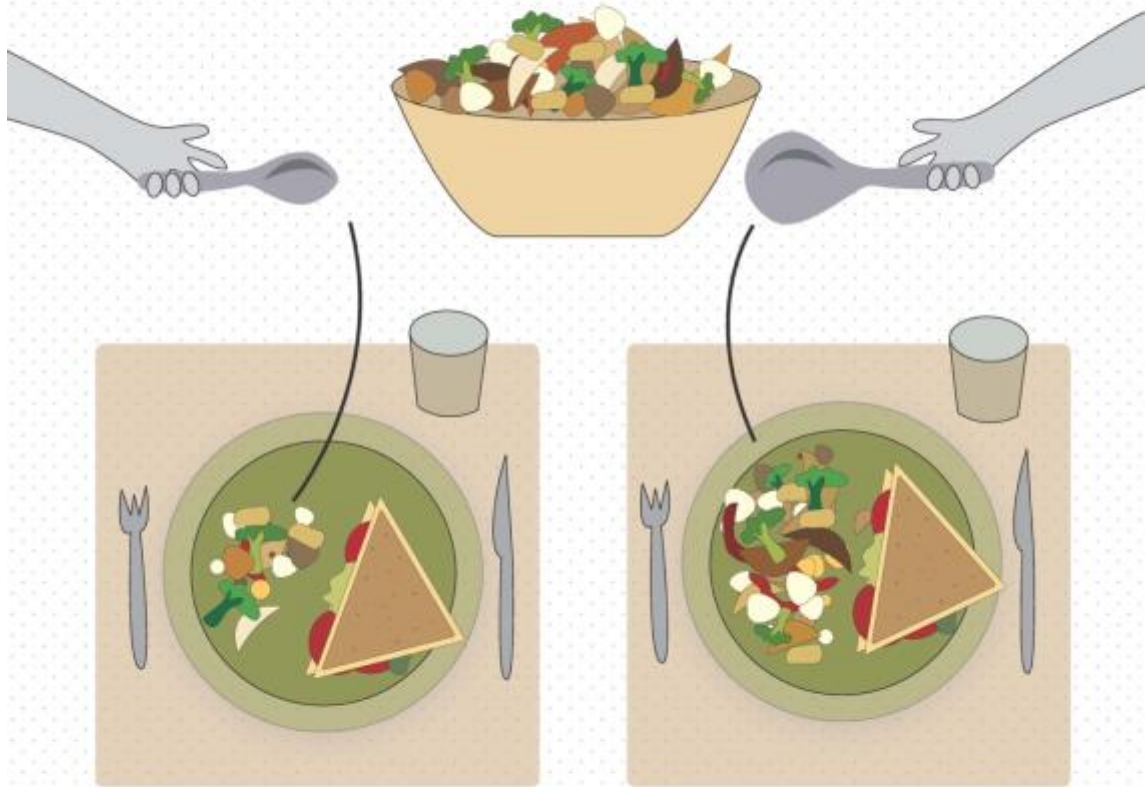
+Chicken and brown rice
+Cooked carrots
+Steamed green beans



Serve vegetables before meals



Use a bigger spoon to serve a larger amount of vegetables with meals



Less vegetables served
with the smaller spoon

More vegetables served
with the larger spoon

Appendix 7 Nutrition Educator's Session Script

SESSION TWO:

Cooking Side-by-Side!

Upon Arrival:

- Ask families to check in
- Distribute name tags
- Collect Home Food Inventory Forms

Overall Goals for Session:

Families will:

- Work together to make healthy meals that everyone will enjoy.
- Increase the frequency of including vegetables in meals.
- Eat meals together more often.

Strategy Session Goals (Intervention Group Only):

Parent/caregivers:

- Can summarize how behavioral strategies will be introduced and evaluated over the course of the program (introduction by NE one week, practice at home, report back next week)
- Can demonstrate how to correctly use this week's strategy: Child helps prepare the vegetables for meals.
- Will have a plan for implementing the strategy at a meal the next day.

Objectives:

Families will be able to:

- Identify age-appropriate tasks for children in the kitchen
- Practice using kitchen safety practices including handling knives safely
- Identify pros and cons of using different forms of vegetables
- Include a variety of vegetables at meals
- List strategies to share more meals together

Recipe(s): Turkey Tacos

I. Introduction (Nutrition Educator (NE), 15 minutes)

***The NE should begin the session by 5 minutes past the official start time of the session and not wait until all participants have arrived.**

1. Welcome families. Provide an overview of the Overall GOALS for Session.
2. NE will introduce him/herself briefly, offering any information that will help families relate. Talk about your career path or other personal interests, and what you were interested in when you were the same age as the children in your group. The NE may briefly re-introduce study staff and CHEF.
3. Invite everyone to introduce themselves and name their favorite vegetable.
4. Establish a code of conduct for the class. Display the following code on a poster board that can be posted each week (**Study Staff will bring**). In addition to the following, solicit several more ideas from the participants:
 - No outside food. (For the ~2 hrs of this class we want a healthy food zone so we request that you don't bring in outside food or beverages. Remember we will be enjoying a healthy meal at the end of class.)
 - Please ensure your phones are on vibrate or turned off.
 - Please be on time every session. (We will have the cooking demonstration as the first part of most classes and we don't want you to miss it!)
 - No negative comments about foods.
 - Come back to attention quickly.
 - Be open to trying new foods.
 - Work as a family team on all activities.

"Today we will talk about how families can work together to create healthy meals that everyone will enjoy."

II. Cooking and Food Safety (Chef/Nutrition Educator, 55 minutes)

****The Handouts referenced throughout the lesson do not have to be read in detail, but the Chef and NE should provide enough information to give participants a brief summary of the main ideas from the handout, highlighting the most important aspects.**

During the Cooking demonstration, the classroom assistant and study staff will set up participant preparation stations.

1. The CHEF and NE will stand together in front of the group. Together, they will emphasize that this is an opportunity for parents and children to learn new skills and ways to work together safely in the kitchen. Throughout the course they will also

- learn creative ways to “choose foods from every food group” while making meals that satisfy the whole family.
2. **ASK (NE):** What's good about having the whole family working together in the kitchen? Add to the discussion as needed, emphasizing that cooking together promotes positive eating habits for the whole family, teaches children responsibility and builds self-confidence, and makes mealtime more fun.
 3. **(CHEF, BEFORE Demo)** Discuss the importance of kitchen safety to prevent foodborne illness and accidents. Refer to the *Cooking Safely* handout.
Review the proper way to wash hands. Explain that washing hands is one of the most important steps we can take to prevent foodborne illness.
 4. The **CHEF** will demonstrate the entire process of preparing the TURKEY TACOS recipe.

*****The demo should take < 30 minutes.**

- a. Emphasize that these recipes allow each family member to choose which foods they would like to add to their meal based on their preferences. For example, children can choose which vegetables to add to their tacos.
 - b. Explain that accidents can be prevented in the kitchen by following safety rules. *Review basic knife skills.*
 - c. Set policies for safe knife use and kitchen behaviors in class.
5. During the cooking demonstration, the NE will incorporate elements of the Nutrition Lesson as appropriate and relevant. For example, the NE may:
- Refer to the *Vary Your Veggies* handout. Point out the health benefits that colorful produce provides. Ask parents and children which colors they like to see on their plates, relate the colors to the orange, red and green colors in the Turkey Tacos.
 - Discuss ideas from the *Community Resources for Vegetables* handout:
ASK: Where do you get your vegetables? to introduce the topic.
6. **(CHEF, during Demo)** Refer to the *Cooking Side by Side* handout and highlight a few tips. Point out that parents should use their experience working with their children in this class and at home as a guide for assigning tasks in the kitchen.
- Highlight that recipes have specific steps suggested for children, which will make it easier to divide tasks at home. Point out that families will be getting the recipes in a booklet at the end of the course.
 - Highlight items from *Talk like a Chef and Measure Up* handouts as they are described during the demonstration. For example, review the terms Chop, Dice and Mince as the carrots, sweet potato, zucchini or tomatoes are prepared for Turkey Tacos. Review measuring abbreviations and terms when measuring spices for the Turkey Tacos.

Participant Preparation of Food (<25 minutes)

1. Have families wash their hands, using proper technique, in preparation for cooking today's recipes. *NOTE if Cooking Demo is running longer than 30 minutes, the NE may want to initiate the washing of hands during the demo, directing small groups at a time to the hand washing stations.
2. Group several parent-child pairs into cooking teams and assign each team tasks, delegate different steps in the recipe, noting which steps children can take on themselves. Walk around the room, answering any questions and commenting on technique.
3. Have some of the children demonstrate their understanding of basic knife skills in front of their parents.
4. Have children use a vegetable peeler to peel carrots and a can opener to open canned vegetables. As needed, gently correct unsafe knife use.
5. **(CHEF)** Highlight the cooking terms and ingredient measures in the recipes and assess whether these are new concepts for participants.
6. **(CHEF AND NE)** Ask children to describe the cooking tasks they performed independently, and congratulate them on their success.
7. The **CHEF** will instruct the participants to start browning the taco meat but the CHEF may have to finish, depending on time. If more than 25 minutes have elapsed since participants began preparing the food, the NE should move participants to the location of the Nutrition Lesson (III).
8. The **CHEF** will keep the prepared food warm until the families are ready to eat together.

Upon completion of food preparation, the NE will ask participants to sit down at the tables for the Nutrition Lesson.

III. NUTRITION (Nutrition Educator, <15 minutes)

*****Some items from the Nutrition Lesson have been incorporated during the Cooking Demonstration. The remaining content can be covered at this time.***

1. **ASK:** Which form of vegetables do you prefer (fresh, frozen, canned)? What do you like about this form? Engage children by asking them which forms of vegetables they have tried.
2. Refer to the ***Fresh, Frozen, and Canned*** handout. Emphasize that there is no "best" form. Discuss the pros and cons of each form,
3. Discuss access to vegetable sources keeping in mind what has already been covered during the cooking demonstration. **ASK:** Where do you get your vegetables? Refer to the ***Community Resources for Vegetables*** handout. In

addition to conventional grocery stores like Cub Foods/Rainbow, describe the following sources:

- a. Discount store chains: Aldi, Wal-mart, Dollar Stores (frozen foods)
- b. Food shelves
- c. Fare-for-all
- d. Community Gardens. ASK about access to community gardens.
- e. Farmer's Markets. **ASK:** Did you know many vendors at Farmer's Markets discount their foods in the last 1-1.5 hour? Do you use SNAP benefits at Farmer's Markets?

4. Refer to the *Vary Your Veggies* handout. Review the health benefits that colorful produce provides as discussed during the Cooking Demonstration, pointing out the various colors of vegetables in the meal being prepared.

*****At this point the Nutrition Educator will initiate a mini-break where the children will be grouped separated from their parents. They will be 'entertained' with an activity (not based on nutrition topics) led by a study staff member:***

"Now the children and parents will be separated to complete different activities. The children will be enjoy activities led by a member of our study team while the parents will stay here and have a separate lesson."

The tables where the parents sit should be rearranged so they sit as closely as possible 'around' a table or a small space.

*****NOTE FOR TIMING:** Study staff should limit the child-only activity to ~ 10 minutes, ending it while the parents are still participating in their separate lesson. The study staff should direct the children to start fixing the taco plates for both the parent and child (2 plates/child) and bring the pre-plated tacos to the table to enjoy after the parents are finished with the strategy session.

IV. Discussion of Strategy: Child Helps Prepare the Vegetables for Meals (Nutrition Educator, 15 minutes)

1. Introduction

"We separated you from your children at this point because we want to talk about the main purpose of this study. In this study, we are asking parents to use strategies at home that can help your child eat more vegetables. These strategies are small changes to help your child make healthier food choices that are easy to use and cost little or nothing."

"Each week you will have a cooking lesson to learn how to prepare healthy meals. We just finished the lesson for this week. Then, each week we will be teaching you to use a new strategy in your home at mealtimes to help your child eat more vegetables. After learning the strategy, we will ask that you use it at home as often as you can. We will also be practicing the strategy during the cooking part of the class or when we eat together at the end of each class."

*“At the next week’s lesson, we will ask you to fill out a short survey about using these strategies. We will then ask your advice about what made it easy or hard to use. Your input will be **very important** for us to help other parents in the future.”*

“We will be recording the part of every session where we teach you to use a new strategy and learn about how you used it at home. Your input is valuable to this research study and will help us develop lessons for other parents. We truly appreciate your contribution and please know it directly impacts the study’s results and goals.”

“Finally, and this is VERY important: We do not want your child to know that you are trying to use these strategies to get them to eat more vegetables. Please do not discuss the strategies with them or what we talk about during this part of the lesson.”

“I am going to turn the recorder on now.” (Place the recorder front and center to get the best recording.) “Please make sure to speak clearly and not talk when others are talking so the recording is clear and it is easy to hear your comments.”

2. INTRODUCE the strategy: Having your child help prepare the vegetables for meals.

Cooking with your children can be a positive experience, giving them helpful life skills at the same time. Some children find a sense of pride in helping their parent prepare the vegetables. Children are often far more willing to eat foods they helped prepare. You may be creating good helpers for you in the kitchen so meals are prepared faster as well as having your child eat more vegetables.”

“Your strategy for this week is to have your child help prepare vegetables for meals. (Show the strategy poster to the group and refer to handout.)

Here are some ways you can have your child help prepare vegetables:”

- Get vegetables out and wash them.
- Read a recipe aloud on how to prepare the vegetable.
- Peel and cut vegetables with your help if necessary (like in today’s food preparation).
- Use a can opener to open cans of vegetables (like in today’s food preparation).
- Put vegetables in microwavable bowl and use the microwave to warm them.
- Stir vegetables on the stove top with your help if necessary.
- Place the vegetables in serving containers or on plates.

NOTE: *“During the Cooking part of this class, your child practiced using vegetable peelers and can openers. You will be taking home a peeler in your take-home grocery bag.”*

3. CLARIFY the strategy:

*“Let’s make sure that we are all clear about what we asking you to do for this strategy. We want your child to help prepare vegetables. Preparing other foods or cleaning up is **not** using this strategy.”*

ASK: What questions do you have about using this strategy?

ASK: What problems do you expect when you use this strategy?

NE will ask each participant the following question(s) before ending this part:

ASK: “Think about a meal you will have for your family tomorrow. What will you ask your child to do to prepare vegetables for that meal?” ****NE should gently correct if responses do not comply with strategy.**

FAQ/Comments that the Nutrition Educator/Study Staff may receive and suggested responses (Do not present these to the group, but read through in advance in case they are asked during session):

- “I don’t want my child using a knife. He is too young.” or “ I don’t allow anyone else near the stove except for myself.”
 - Let’s think about some other ways your child can help.
- “It makes me crazy to try to get dinner done and have to help them cook” or “I don’t have time or patience for that ” or “my kitchen is too small to have us work together”
 - Is there something small they can help with that will not slow you down too much? What if they helped open the canned goods before you got started?
 - It may take longer to prepare the first time your child helps because you may find you are teaching him/her safety lessons along the way (like how to properly use tools/equipment, or not to put meat on same platter as veggies). But in the end, these are valuable lessons that your child is learning and will help him improve over time.
- “My child hates cooking”
 - What activities does your child enjoy doing? If you child likes to play games, is there some way you can make this into a game?
- “We are not home together when vegetables are prepared for meals.”
 - Try to use the strategy when schedules line up, for instance on the weekends when they are more likely to be home for meals and not at practices or other commitments.
 - Prepare vegetables for the next day’s meal

V. Eating Together (Nutrition Educator, 20 minutes)

1. Try to establish a family-like setting for eating.
2. The NE should sit down and enjoy the meal with participants.
3. While eating, discuss the importance of sharing meals as a family.
 - a. **ASK:** What makes it hard for you to eat more meals together? What have you found to be helpful ways to eat together more often?
 - b. Refer to the *Mealtime: It's a Family Thing* handout. Highlight tips for making time to eat meals together and have meaningful conversations. Encourage participants to share ideas that work for their family. Emphasize that eating family meals promotes good eating habits, builds family closeness, encourages cooperation, and helps improve communication skills.
 - c. Ask families what they enjoyed about today's class. Emphasize the importance of working together safely to cook healthy meals that the whole family can enjoy and eating together as a family.
4. Pass out groceries and get families excited about next week's topics and activities.

SESSION THREE:

MyPlate

Upon Arrival:

- Ask families to check in
- Distribute name tags

Overall Goal for Session:

Parent/child pairs can:

- Parent/child pairs can explain the importance of eating foods from every food group

Strategy Session Goals:

Parents/caregivers:

- Can describe facilitators and barriers for last week's strategy: Child helps prepare vegetables for meals.
- Can demonstrate how to correctly use this week's strategy: Using MyPlate
- Will have a plan for implementing the strategy at a meal the next day.

Objectives:

Families will be able to:

- Classify foods into MyPlate food groups.
- Name the five food groups.
- Explain why it is important to have a balanced diet.

Recipe(s): Baked Flaked Chicken, Brown Rice, Sauteed Greens

I. Introduction (Nutrition Educator, ~5 min)

***The Nutrition Educator should initiate the session by 5 minutes past the official start time of the session and not wait until all participants have arrived.**

1. Welcome families.

“Welcome back everyone. ASK: Did everyone use the groceries we sent home to make the Turkey Tacos? How did it go?”

2. Introduce the lesson.

“Today we’re going to learn about how important it is to eat foods from every food group.

“Let’s get started with the cooking demonstration.”

II. Cooking and Food Safety (Chef and Nutrition Educator, ~50 minutes)

Preparation before Session: The Chef will prepare the Brown Rice and rinse the majority of the greens to be sautéed; leaving only a small portion to be washed by the children.

****The Handouts referenced throughout the lesson do not have to be read in detail, but the Chef and Nutrition Educator should provide enough information to give participants a brief summary of the main ideas from the handout, highlighting the most important aspects.**

During the Cooking demonstration, the classroom assistant and study staff will set up participant preparation stations.

1. (CHEF): Introduce the recipes for the day: **Baked Flaked Chicken, Sautéed Greens, and Brown Rice.** Explain that today we will re-emphasize the food safety practices we learned last week as well as learn about eating foods from every food group.
2. Display the fresh, frozen, and canned vegetables that will be used.
3. The Chef will demonstrate the entire preparation of BOTH recipes: Baked Flaked Chicken and Sautéed Greens.

*****The demo should take < 25 minutes.**

4. The Nutrition Educator will stand beside the Chef in the kitchen while s/he demonstrates, incorporating appropriate elements of the Nutrition Lesson (MyPlate). For example,
 - When the chicken is being prepared with the whole grain flakes, the Nutrition Educator can point out that this item covers two groups on the MyPlate: protein and grain sections.

- When the sautéed greens are being prepared, the Nutrition Educator can point out that this vegetable covers the vegetable section of the plate.
5. While the demonstration is taking place the Nutrition Educator will:
 - Briefly explain the importance of these food safety practices: 1) wiping the tops of cans, 2) inspecting frozen products, and 3) rinsing fresh produce that will be used in the recipes. ***Have children wipe the tops of cans, inspect frozen products and assist with the rinsing of the remaining portion of greens.**
 - While children help, discuss convenient ways to prepare vegetables. Refer to the *Cooking Produce* handout.

Participant Preparation of Food (< 25 minutes)

1. Have families wash their hands, using proper technique, in preparation for cooking today's recipes. *NOTE if Cooking Demo is running longer than 25 minutes, the Nutrition Educator may initiate the washing of hands during the demo, directing small groups at a time to the hand washing stations.
2. Group several parent-child pairs into cooking teams and assign each team tasks, delegate different steps in the recipe, noting which steps children can take on themselves. Walk around the room, answering any questions and commenting on technique.
3. The participants will prepare the Baked Flaked Chicken and Sautéed Greens. **However, the sautéing of the greens they wash and cut will not take place until right before families eat together**; that is, following the Strategy Session. Study staff will end the children-only activity earlier than the Strategy Session part (adults only) and have several children assist the Chef in sautéing the greens.
4. **Note for CHEF:** Since there will be ~40-45 minutes between the end of the Participants preparation of food and before the Eating Together parts and the chicken will take less time to bake (20-25 min), the Chef should keep the chicken warm in the oven at 140° until the participants are ready to begin the meal.

Upon completion of food preparation, the Nutrition Educator will ask participants to sit down at the tables for the Nutrition Lesson.

III. Nutrition (Nutrition Educator, <20 minutes)

****Some items from the Nutrition Lesson have been incorporated during the Cooking Demonstration. The remaining content can be covered at this time.**

1. Display the MyPlate poster and ask families what they already know about MyPlate. Refer them also to the *MyPlate* handout in their packet.
 - a. Point out that MyPlate helps guide us to make smart food choices. Emphasize the benefits of healthy eating for children, such as reaching full

growth potential, peak physical performance, peak brainpower, and protection from many chronic diseases.

- b. **ASK:** What are the five food groups? Why is it important to eat from all five? Explain that all food groups are important for our health, providing us a *balanced* diet and important vitamins and nutrients. Suggest that families try to eat foods from every food group"
- c. **ASK:** Are some food choices better than others within the food groups? For example, like a french fries in the vegetable group, white rice vs. brown rice.
- d. **ASK:** What do you notice about the way food is served on MyPlate (e.g., half of the plate is for fruits and vegetables, a quarter for grains, and a quarter for protein, with a glass on the side for dairy)?
- e. **ASK:**How does this compare to the way you usually serve your plate and your child's plate?
- f. **ASK:**What does MyPlate tell us about which food groups should make up the base of our diet?
- g. **ASK:** How can MyPlate help you think about making healthy choices when you're planning and preparing a mixed dish like pizza or tacos? Point out that MyPlate is a symbol that helps remind us how to build a healthy diet - not an exact replica of our plate at each meal. Guide families to break down a mixed dish (using food models or pictures) like tacos into food groups (Refer to the Turkey Taco recipe that was used in Lesson One. Then, have them suggest ideas for adjusting the amount of each ingredient to follow MyPlate themes, such as topping the taco with lots of veggies and smaller amounts of proteins.

*****At this point the Nutrition Educator will initiate a mini-break where the children will be grouped separately from their parents. They will be 'entertained' with an activity (not based on a nutrition topic) led by a study staff member.***

"Now the children and parents will be separated to complete different activities. The children will enjoy activities led by a member of our study team while the parents will stay here and have a separate lesson."

The tables where the parents sit should be rearranged so they sit as closely as possible 'around' a table or a small space.

*****NOTE FOR TIMING:** Study staff should limit the child-only activity to ~ 10 minutes, ending it while the parents are still participating in their separate lesson. The study staff should direct 2 of the children back to the Chef/kitchen to assist with sautéing the greens. The remaining children can start fixing the serving dishes/bowls of the **Baked Flaked Chicken, Sautéed Greens, Brown Rice** that they can bring to the table to

enjoy family-style after the parents are finished with their lesson. A serving dish/bowl should serve ~4 people.

IV. Discussion of Strategy: Using MyPlate (Nutrition Educator, ~20 minutes)

1. Survey about last week's strategy: Child helps prepare vegetables for meals.

“Last week, I mentioned that this week we would talk about how you used last week's strategy before we introduce this week's strategy. Before we talk about it, we are asking you to fill out a short survey about what you did last week. It should only take a few minutes.”

At this point, a study staff member will pass out the paper survey and pens and ask parents to complete the survey. This is the first time parents are being asked to complete the survey, therefore the study staff member needs to read the directions to the group, describe the response options, and ask if there are any questions.

After the parents complete the survey, thank them.

“As mentioned last week, we will be recording this part of the lesson because your responses and input are so valuable to this research study. We don't want to miss any of your comments about how you used the strategy last week. It works better for us if we record this instead of having an extra person here to take notes. We truly appreciate your contribution and please know it directly impacts the study's results and goals. Because we are recording, please try not to talk while others are talking so the recording is easier to hear.

At this point, a study staff member will start an audio recording.

2. Discussion about last week's strategy: Child helps prepare vegetables for meals.

The Nutrition Educator will facilitate the lesson making sure to ask all the questions below. The goal is to encourage feedback about what helped participants use the strategy or what kept participants from using the strategy during the past week. The Nutrition Educator will go around the table and ask EACH participant the following questions and encourage each participant to give thorough and thoughtful answers:

- **ASK:** How did you use last week's strategy: Have child help you prepare the vegetables for meals?
 - **ASK:** What helped you use it?
 - **ASK:** What kept you from using the strategy?

When everyone has had a chance to respond,

- **ASK:** Do you have any other comments about using the strategy of having your child help prepare vegetables for meals

3. Introduction of this week's strategy: Using MyPlate

Show parents the plastic MyPlate: *"This plate shows how much of the plate should be covered with vegetables compared with the other food groups. **Your strategy for this week is to use these plates when you eat your meals together as a family.** We will include several of these plates in your grocery bag that you take home tonight, that way others in your family can use these plates too. When you use the plates, please do not tell your children that you are using the plates to get them to eat more vegetables."*

Tell: "Here are some ways to use MyPlate at home this week (use food models to illustrate)."

1. Put cooked or raw carrots on the vegetable part of the plate.
2. If you serve a mixed dish like lasagna, talk about the amount of vegetables that you think would be on the vegetable part.
3. Serve the foods that are part of tacos in separate compartments, with the tortilla as the grain, meat/beans/cheese as the protein, and lettuce and tomato as the vegetable and have your child put it together.
4. Serve the foods that are part of hamburgers in separate compartments, with the bun as the grain, the patty as the meat and lettuce, tomato, cucumber or avocado as the vegetable and have your child put it together.

4. CLARIFY the strategy:

"Let's make sure that we are all clear about what we asking you to do for this strategy. We want you to have your family, including your child in this class with you, use the MyPlates for meals at home."

ASK: What questions do you have about using this strategy?

ASK: What problems do you expect when you use this strategy?

Nutrition Educator will ask each participant the following questions before ending this portion:

- **ASK:** How are you planning to use these plates for a meal at home tomorrow?
What is the meal you have planned and where will each item go on the plates you will use?

****Nutrition Educator should gently correct if responses do not comply with strategy.**

Remember, next week will be asking each one of you how easy or hard it was to use MyPlates and what made it easy or hard.

FAQ/Comments that the Nutrition Educator may receive and suggested responses (Do not present these to the group, but read through in advance in case they are asked during session):

- If your child asks why are we using this plate--just be honest and say it's a good guide reminding us to eat from the five food groups AND how much of each group we should be eating. Portion size!
- If you don't have fruit or don't want to serve fruit, you can put extra vegetables on that portion of the plate.
- Encourage the whole family to use the plates so the child does not feel singled out.
- You may want to have your child put the different foods in each section himself so s/he has a hand in 'creating' her/his plate, where they get to figure out what food goes where.
- "This is a baby/kid plate"
 - Consider using the plate as guide in distributing food.
- "What if we have soup"
 - If vegetables must be served in a bowl, such as tomato soup, consider placing a cup of soup over the vegetable area of the plate.
- "What do I do with mixed dishes like stir-fry or casseroles?"
 - For mixed dishes, the plate can be used as a guide to show which food groups should be used in the recipe. For example, if you were cooking lasagna, you can imagine the noodles would be in the grain group, the meat in the protein group and the tomatoes and spaghetti sauce in the vegetable group.

V. Eating Together (Nutrition Educator, 20 minutes)

1. Try to establish a family-like setting for eating.
2. The Nutrition Educator should sit down and enjoy the meal with participants.
 - While they are eating, discuss simple ways families can incorporate more vegetables into their meals. Refer to the *Adding Vegetables to Meals* handout.
 - Ask families what they enjoyed about today's class. Summarize the key message: choose foods from every food group"
3. Pass out groceries and get families excited about next week's topics and activities.

SESSION FOUR:

Food Labels and Healthy Choices

Upon Arrival:

- Ask families to check in
- Distribute name tags

Overall Goal for Session:

Families will:

- Prepare more meals and snacks at home containing vegetables.
- Regularly read food labels to identify healthy snacks and convenience foods.

Strategy Session Goals:

Parents/caregivers will be able to:

- Describe facilitators and barriers to last week's strategy: Using MyPlate.
- Demonstrate how to correctly use this week's strategy: Making vegetables more available and visible than the other foods of the meal.
- Will have a plan for implementing the strategy at a meal the next day.

Objectives:

Families will be able to:

- Use food labels to identify healthier options.
- Identify healthy snacks that include foods from at least two food groups.
- Evaluate versions of popular convenience foods for healthfulness.

Recipe(s): Salmon Pasta Bake, Orange Glazed Carrots

I. Introduction (Nutrition Educator, ~5 minutes)

1. Welcome families.

“Welcome back!” **ASK:** Were you able to make the Baked Flaked Chicken last week along with the side items sent home in the take-home grocery bag?

2. Introduce the lesson.

“Today we will discuss ways to prepare more meals and snacks at home as well as how valuable it is to read food labels.”

“Let’s get started with the Cooking Demonstration.”

II. Cooking and Food Safety (Chef and Nutrition Educator, ~ 45 minutes)

Preparation in the hour before Session: The Chef will prepare the pasta. *Instead of reducing 1 cup of OJ, use a ¼ cup frozen orange juice concentrate per 4 servings

****The Handouts referenced throughout the lesson do not have to be read in detail, but the Chef and Nutrition Educator should provide enough information to give participants a brief summary of the main ideas from the handout, highlighting the most important aspects.**

During Chef demonstration, classroom assistant and study staff will set up participant preparation stations.

1. (CHEF) Introduce the recipes for the day: **Salmon Pasta Bake and Orange Glazed Carrots**. Explain we will be highlighting cooking techniques and substitutions that help increase vegetables in meals. For example, the addition of peas to the salmon pasta bake. Additions like this can make dishes taste better, be healthier and even go unnoticed.

2. The Chef will demonstrate the entire preparation of BOTH recipes: **Salmon Pasta Bake and Orange Glazed Carrots**.

*****The demo should take < 25 minutes.**

3. The Nutrition Educator will stand beside the Chef in the kitchen while s/he demonstrates incorporating elements of the Nutrition Lesson that are appropriate (e.g., **Reading Food Labels** and **Eating Smart with Eating Convenience Foods** handouts). For example,

- Talk about the bag of peas and bag of whole wheat pasta and point out the elements of the nutrition label.

4. While the demonstration is taking place, the Nutrition Educator will refer to the **Healthy Cooking Ideas** handout. Point out simple substitutions families can make to their favorite recipes.

5. (CHEF) Explain that we've been discussing healthier versions of meals. Point out steps to increase veggies in convenience foods like putting veggies on frozen pizza, adding veggies to macaroni and cheese or spaghetti sauce.

Participant Preparation of Food (< 20 minutes)

1. Have families wash their hands, using proper technique, in preparation for cooking today's recipes. *NOTE if Cooking Demo is running longer than 25 minutes, the Nutrition Educator may initiate the washing of hands during the demo, directing small groups at a time to the hand washing stations.
2. Group several parent-child pairs into cooking teams and assign each team tasks, delegate different steps in the recipe, noting which steps children can take on themselves. Walk around the room, answering any questions and commenting on technique.

Upon completion of food preparation, the Nutrition Educator will ask participants to sit down at the tables for the Nutrition Lesson.

III. NUTRITION (Nutrition Educator, < 15 minutes)

*****Some items from the Nutrition Lesson have been incorporated during the Cooking Demonstration. The remaining content can be covered at this time.***

1. Introduce the food label. Explain how labels and the Nutrition Facts panel can help guide our choices about packaged foods and snacks.
2. **ASK:** What do you usually eat for a snack? Why? Lay out empty packages of the following snack foods (potato chips, veggie chips, baby carrots, frozen peas) on the table in front of families. Explain that we are going to take a closer look at common snack foods to determine how healthy they are, but first we need to know how to interpret food labels.
3. **ASK:** What information on the food label or Nutrition facts panel do you already use?
4. Refer to the *Reading Food Labels* handout. Emphasize that the % DV tells us whether the food is high or low in a nutrient-20% or more is high, 5% or less is low. Point out which nutrients we want more or less of. Clarify the difference between one serving and the number of servings provided in a package.
5. **ASK** each family to pick up a snack package from the table and work together to determine whether their product is high or low in various nutrients. Tell them to pay close attention to the fat, calories, sugar, and sodium. Have families compare the calories and fat in one serving to the entire package.
6. Call on children to report their families' findings as you ask questions such as:
 - **ASK:** Are you surprised by how many servings are in one package? **ASK:** How much would you normally eat? **ASK:** Is your snack high in any nutrients? Which ones? **ASK:** Are these nutrients we want to eat more or less of? **ASK:** Which snacks are better for you?

7. Explain that families can often make healthier snack choices by making their own snacks at home. Refer to the *Snack Smart* handout. Point out that a good rule of thumb is to include at least two food groups in snacks. Have parents and children work together to come up with healthy snacks using ideas on the handout or ideas of their own.
8. Explain that similar to prepackaged snacks, other convenience foods are typically less healthy.
9. **ASK:** Have you heard the term “convenience foods”? **ASK:** What does it mean to you? Acknowledge responses and explain that, in this course, we use the term “convenience foods” to refer to any foods that you have not cooked at home yourself using basic ingredients (e.g., granola bars, ready-to-eat cereals, frozen vegetables, yogurt, candy bars, packaged cookies, prepackaged meals, takeout or fast food). **ASK:** What types of convenience foods do you usually eat, and why?
10. Refer to the *Eating Smart When Eating Convenience Foods* handout. **ASK:** How can you use what you’ve learned so far in this course to make smarter choices when eating convenience foods? Engage kids by discussing healthier kids’ menu options such as a side of baby carrots instead of fries, or low-fat milk instead of soda.

*****At this point the nutrition educator will initiate a mini-break where the children will be grouped separately from their parents. They will be ‘entertained’ with an activity (not based on a nutrition topic) led by a study staff member.***

The tables where the parents sit should be rearranged so they sit as closely as possible ‘around’ a table or a small space.

*****NOTE FOR TIMING:** Study staff should limit the child-only activity to ~ 10 minutes, ending it while the parents are still in their separate lesson. The study staff should direct the children to start filling the serving dishes for Salmon Pasta Bake and Orange Glazed Carrots, so that they can bring these serving dishes to the table to enjoy family-style after the parents are finished with their lesson. They can also put out napkins, forks, etc.

IV. Discussion of Strategy: Making vegetables more available and visible than the other foods (Nutrition Educator, ~ 25 minutes)

1. Survey about last week’s strategy: Using MyPlate

“Last week, I mentioned that this week we would talk about how you used last week’s strategy before we introduce this weeks strategy. Before we talk about it, we are asking you to fill out a short survey about what you did last week. It should only take a few minutes.”

At this point, a study staff member will pass out the paper survey and pens and ask parents to complete the survey.

After the parents complete the survey, thank them.

“As mentioned last week, we will be recording this part of the lesson because your responses and input are so valuable to this research study. We don’t want to miss any of your comments about how you used the strategy last week. It works better for us if we record this instead of having an extra person here to take notes. We truly appreciate your contribution and please know it directly impacts the study’s results and goals. Because we are recording, please try not to talk while others are talking so the recording is easier to hear.”

At this point, a study staff member will start an audio recording.

2. Discussion about last week’s strategy: Using MyPlate

The Nutrition Educator will facilitate the lesson making sure to ask all the questions below. The goal is to encourage their comments with the following open-ended questions that prompt participants to think about the ease and barriers of the strategy discussed. The Nutrition Educator will go around the table and ask each participant the following questions and encourage each participant to give thorough and thoughtful answers:

- **ASK:** How did you use the strategy last week: Using MyPlate?
 - **ASK:** What helped you use it?
 - **ASK:** What kept you from using the strategy?

When everyone has had a chance to respond,

- **ASK:** Do you have any other comments about using MyPlate?

3. INTRODUCE this week’s strategy: Making vegetables more available and visible than the other foods of the meal.

“This strategy is all about making the vegetables the ‘center’ of the meal. This means that after preparing the plates of food for your family and sitting down to eat, keep the extra vegetables on the table (or wherever you are eating) during the meal, but keep any extras of the other foods in another room and/or out of sight.

“The key is to be sure to put all the extras of the other foods of the meal: extra main dish (e.g., meat), extra breads or other starches, and extra dairy, away from the dinner table or wherever the meal is taking place.”

If you prepare meals that are mainly stews or mixed dishes/casseroles, then you might serve a salad or another vegetable in addition to the mixed dish. The only extra food on the table would be extra salad or extra vegetable that the children can easily dish onto their plate for seconds/thirds.”

“The simple idea behind the strategy is that by making only the vegetables available and visible at the table, it is more likely your child will eat more of the vegetables. It will be easier to just dish up more of the readily available vegetables than to get up and get more of another type of food.

SAY: “Here are some additional tips for using the strategy:

1. Have your child bring the pan or serving dish of vegetables to the table. This way they are aware it’s there right away.
2. If you have served hot dogs, baked beans, and corn have a bowl of extra corn on the table. Any extra hot dogs would remain on the kitchen counter or stove.
3. If you serve spaghetti with salad, have extra salad and perhaps extra sauce on the table.

4. CLARIFY the strategy:

“Let’s make sure that we are all clear about what we asking you to do for this strategy. The goal is for the extra vegetables to be more available and visible to the child than the other foods. The extras of the other foods will be “out of sight-out of mind.”

ASK: What questions do you have about using this strategy?

ASK: What problems do you expect when you use this strategy?

The Nutrition Educator will ask each participant the following question(s) before ending this portion:

- **ASK:** What vegetables do you have planned for a meal tomorrow?
- **ASK:** Since your vegetables will be the only extra food left on the table during the meal, where will you place the other foods of the meal?
- **ASK:** How will you serve the extra vegetables? On another plate, serving bowl, the pan they were heated in?

****Nutrition Educator should gently correct if responses do not comply with strategy.**

Remember, next week will be asking each one of you how easy or hard it was to use this strategy and what made it easy or hard. We will practice this strategy for the meal tonight so you can see one way to do it. We will have both Carrots and the Salmon Pasta Bake on the table at the start of the meal, then we will remove the Salmon Pasta Bake and place it away from the table, but we will be leaving the carrots on the table within close reach. We will also pass them around again since having a bowl of veggies in your hand and a spoon to dish them out, is a way of making them VERY available.

FAQ/Comments that the Nutrition Educator may receive and suggested responses (Do not present these to group, but read through in advance in case they are asked during session):

- **Why are the vegetables on the table?** Answer: “They’ll be right on the table so it will be easy for us to get more.”
- **If your child asks for more of the other foods:** Answer: “How about we try and finish what’s out here on the table first.” If they insist, they can go serve themselves extras from the kitchen.
- **We don’t eat at a dinner table.** Answer: “ If so, that works too for this strategy. All you have to do is place the vegetables and no other foods out on the side table or coffee table so that they are easily accessible by your child. If you have a spare TV tray, place the vegetables on it, while the extras of other foods in the meal go back in the kitchen.”

V. Eating Together (Nutrition Educator, ~20 minutes)

****REMEMBER to only have the Orange Glazed Carrots left at the table where the participants are eating. Bring the Salmon Pasta Bake to another part of the room after people have initially dished up their portion.**

1. Try to establish a family-like setting for eating.
 2. The Nutrition Educator should sit down and enjoy the meal with participants.
 3. While everyone is eating, acknowledge the reasons families eat convenience foods, but encourage them to consider the tradeoffs. Summarize key message regarding food labels and note the ideas below.
 - Taste: Healthier, tasty versions of convenience-food favorites can be made at home. Highlight recipe(s) made today: Salmon Bake—the addition of peas adds a healthy option.
 - Cost: Explain that many convenience foods can actually be made at home for less money, especially if you maintain a basic pantry. We will work more on that in later classes.
 - Time: Explain that next week, we are going to learn how to plan ahead and save time in the kitchen so we are less dependent on convenience foods in a crunch.
3. Pass out groceries and get families excited about next week’s topics and activities.

SESSION FIVE:

The Power of Planning

Upon Arrival:

- Ask families to check in
- Distribute name tags

Overall Goal for Session:

Families will:

- Plan and prepare quick, healthy meals at home

Strategy Session Goals:

Parents/caregivers will be able to:

- Discuss facilitators and barriers for last week's strategy: make vegetables more available and visible than the other foods of the meal.
- Demonstrate how to correctly use this week's strategy: Serve at least 2 vegetables with meals.
- Have a plan for implementing the strategy at a meal the next day

Objectives:

Families will be able to:

- Plan a family meal using menu planning lesson handout.
- Use practices to save time when making meals at home.
- Making simple recipe changes to improve healthfulness of meals.

Recipe(s): Chinese Veggies and Rice, Steamed Green Beans

I. Introduction (Nutrition Educator, ~5 minutes)

***The Nutrition Educator should begin the session by 5 minutes past the official start time of the session and not wait until all participants have arrived.**

1. Welcome families.

*“Welcome back everyone. **ASK:** Were you able to use food labels to help make smart snack choices? **ASK:** Were you able to make a convenience food healthier by adding vegetables?”*

2. Introduce the lesson.

“Today we will practice planning meals as a family, saving time in the kitchen, and making simple recipe changes.”

“Let’s get things started with the cooking demonstration.”

II. Cooking and Food Safety, (Chef and Nutrition Educator (Nutrition Educator), ~45 min)

****The Handouts referenced throughout the lesson do not have to be read in detail, but just enough to give participants the general gist of the handout, highlighting the most important aspects.**

During the Cooking demonstration, the classroom assistant and study staff will set up participant preparation stations.

- **(CHEF)** Introduce the recipes for the day: Chinese Veggies and Rice and Steamed Green Beans. Explain that today we are going to learn how to save time in the kitchen and to practice using recipe frameworks.
- The Chef will demonstrate the entire preparation of BOTH recipes: Chinese Veggies and Rice and Steamed Green Beans.

*****The demo should take <25 minutes.**

- The Nutrition Educator will stand beside the Chef during the demonstration while s/he demonstrates incorporating elements of the Nutrition Lesson that are appropriate. For example,
 - Discuss factors like available ingredients, the season, healthier cooking methods, and taste preferences as reasons for altering the specific ingredients in a casserole/mixed dish.
 - Discuss menu planning and refer to ***Menu Planning Basics*** handout.
ASK: Do you plan menus in advance?**ASK:** How can menu planning help us eat more like MyPlate?

- **Refer to the *Stocking Your Kitchen*** handout. Point out that maintaining a supply of basic components of dishes will help families save time by putting together quick meals using foods already on hand.
- **(CHEF)** Refer to the *Cook It Up Quick* handout. Point out additional time saving strategies participants can use. Encourage families to come up with ideas that they'd like to try at home, or to adopt new ideas. **Call** on kids to suggest ways they can help their parents in the kitchen to make the cooking go faster. **ASK:** What ideas do you have for saving time in the kitchen?
- **(CHEF) ASK:** What are some examples of ways you are already using the freezer to save time?
- **(CHEF)** Emphasize safe ways to defrost frozen foods.
- Explain that families will practice using recipe frameworks while preparing the recipes for today. Reassure families that, as they develop confidence cooking, their ability to make simple recipe adjustments will improve.
- **(CHEF)** Demonstrate the stove-top steaming method with the green beans.

Participant Preparation of Food (<20 min)

1. Have families wash their hands, using proper technique, in preparation for cooking today's recipes. *NOTE if Cooking Demo is running longer than 25 minutes, the Nutrition Educator may initiate the washing of hands during the demo, directing small groups at a time to the hand washing stations.
2. Group several parent-child pairs into cooking teams and assign each team tasks, delegate different steps in the recipe, noting which steps children can take on themselves. Walk around the room, answering any questions and commenting on technique.

Upon completion of food preparation, the Nutrition Educator will ask participants to sit down at the tables for the Nutrition Lesson.

III. Nutrition (Nutrition Educator, ~20 minutes)

*****Some items from the Nutrition Lesson have been incorporated during the Cooking Demonstration. The remaining content can be covered at this time.***

1. Lead families in a simple menu planning exercise.
2. **ASK:** Do you plan menus in advance? How can menu planning help us eat better? Point out that advance planning can help you be sure you always have healthy foods on hand (MAY have already covered this in cooking demo). The farther in advance you plan, the healthier your meals will be.
3. Point out that planning helps to avoid waste.

4. Refer to *Menu Planning Basics* handout. Point out simple tips for planning menus as a family.
5. Give parent-child teams time to plan at least one meal they would like to make together this week, using the questions outlined on the handout. After 2 minutes, ask several children to share their families' ideas.
6. We will have an extra Menu Plannin Basics form for child to complete and we will keep for next week.
7. **ASK:** What's good about having everyone share in the planning? Emphasize that family menu planning gets everyone excited about the meals and allows families to share in the responsibilities and fun.
8. Ask several families to share some of the ingredients they might need for the meal they just planned. **ASK:** What would you do if you went to the store and they were out of one of your ingredients?
9. Acknowledge responses and guide families to understand that many recipes do not need to be followed exactly. Most recipes are meant to provide a framework that can be adjusted based on several factors.
10. Discuss factors like available ingredients, the season, healthier cooking methods, and taste preferences (may have already touched on this during cooking demo).
11. Explain that menu planning using recipe frameworks helps you manage your food resources because you can plan to use up ingredients you have on hand, use ingredients purchased in bulk across several meals, and take advantage of sales you see at the store.
12. Elaborate on recipe frameworks as you refer to the *Design your own casseroles* handout. Point out that families can use the table on the Casserole Handout to ensure they are making well-balanced casseroles as well as encouraging them to think about tasks for their child.
13. **(Nutrition Educator) Refer to the *Stocking Your Kitchen* handout.** Point out that maintaining a supply of basic components of dishes will help families save time by putting together quick meals using foods already on hand. **ASK** parents and children: Name vegetables that are already on hand at home and suggest modifications to make to the Chinese Veggies and Rice recipe using those vegetables.

*****At this point the Nutrition Educator will initiate a mini-break where the children will be grouped separately from their parents. They will be 'entertained' with an activity (not based on a nutrition topic) led by a study staff member:***

"Now the children and parents will be separated to complete different activities. The children will be enjoy activities led by a member of our study team while the parents will stay here and have a separate lesson."

The tables where the parents sit should be rearranged so they sit as closely as possible ‘around’ a table or a small space.

****NOTE for TIMING:** Study Staff should limit the child-only activity to <10 minutes ending it before the parents are still in their separate lesson. The study staff should direct the children to start fixing the serving dishes/bowls of Chinese Veggies and Rice and steamed green beans so that they can bring the serving dishes/bowls to the table to enjoy family-style after the parents are finished with their separate lesson.

IV. Discussion of Strategy: Serve at least 2 vegetables with the meal (Nutrition Educator, ~20 min)

1. Survey about last week’s strategy: Making vegetables more available and visible than the other foods of the meal.

“Last week, I mentioned that this week we would first talk about how you used last week’s strategy which was making vegetables more available and visible than the other foods. Before we have a discussion, we are asking you to fill out a short survey about what you did last week. It should only take a few minutes.”

At this point, a study staff member will pass out the paper survey and pens and ask parents to complete the survey.

After the parents complete the survey, thank them.

“Thank you for completing the survey, now we will have our discussion. As in all the previous weeks, we are recording our conversation so we don’t miss any of your valuable comments about how you used the strategy last week. It works better for us if we record this instead of having an extra person here to take notes. We truly appreciate your contribution and please know it directly impacts the study’s results and goals. Because we are recording, please try not to talk while others are talking so the recording is easier to hear.

At this point, a study staff member will start an audio recording.

2. Discussion about last week’s strategy: Making vegetables more available and visible than the other foods of the meal

The Nutrition Educator will facilitate the lesson making sure to ask all the questions below. The goal is to encourage feedback about what helped participants use the strategy or what kept participants from using the strategy during the past week. The Nutrition Educator will go around the table and ask EACH participant the following questions and encourage each participant to give thorough and thoughtful answers:

- **ASK:** How did you use last week’s strategy: **Making vegetables more available and visible than the other foods of the meal?**
 - **ASK:** What helped you use it?
 - **ASK:** What kept you from using the strategy?

When everyone has had a chance to respond,

- **ASK:** Do you have any other comments to make about making vegetables more available and visible than the other foods of the meal?

3. INTRODUCE this week's strategy: Serve at least 2 vegetables with the meal.

For the Nutrition Educator: Bring Food Models to help demonstrate this strategy.

“Serving 2 vegetables with a meal can be done in two ways. First, you can serve 2 different vegetables as side dishes. Second, you can serve 1 side dish of vegetables AND 1 mixed in a casserole/mixed dish. (Show poster and refer to handout). For example, the vegetables in today's recipe - Chinese Veggies and Rice count as 1 vegetable serving. When you add a side of green beans (like we'll be doing in the meal today) you will be practicing this strategy.”

“Let's say you serve a salad that has carrots, lettuce and tomato. That salad counts as 1 vegetable. You would have to serve another veggie in addition to that salad in order to practice this strategy.”

“Another similar example uses a can of mixed vegetables. If you served mixed vegetables as a side dish to turkey tacos, you would be serving at least 2 veggies in the meal.”

Here are some other easy and popular recipes that use this strategy:

- Macaroni and cheese mixed with peas and a side of collard greens
- Hamburgers with a side of baby carrots and side of broccoli
- Spaghetti with tomato sauce and a side of green beans

4. CLARIFY the strategy:

“Let's make sure that we are all clear about what we asking you to do for this strategy. There are TWO ways to practice this strategy: 1. Serving at least 2 vegetable side dishes OR 2. having a mixed dish that has veggies mixed in PLUS a side dish of just veggies.”

ASK: What questions do you have about using this strategy?

ASK: What problems do you expect when you use this strategy?

Nutrition Educator will ask each participant the following questions before ending this portion:

- **ASK:** What 2 vegetables do you have planned for a meal at home tomorrow?
Will it be a mixed dish that includes vegetables PLUS a side dish of vegetables
OR 2 side dishes of vegetables?

- **ASK:** What 2 vegetables do you have on hand that you could use at the meal after tomorrow?
****Nutrition Educator should gently correct if responses do not comply with strategy.**

Remember, next week will be asking each one of you how easy or hard it was to use this strategy and what made it easy or hard. I think you'll see it may be easier than you think.

FAQ/Comments that the Nutrition Educator may receive and suggested responses (Do not present these to group, but read through in advance in case they are asked during session):

- “I don’t have enough time to prepare 2 vegetables for meals”
Answer: “For some, the thought of preparing 2 vegetables may seem like a bigger time commitment than they have in preparing the meal. However, again going back to planning you may find it’s not as time consuming as you think. For example, find a main dish with a serving of vegetables in it and simply add a side dish of canned corn or fresh carrots. And remember it can be any form of veggies: fresh, canned, or frozen.”

V. Eating Together (Nutrition Educator, ~20 minutes)

1. Try to establish a family-like setting for eating.
2. The Nutrition Educator should sit down and enjoy the meal with participants.
 - While everyone is eating, ask families what they enjoyed about today’s class. Summarize the key message from this class:
 - Families can plan menus using everyone’s ideas.
 - Ways to save time in the kitchen include planning in advance so you have ingredients on hand, using frozen or canned vegetables, prepare ahead of time and freeze and keep your kitchen organized.
 - Using recipe frameworks with simple changes can help you make healthy meals at home.
3. Pass out groceries and get families excited about next week’s topics and activities.

SESSION SIX:

Shopping Smart for Vegetables

Upon Arrival:

- Ask families to check in
- Distribute name tags

Overall Goals for Session:

Families will:

- Make smart choices when shopping for vegetables, including what to buy, when, where and how.

Strategy Session Goals:

Parents/caregivers will be able to:

- Describe facilitators and barriers for last week's strategy: Serve at least 2 vegetables with meals.
- Demonstrate how to correctly use this week's strategy: Serve vegetables before meals.
- Have a plan for implementing the strategy at a meal the next day.

Objectives:

Families will be able to:

- Identify benefits of shopping smart for vegetables.
- Use appropriate methods to stretch food dollars when shopping for or storing vegetables:
 - Use specific methods for specific vegetables to reduce waste (i.e., how to tell when veggies go bad)
 - Use different forms of veggies to optimize savings
 - Buy in season, in bulk/when on sale, with a shopping list

Recipe(s): Veggie Wraps

I. Introduction (Nutrition Educator, ~5 minutes)

***The Nutrition Educator should initiate the session by 5 minutes past the official start time of the session and not wait until all participants have arrived.**

1. Welcome everyone back. **ASK:** “What was in the meal that you planned? Did your child help with the planning?”

2. Introduce the lesson.

“Today we’re going to focus on grocery shopping for vegetables. This lesson is a good follow-up to last week’s lesson about meal planning because shopping and meal planning go hand-in-hand.”

“Let’s get things started with the cooking demonstration.”

II. Cooking and Food Safety (Chef and Nutrition Educator (Nutrition Educator), ~45 minutes)

****The Handouts referenced throughout the lesson do not have to be read in detail, but the Chef and Nutrition Educator should provide enough information to give participants a brief summary of the main ideas from the handout, highlighting the most important aspects.**

During the Cooking demonstration, the classroom assistant and study staff will set up participant preparation stations.

1. **(CHEF)** Introduce the recipe for the day: Veggie Wraps. Explain we will be talking about how to get the most out of your vegetables when it comes to shopping, storing and cooking.
2. Display the vegetables used in the meal.
3. The **CHEF** will demonstrate the complete preparation of the Veggie Wrap recipe.

*****The demo should take <25 minutes.**

4. The Nutrition Educator will stand beside the Chef during the demonstration while s/he demonstrates incorporating elements of the Nutrition Lesson that are appropriate. For example,
 - a. Refer to the *Minnesota Grown Seasonal Produce* handout as the CHEF is preparing the vegetables for the wrap.
5. For each vegetable, the **CHEF** should discuss:
 - a. the quality of the vegetable,
 - b. how to best store (how to avoid waste, when best to eat, trimming of bad parts, and
 - c. the different forms (fresh, frozen, canned)
6. **(CHEF)** Explain how to cook dried beans.
7. **ASK:** Where can you find these ingredients in the grocery store—what sections? Point out that these sections are on the perimeter of the store.

Participant Preparation of Food (<20 min)

1. Have families wash their hands, using proper technique, in preparation for cooking today's recipes. *NOTE if Cooking Demo is running longer than 25 minutes, the Nutrition Educator may want to initiate the washing of hands during the demo, directing small groups at a time to the hand washing stations.
2. Group several parent-child pairs into cooking teams and assign each team tasks, delegate different steps in the recipe, noting which steps children can take on themselves. Walk around the room, answering any questions and commenting on technique.

Upon completion of food preparation, the Nutrition Educator will ask participants to sit down at the tables for the Nutrition Lesson.

III. Nutrition (Nutrition Educator, ~20 minutes)

**Staff will place several bowls of fresh ready to eat veggies at the tables where the adults and children will have the nutrition lesson. The Nutrition Educator should let the participants know to “help themselves” to the vegetables. This is incorporating the strategy of the week: serve vegetables before the meal. We should have a bowl for each child/adult pair. These vegetables will be more accessible if they don't need to be 'passed around.'

****Some items from the Nutrition Lesson have been incorporated during the Cooking Demonstration. The remaining content can be covered at this time.**

“Today we're going to talk about important influences on cost of vegetables including whether the vegetable is in season, whether it is canned, fresh or frozen, where you buy or get the vegetables, whether the vegetable is on sale or if coupons are available, and how to store vegetables to reduce waste.”

1. Refer to the *Minnesota Grown Seasonal Produce* handout. Discuss how buying seasonal vegetables helps reduce costs.
2. Discuss Storage of Vegetables. Storage of vegetables directly impacts your grocery lists and in turn reduces costs. If you store vegetables the recommended way, it can save time (i.e., trips to the store), money (buy when on sale) and avoids waste. Refer to the *Mold Safety* and *Produce Shelf Life* handouts.
3. Discuss the following vegetables and the best way to store them: (i.e., how to tell when they've gone bad)
 - a. Tomatoes
 - b. Leafy Greens
 - c. Cucumber
 - d. Onion
 - e. Sweet Potato
 - f. Avocado

- g. Carrots
- 4. Using the menu you planned last week, make a shopping list. (Distribute the menu planning handouts the child filled out last session)
- 5. **ASK:** What vegetables are on your lists?
- 6. **ASK:** When you shop, what are some ways you can get the best bargain for these vegetables? Mention Buying in Bulk and on Sale.
- 7. Refer them to the *Shopping Smart for Vegetables Tips* handout
- 8. **ASK:** How does the form of the vegetable affect its cost, whether it is canned, fresh or frozen?
 - a. Cheapest: Canned
 - b. Mid: Frozen
 - c. More Expensive: Fresh
- 9. Discuss Shopping Lists. Point out that shopping with a list helps you avoid impulse buys, stick to your budget, spend less time and money at the store, and account for what you have on hand.
- 10. Stress the importance of taking inventory before shopping.
- 11. **ASK:** Who makes shopping lists?
- 12. **ASK:** If you do, do you find that they save you time and money?
- 13. **ASK:** If you don't, why?
- 14. **ASK:** How can children help you with your shopping list?

*****At this point the Nutrition Educator will initiate a mini-break where the children will be grouped separately from their parents. They will be 'entertained' with an activity (not based on a nutrition topic) led by a study staff member.***

"Now the children and parents will be separated to complete different activities. The children will be enjoy activities led by a member of our study team while the parents will stay here and have a separate lesson."

The tables where the parents sit should be rearranged so they sit as closely as possible 'around' a table or a small space.

****NOTE for TIMING:** Study Staff should limit the child-only activity to <15 minutes ending it before the parents are still in their separate lesson. The study staff should direct the children to start fixing the veggie wraps for both parent and child (2 plates/child) and bring the pre-plated veggie wraps to the table to enjoy after the parents are finished with the strategy session. They can also assist with bringing the ingredients of the wraps to the table(s) so that the meal can be enjoyed family-style.

IV. Discussion of Strategy: Serve vegetables before meals (Nutrition Educator, ~25 min)

1. Survey about last week's strategy: Serve vegetables before meals.

“Last week, I mentioned that this week we would first talk about how you used last week’s strategy which was serve at least 2 vegetables with the meal. Before we have a discussion, we are asking you to fill out a short survey about what you did last week. It should only take a few minutes.”

At this point, a study staff member will pass out the paper survey and pens and ask parents to complete the survey.

After the parents complete the survey, thank them.

“Thank you for completing the survey, now we will have our discussion. As in all the previous weeks, we are recording our conversation so we don’t miss any of your valuable comments about how you used the strategy last week. It works better for us if we record this instead of having an extra person here to take notes. We truly appreciate your contribution and please know it directly impacts the study’s results and goals. Because we are recording, please try not to talk while others are talking so the recording is easier to hear.

At this point, a study staff member will start an audio recording.

2. Discussion about last week’s strategy: Serve at least 2 vegetables with the meal.

The Nutrition Educator will facilitate the lesson making sure to ask all the questions below. The goal is to encourage feedback about what helped participants use the strategy or what kept participants from using the strategy during the past week. The Nutrition Educator will go around the table and ask EACH participant the following questions and encourage each participant to give thorough and thoughtful answers:

- **ASK:** How did you use last week’s strategy: **Serve at least 2 vegetables with the meal?**
 - **ASK:** What helped you use it?
 - **ASK:** What kept you from using the strategy?

When everyone has had a chance to respond,

ASK: Do you have any other comments to make about serving at least 2 vegetables with the meal?

3. INTRODUCE this week’s strategy: Serve vegetables before the meal

*“First, are you enjoying the bowls of vegetables? I just wanted to point this out, because having vegetables before a meal as you’re doing right now is the strategy we’ll be learning about this week: **SERVE VEGETABLES BEFORE MEALS**. (Show poster and refer to handout.)*

Serving vegetables before a meal will increase the total amount of vegetables consumed. Children may be more likely to eat vegetables offered first because they are hungry and because other foods are not competing for selection.”

SAY: Here are some ideas about how to serve vegetables before meals:

- Serve vegetables while dinner is being prepared.
- Serve vegetables 5-10 minutes before dinner is ready.
- Serve a salad before the rest of the meal.
- Use leftovers from a previous day. If your child is hungry before dinner starts, you could warm up these leftover vegetables for them to eat before the rest of the meal.

4. CLARIFY the strategy:

“Let’s make sure that we are all clear about what we asking you to do for this strategy. The vegetables served first can be raw, like we did today. They can also be cooked. If you plan to prepare a cooked vegetable side dish, then cook this dish ahead of the main dish and then go ahead and serve it a few minutes before the start of the meal.”

You can put the vegetables you serve first in a separate bowl, as we did here, or you can put them out on the dinner plates where the other foods will be added later.”

“This may work especially well if your children are complaining they are already hungry. You can serve them the cooked vegetable and tell them you’re finishing up the rest of the meal, but they can go ahead and eat what is already on their plate -- or on the table.”

ASK: What questions do you have about using this strategy?

ASK: What problems do you expect when you use this strategy?

The Nutrition Educator will ask each participant the following question(s) before ending this portion:

- **ASK:** Tomorrow, what vegetable(s) are you going to serve before the meal?
- **ASK:** How are you going to serve it? (Plate? Bowl? Where will they be placed?)

****Nutrition Educator should gently correct if responses do not comply with strategy.**

“Remember, next week we will be asking each one of you how easy or hard it was to use this strategy.”

V. Eating Together (Nutrition Educator, ~20minutes)

1. Try to establish a family-like setting for eating.
2. The Nutrition Educator should sit down and enjoy the meal with participants.

3. While everyone is eating, ask families what they enjoyed about today's class. Summarize the key messages from the session:
 - Using shopping lists can help you save money.
 - Buying vegetables in season and properly storing vegetables can save you money.
4. Pass out groceries and get families excited about next week's topics and activities.

SESSION SEVEN:

Celebrating Our Success

Upon Arrival:

- Ask families to check in
- Distribute name tags

Overall Goals for Session:

Families will:

- Examine how the previous sessions contributed to enhanced meal planning, shopping and preparation resulting in healthy meals which include vegetables.
- Set goals as a family to continue using acquired skills after the course ends.

Strategy Session Goals:

Parents/caregivers will:

- Describe facilitators and barriers for last week's strategy: Serve vegetables before meals.
- Demonstrate how to correctly use this week's strategy: Use a bigger spoon to serve more vegetables than usual.
- Have a plan for implementing the strategy at a meal the next day.

Objectives

Families will be able to:

- Prepare an entree including a secret vegetable ingredient using cooking skills acquired over the past 5 sessions.
- Roast vegetables to use a new vegetable cooking method
- Recall concepts as a family team regarding MyPlate, meal planning, label reading, vegetables and shopping smart for vegetables.

Recipe(s): Tuna Melt and Roasted Veggies

I. Introduction (Nutrition Educator, ~5 minutes)

***The Nutrition Educator should initiate the session by 5 minutes past the official start time of the session and not wait until all participants have arrived.**

1. Welcome everyone back. **ASK:**Can you share an experience in shopping smart for vegetables—for example by buying in season, on sale, in bulk, in different forms, storing vegetables properly and taking advantages of low cost sources?
 - Introduce today’s lesson format.

“Today’s session is a little different because it is a ‘FUN’ review of the previous lessons. Now remember, it’s NOT the last session. Next week will be similar to the very first session where we had the chef demonstrate and make a meal, and you filled out questionnaires on the iPad and on paper. We’ll be taking the children’s height and weight as well as asking them what they ate the day before. You’ll be able to enjoy different veggie dips and vegetables prepared by our chef!”

Today, we’ll be having a ‘Secret Ingredient’ Cooking Activity as well as review what we’ve learned over this course with a Trivia game. Let’s get started with the cooking demonstration first.”

II. Cooking Demonstration (Chef and Nutrition Educator, ~25 minutes)

****The secret ingredients should be cut/prepared in the hour before the session. These will cut into ‘small diced’ pieces, so they are detectable in the tuna mix, but are not large crunchy pieces.**

During the Cooking demonstration, the classroom assistant and study staff will set up participant preparation stations.

1. **(CHEF)** Introduce the recipes for the day: Tuna Melt and Roasted Veggies. Explain the format of the cooking portion of this class based on the Secret Ingredient Cooking Challenge Activity.
 - a. The participants will be divided into 4 different preparation stations.
 - b. Each of the stations will get a ‘secret’ ingredient to add to their respective tuna mixtures.
 - i. Remember--Don’t peek at the other station’s secret ingredient.
 - ii. More detailed instructions later on in class.
2. CHEF will demonstrate the complete preparation of the Tuna Melt and Roasted Veggie Recipes.

*****The demo should take < 25 minutes.**

- a. *CHEF will not mix in secret ingredient in Tuna Melt during the demo.
 - b. When the chef demonstrates how to roast vegetables, he/she should mention which vegetables are best prepared this way, and to briefly review all the other cooking methods he/she has previously demonstrated for vegetables.
3. The Nutrition Educator will stand beside the Chef during the demonstration. The Nutrition Educator should emphasize that today's cooking is an opportunity to review and apply everything learned in previous classes. Point out the steps that families and cooking teams will use to work together in the kitchen, the variety of food groups they will be working with, and kitchen safety steps they should follow.
 - a. Example 1: Mention that the Secret Ingredient challenge demonstrates using the Tuna Melt Recipe as a recipe framework because we will be adding different vegetables in different stations.
 - b. Example 2: You can stock your kitchen with various fresh, canned or frozen vegetables, each has advantages in terms of cost and convenience. Ask if anyone can name an advantage and disadvantage for each form.
 - c. Example 3: How do these recipes fit in MyPlate?
 - d. Example 4: Review knife safety techniques during cutting of veggies.
 - e. Example 5: Tuna is canned so there are low-sodium versions of tuna--like all canned vegetables--there is always a low-sodium version, or vegetables can be rinsed to reduce sodium.
 - f. Example 6: Tuna is a food that may be common at food shelves because it is canned. What vegetables are commonly distributed at food shelves? How can you use these canned vegetables to make your meals more healthy?
4. The Nutrition Educator can stress that adding crunchy vegetables to sandwiches complements the softness of the other ingredients, that roasting vegetables is a way to help children appreciate the variety of cooking methods and how they result in a variety of tastes for children.

Secret Ingredient Cooking Challenge

Activity/Participant Preparation of Food (<25 minutes)

1. Have families wash their hands, using proper technique, in preparation for cooking today's recipes.
2. Participants will be divided into 4 groups; each group will consist of 1-2 parent/child pairs

3. The groups will be at stations that are spread out as much as possible so that each 'secret' ingredient will not be easily viewed by other groups.
4. CHEF, Nutrition Educator and KA will walk around assisting participants as needed.
5. A placard with Group # will be displayed at each of the group stations.
6. The 4 secret ingredients are water chestnuts, green pepper, zucchini, and red onion
7. CHEF/Kitchen Assistant (KA) will distribute the prepared secret ingredients in bowls to appropriate groups as follows:
 - BLUE = Water Chestnuts
 - GREEN = Green Pepper
 - RED = Red Onion
 - YELLOW = Zucchini

Each group will:

1. Rinse and dice celery,
2. Rinse, core, and cut tomato into 4 thick slices
3. Rinse lemon and cut in half. In a small bowl, squeeze juice. Discard seeds.
4. Drain tuna in colander.
5. In a medium bowl, add tuna. Flake apart with a fork. Add celery, lemon juice mayonnaise, black pepper, and secret ingredient.
6. While participants are preparing the recipe, CHEF will TOAST slices of bread in oven, 450°F for 10 minutes.
7. After toasting CHEF and KA will distribute toasted slices to each participant.

The participants will...

1. Add ½ cup of the tuna salad mix on the toasted side of each bread slice.
2. Top with tomato slice.
3. Sprinkle with the cheese.

The CHEF and KA will gather all prepared melts as they are being completed, making sure to keep secret ingredient slices together and proceed to finish toasting them in oven. Toast until cheese is melted (~3-5 minutes)

CHEF and KA will prepare each participant's plate. Each plate should have a ¼ sandwich of each of the four secret ingredients, LABELED with a toothpick flag.

Colored toothpicks: assign colors to each secret ingredient--see above

****At this point the Nutrition Educator will initiate a mini-break where the children will be grouped separately from their parents. They will be 'entertained' with an activity (not based on a nutrition topic) led by a study staff member.**

“Now the children and parents will be separated to complete different activities. The children will be enjoy activities led by a member of our study team while the parents will stay here and have a separate lesson.”

The tables where the parents sit should be rearranged so they sit as closely as possible ‘around’ a table or a small space.

*****NOTE FOR TIMING:** Study staff should limit the child-only activity to ~ 10 minutes, ending it while the parents are still in their separate lesson. Use language ab non-nutrition related games

III. Discussion of Behavioral Strategy: Use Bigger Spoon to Serve More Vegetables than Usual (Nutrition Educator, 20 minutes)

***Be sure to have the model of a typical serving spoon AND the bigger spoon.**

1. Survey about last week’s strategy: Serve vegetables before the meal

At this point, a study staff member will pass out the paper survey and pens and ask parents to complete the survey.

After the parents complete the survey, thank them.

“Last week, I mentioned that this week we would first talk about how you used last week’s strategy which was serve vegetables before the meal. As in all previous weeks, we are recording our conversation so we don’t miss any of your comments about how you used the strategy last week. Because we are recording, please try not to talk while others are talking so the recording is easier to hear.

At this point, a study staff member will start an audio recording.

2. Discussion about last week’s strategy: Serve vegetables before the meal

The Nutrition Educator will facilitate the lesson making sure to ask all the questions below. The goal is to encourage feedback about what helped participants use the strategy or what kept participants from using the strategy during the past week. The Nutrition Educator will go around the table and ask EACH participant the following questions and encourage each participant to give thorough and thoughtful answers:

- **ASK:** How did you use last week’s strategy: Serve vegetables before the meal?
 - **ASK:** What helped you use it?
 - **ASK:** What kept you from using the strategy?

When everyone has had a chance to respond,

- **ASK:** Do you have any other comments to make about serving vegetables before the meal?

3. INTRODUCE this week’s strategy: Use bigger spoon to serve more vegetables than usual/

“The final strategy is using a bigger spoon to serve more vegetables. Simple right? We’re making it even simpler for you by sending one of these bigger spoons home in your grocery bag tonight.”

- Hold up the spoon we will be sending home with them and then hold up a typical-sized serving spoon so they can see the difference (Also use poster and handout of strategy drawing to illustrate the concept). Bring bag of popcorn to demonstrate spoon amount sizes with actual food.

“Here’s the spoon we want you to use to serve vegetables. And this is an example of a typical serving spoon you probably already use to serve vegetables.”

“We want you to use this spoon every time you serve vegetables to your child. So this means we encourage you to spoon the vegetables out onto your child’s plate.”

“Now if your children normally serve themselves, put this larger spoon in the vegetable serving dish or container, with no other spoon available so they serve themselves more than they normally would.”

“Also, because you may be serving more than you usually do, you may need to prepare more vegetables--for example, have an extra can of corn, beans, etc ready to open.”

SAY: Here are some vegetables that work well with this strategy:

- Canned Mixed Veggies
- Orange-Glazed Carrots (from Session 4)
- Sautéed Collard Greens (from Session 3)
- Peas/Beans
- Basically Most Steamed or Cooked Veggies

4. CLARIFY the strategy:

“Let’s make sure that we are all clear about what we asking you to do for this strategy. Whenever you serve vegetables or when your child serves him or herself vegetables, we would like you to use the bigger spoon that we provided.”

ASK: What questions do you have about using this strategy?

ASK: What problems do you expect when you use this strategy?

The Nutrition Educator will ask each participant the following question(s) before ending this portion:

- **ASK:** What vegetable or vegetables will you be serving tomorrow where you will use the spoon we provide in your take home grocery bag?
- **ASK:** Will you or your child use the spoon to dish out the vegetables?

****Nutrition Educator should gently correct if responses do not comply with strategy.**

*Remember, next week will be asking each one of you how easy or hard it was to use this strategy and what made it easy or hard. **We will also be practicing this strategy for the meal tonight** by having you and your child use the bigger spoon to serve the roasted vegetables.*

FAQ/Comments that the Nutrition Educator may receive and suggested responses (Do not present these to group, but read through in advance in case they are asked during session):

If your child asks: Why are you giving me more vegetables?

If you find your child notices the increased amount of vegetables and he or she says it's too much—you can refer to MyPlate and say that the vegetable part of the plate should always have the biggest amount on the plate.

IV. Trivia Game/Course Review (Nutrition Educator, < 25min)

Nutrition Educator will introduce Cooking Matters Trivia Game and serve as ‘host.’ Take envelope off once answered. All questions don’t have to be asked; stop according to schedule.

	MyPlate	All About Veggies!	Label Reading	Shopping Smart for Veggies	Meal Planning
A	Q:What are the five MyPlate Groups? A: Grains, Veggies, Fruits, Dairy, and Protein	Q: Name three different forms of vegetables you buy in a store? A: Fresh, Frozen, Canned or Dried	Q: Show a sample food label. How much is one serving from this package and how many calories does that provide? A: depends on label	Q: True or False. Buying some foods in bulk like potatoes and onions can save money. A: True.	Q: Name two of the five pieces of the framework for a casserole. A: Protein, vegetable, whole grains, sauce, or toppings.
B	Q:How many	Q: What is the	Q: Show a	Q: Are	Q: What are

	<p>food groups should we eat from every day? A: ALL FIVE, Every food group, every day! Try to have at least 4 groups at each meal.</p>	<p>the order of the cost of each type of vegetable, fresh, frozen and canned, from least expensive to most expensive? A: canned (least), frozen, canned (most)</p>	<p>sample veggie label (canned). Is this high in sodium? A: depends on sample label.</p>	<p>seasonal fruits and vegetables usually placed in the front or back of the produce section? A: At the front of the section.</p>	<p>the benefits of planning a shopping list? A: Save time and money.</p>
C	<p>Q: Give an example of a healthy vs. less healthy choice within the veggie group A: Any appropriate answer</p>	<p>Q: Name a vegetable that's in season in the winter months?</p>	<p>Q: Give an example of a convenience food. Then give an example of how to make it healthier. A: Any answer like: Mac and cheese--add greens/ add peas</p>	<p>Q: True or false. A tomato with mold is safe to eat. A: False, mold can still penetrate below the surface on soft vegetables.</p>	<p>True or False: A framework for a recipe must be followed strictly or else the recipe will be ruined. A: False</p>

D	<p>Q: Why do some of the food groups take up more room on MyPlate than the others? A: To indicate that we should fill our plates with more from those food groups than from the others (ie veggies and fruits!)</p>	<p>Q: What are two ways you might add vegetables to a meal?</p>	<p>Q: What can you do to reduce sodium content in canned vegetables? A: Rinse off with water in colander</p>	<p>Q: What is the cheapest form of vegetables available at the store? A: Canned vegetables.</p>	<p>Q: In Planning a Meal, name two questions that should be answered in your “Plan” A: What foods? When will we prepare this meal? How does this fit into MyPlate? Who will help with each task?</p>
E	<p>Q: For the following meal, place the foods in their appropriate group: Baked Fish Sauteed Greens Fresh Apples Whole Wheat Pasta Glass of 2% Milk</p>	<p>True or False: Tomatoes are best stored in the refrigerator. A: False</p>	<p>Q: What does “DV” stand for on a nutrition label? A: Daily Value</p>	<p>Q: Name one community resource to help buy fresh vegetables. A: Fare for All, EBT card, community gardens/family gardens, farmer’s markets, discount food stores or food shelves.</p>	<p>Q: What are three items that are good to have stocked in your kitchen most if not all of the time?</p>

Trivia Game “Rules”

- Teams will be each parent/child pair.
- The Nutrition Educator will ask each family team a question, going around the table until all questions have been answered.

- THE Nutrition Educator will help each family answer correctly and so there will be no winners/losers.

After the trivia game, Nutrition Educator will ask participants if they have any questions that have not yet been answered about eating healthy and working as a family team to share the responsibilities of planning and preparing meals. Participants will be directed to designated cooking stations.

The participants can be seated while the cheese is being melted.

VI. Eating Together and Secret Ingredient Reveal! (Nutrition Educator, ~20 minutes)

***The large spoons need to be placed in the serving bowls containing the roasted veggies. The parent needs to use the larger spoon to serve the Roasted Veggies to children or if the child prefers to help themselves, they need to use the larger spoon.**

1. While melts finish cooking, the Nutrition Educator will explain how the secret ingredient challenge reveal will flow.
 - The CHEF and KA will distribute the newly toasted and quartered slices of the first secret ingredient to each of the participants (i.e., 1 quarter of a slice each).
 - The Nutrition Educator will STRESS as the food is being handed out, to NOT EAT until everyone has their plate in front of them.
 - Once participants taste their quarter, the Nutrition Educator will ask who can name the secret ingredient. The only people that can guess are those that did NOT make up that sample.
 - Whoever raises their hand first (and didn't make up that sample), gets to answer.
 - The next quarters of secret ingredient will be distributed and revealed, and so on until all 4 secret ingredients have been revealed.

Study Staff will remind participants that next week is the very last session of this course AND how payment will work.

“Please don't forget that next week is the last session of this weekly course—it will be very similar to the first session. Each parent will be paid (\$40) for these surveys again AT the session, just like session 1. **Children will not be paid at the session. They will be paid after they complete all 3 Food recalls (the food recall survey in person AND the two more food recalls over the phone.** After your child finishes the last food recall over the phone, we will arrange a day/time that one of our staff will be here for block of time and you and your child can stop by and pick up your child's payment.

**Note to Staff: Make Sure Everyone understands WHEN the child will be paid!!!
ASK participants to say when child is paid. This can be done by asking the
individual children 'When do you get paid??' You can go around the table to do
this.**

Appendix 8 Cooking Matters for Families Participant Survey



Cooking Matters for Families Before Course Survey (Parent)

Please complete this survey to help us improve future Cooking Matters courses. Please honest—there are no “right” or “wrong” answers. This survey will take about 15 minutes to complete. **Please answer these questions for yourself only, not your whole family.** Place an “X” in the box to choose the best answer for each question.

How often do you typically eat...	Not at all	Once a week or less	More than once a week	Once a day	More than once a day
1. ... fruit like apples, bananas, melon, or other fruit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. ... green salad?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. ... french fries or other fried potatoes, like home fries, hash browns, or tater tots?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. ... any other kind of potatoes that aren't fried?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. ... refried beans, baked beans, pinto beans, black beans, or other cooked beans? (Do not count green beans or string beans.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. ... other non-fried vegetables like carrots, broccoli, green beans, or other vegetables?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. How many times a week do you typically eat a meal from a fast-food or sit-down restaurant? (Consider breakfast, lunch and dinner.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How often do you typically drink...	Not at all	Once a week or less	More than once a week	Once a day	More than once a day
8. ... 100% fruit juices like orange juice, apple juice or grape juice? (Do not count punch, Kool-aid, sports drinks or other fruit-flavored drinks.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. ... a can, bottle, or glass of regular soda or pop, sports drink, or energy drink? (Do not count diet or zero calorie drinks.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. ... a bottle or glass of water? (Count tap, bottled and sparkling water.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cooking Matters for Families Before Course Survey

	Never	Rarely	Sometimes	Often	Always	Does not Apply
11. When you have milk, how often do you choose low-fat milk (skim or 1%)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. When you eat dairy products like yogurt, cheese, cottage cheese, sour cream, etc., how often do you choose low fat or fat-free options?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. When you eat grain products like bread, pasta, rice, etc., how often do you choose whole grain products?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. How often do you choose low-sodium options when you buy easy-to-prepare, packaged foods like canned soups or vegetables, pre-packaged rice, frozen meals, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. When you buy meat or protein foods, how often do you choose lean meat or low-fat proteins like poultry or seafood (not fried), 90% or above lean ground beef, or beans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. When you eat at fast-food or sit-down restaurants, how often do you choose healthy foods? (Healthy foods include fruits, vegetables, whole grains, lean meats, low-fat or fat-free dairy, and water.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Place an “X” in the box to choose the best answer for each statement.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
17. Cooking takes too much time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Cooking is frustrating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. It is too much work to cook.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cooking Matters for Families Before Course Survey

Place an "X" in the box to choose the best answer for each question.

	Never	Rarely	Sometimes	Often	Always	Does not Apply
20. How often do you compare prices before you buy food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. How often do you plan meals ahead of time?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. How often do you use a grocery list when you go grocery shopping?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. How often do you worry that your food might run out before you get money to buy more?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. How often do you use the "nutrition facts" on food labels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. How often do you eat breakfast within two hours of waking up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. How often do you eat food from each food group every day? (Food groups include dairy, grains, fruits, vegetables, and protein.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. How often do you make homemade meals "from scratch" using mainly basic whole ingredients like vegetables, raw meats, rice, etc.?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. How often do you adjust meals to include specific ingredients that are more "budget-friendly," like on sale or in your refrigerator or pantry?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. How often do you adjust meals to be more healthy, like adding vegetables to a recipe, using whole grain ingredients, or baking instead of frying?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. How often does your family plan meals together?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. How often does your family prepare meals together?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. How often does your family eat meals together?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cooking Matters for Families Before Course Survey

Healthy foods include fruits, vegetables, whole grains, lean meats, low-fat or fat-free dairy, and water.

	Not at all confident	Not very confident	Neutral	Somewhat confident	Very confident	Does not Apply
33. How confident are you that you can use the same healthy ingredient in more than one meal?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. How confident are you that you can choose the best-priced form of fruits and vegetables (fresh, frozen or canned)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. How confident are you that you can use basic cooking skills, like cutting fruits and vegetables, measuring out ingredients, or following a recipe?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. How confident are you that you can buy healthy foods for your family on a budget?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. How confident are you that you can cook healthy foods for your family on a budget?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. How confident are you that you can help your family eat more healthy?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Cooking Matters for Families Child Information

1. What is your child's sex?

- Male
- Female

2. What is your child's age?

- 7 and under
- 8
- 9
- 10
- 11
- 12
- 13 and over

3. What is your child's race?

(You may mark more than one.)

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

4. Is your child Hispanic or Latino?

- Yes
- No

Appendix 9 U.S. Household Food Security Questionnaire

U.S. Household Food Security Survey

CMF Study

These questions are about the food eaten in your household in the last 12 months, and whether you were able to afford the food you need.

1. For each statement in the table, place an 'X' whether the statements in the following table were "often true", "sometimes true", or "never true" for (you/your household) in the last 12 months.

	Often True	Sometimes True	Never True	Don't Know/ Prefer Not to Answer
"The food that we bought just didn't last, and we didn't have money to get more."				
"We couldn't afford to eat balanced meals."				

2. In the last 12 months, did (you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

- Yes, almost every month
- Yes, some months but not every month
- Yes, only 1 or 2 months
- No
- Don't know /Prefer not to answer

3. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

- Yes
- No
- Don't know /Prefer not to answer

4. In the last 12 months, were you ever hungry but didn't eat because there wasn't enough money for food?

- Yes
- No
- Don't know /Prefer not to answer

Appendix 10 Parent Vegetable Liking Questionnaire

CMF Study

For each vegetable listed in the table below, please rate how much you like the vegetable by circling a number, 1 to 10, where 1 means you “Hate It” and 10 means you “Like it a lot.” Circle “Never had it” if you’ve never tried the listed vegetable.

In addition, please circle No, Yes, or Don’t Know if you have eaten the vegetable in the past month:

Please remember to include vegetables in casseroles, soups, and other mixed dishes

Vegetable		Hate it										It’s okay										Like it a lot										Have you eaten it in the past month?		
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	No	Yes	Don’t Know
Artichoke	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	No	Yes	Don’t Know
Asparagus	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	No	Yes	Don’t Know
Avocado/ guacamole	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	No	Yes	Don’t Know
Bamboo shoots	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	No	Yes	Don’t Know
Bean sprouts	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	No	Yes	Don’t Know
Beans (black, bean dishes, kidney, lentil, hummus)	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	No	Yes	Don’t Know

Beets	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Broccoli	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Brussels sprouts	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Cabbage	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Cauliflower	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Carrots	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Celery	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Corn	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Cucumber	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know

Edamame	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Eggplant	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Greens (spinach, collard, bok choy, kale)	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Green beans	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Jicama	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Lettuce	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Mixed vegetables	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Okra	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know

Onion	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Peas	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Pepper (red, orange, green)	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Peppers (chilies)	Hot Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Plantain	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Potato	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Root vegetables (yuca, radish, rutabaga, parsnip, turnip, taro)	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Soup (tomato)	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know

Sweet potato/yam	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Tomatillo	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Tomato	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know
Water chestnuts	Never had it	1	2	3	4	5	6	7	8	9	10	N	Y	Don't Know

Appendix 11 Child Vegetable Like and Variety Questionnaire

Child Liking *CMF Study*

For each vegetable listed in the table below, please rate how much you like the vegetable by circling a number, 1 to 10, where 1 means you “Hate It” and 10 means you “Like it a lot.” Circle “Never had it” if you’ve never tried the listed vegetable.

Please remember to include vegetables in casseroles, soups, and other mixed dishes

Vegetable		Hate it	It's okay								Like it a lot
Artichoke	Never had it	1	2	3	4	5	6	7	8	9	10
Asparagus	Never had it	1	2	3	4	5	6	7	8	9	10
Avocado/ guacamole	Never had it	1	2	3	4	5	6	7	8	9	10
Bamboo shoots	Never had it	1	2	3	4	5	6	7	8	9	10
Bean sprouts	Never had it	1	2	3	4	5	6	7	8	9	10

Vegetable		Hate it		It's okay						Like it a lot	
		1	2	3	4	5	6	7	8	9	10
Beans (black, bean dishes, kidney, lentil, hummus)	Never had it	1	2	3	4	5	6	7	8	9	10
Beets	Never had it	1	2	3	4	5	6	7	8	9	10
Broccoli	Never had it	1	2	3	4	5	6	7	8	9	10
Brussels sprouts	Never had it	1	2	3	4	5	6	7	8	9	10
Cabbage	Never had it	1	2	3	4	5	6	7	8	9	10
Cauliflower	Never had it	1	2	3	4	5	6	7	8	9	10
Carrots	Never had it	1	2	3	4	5	6	7	8	9	10
Celery	Never had it	1	2	3	4	5	6	7	8	9	10

Vegetable		Hate it										It's okay										Like it a lot									
		1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Corn	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Cucumber	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Edamame	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Eggplant	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Greens (spinach, collard, bok choy, kale)	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Green beans	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Jicama	Never had it	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10

Vegetable		Hate it		It's okay						Like it a lot	
		1	2	3	4	5	6	7	8	9	10
Lettuce	Never had it	1	2	3	4	5	6	7	8	9	10
Mixed vegetables	Never had it	1	2	3	4	5	6	7	8	9	10
Okra	Never had it	1	2	3	4	5	6	7	8	9	10
Onion	Never had it	1	2	3	4	5	6	7	8	9	10
Peas	Never had it	1	2	3	4	5	6	7	8	9	10
Pepper (red, orange, green)	Never had it	1	2	3	4	5	6	7	8	9	10
Hot Peppers (chilies)	Never had it	1	2	3	4	5	6	7	8	9	10
Plantain	Never had it	1	2	3	4	5	6	7	8	9	10

Vegetable		Hate it		It's okay						Like it a lot	
		1	2	3	4	5	6	7	8	9	10
Potato	Never had it	1	2	3	4	5	6	7	8	9	10
Root vegetables (yuca, radish, rutabaga, parsnip, turnip, taro)	Never had it	1	2	3	4	5	6	7	8	9	10
Soup (tomato)	Never had it	1	2	3	4	5	6	7	8	9	10
Sweet potato/yam	Never had it	1	2	3	4	5	6	7	8	9	10
Tomatillo	Never had it	1	2	3	4	5	6	7	8	9	10
Tomato	Never had it	1	2	3	4	5	6	7	8	9	10
Water chestnuts	Never had it	1	2	3	4	5	6	7	8	9	10

Appendix 12 Home Food Inventory Questionnaire

Home Food Inventory Instructions

CMF Study

- ❖ Look around your house and record the amount of **vegetables** you have in your home— This includes all **fresh, frozen, canned/jarred, and dried vegetables.**
- ❖ Look through all the places you store vegetables, like your refrigerator, freezer (don't forget any deep freezers you have in other parts of the house), pantries, and cupboards."
- ❖ First find the vegetable on the chart. Then move to right of the page and choose a column ("Fresh", "Canned/Jar", or "Frozen") and write the AMOUNT of the vegetable below.
 - *For example, Broccoli: In your fridge you have a head of broccoli. (1) Find Broccoli on the chart (all vegetables are alphabetical) and (2) Estimate how much you have under the "FRESH" column. When you move on to your freezer, you find that you also have a package of frozen broccoli. You would stay on the same row/line and list the same information (#, unit: such as small/medium/large OR estimate how much in cups under the "FROZEN" column).*
 - **TIP 1:** A lot of pre-packaged vegetables will have ounces listed on the bag or can (looks like "oz."). Fresh vegetables tend to be little more difficult when you have a situation like the broccoli. You can estimate how many cups you would have of the broccoli after you cut it up, or you can just write 1 small/medium/large head of broccoli and we'll do the rest. Frozen broccoli bags often will have the unit on them, like "16 oz." on the front of the packaging. **REFER to the attached Can Diagram.**
 - Small, medium, or large is also a good way to estimate for bell peppers, heads of iceberg lettuce or cabbage, cucumbers, tomatoes, onions, etc.
 - **TIP 2:** For the "Canned/Jar" and "Frozen" columns, it will probably be easier to estimate using the amount that is listed on the can/jar/package. Even if you have only a portion of the package left, give your best estimate. For example, if you have around $\frac{1}{4}$ package left of a 8oz bag of frozen Okra, then just list 2oz under the "FROZEN" column of Okra. *If the math ever seems too difficult, you can always write it like this, ($\frac{1}{8}$) of 24 oz package and we'll do the math later.*
- ❖ If you are unsure of how to estimate the amount, write a small description of the vegetable you have and you can ask us for help later (either on the phone or when you turn them in at Lesson 2). Someone will call to check in and answer any questions you have about one week after this session. We will also be contacting

your family to collect dietary recalls from your child, and you are welcome to ask us any questions those times about your food inventory.

- ❖ For Beans, please list all the different types of beans you may have and then the estimates for each (black, baked, kidney, etc.)—if you need more space feel free to add to the back of the form. “

(TURN Page OVER for example)

Please fill this out as soon as possible. Preferably in the next day or two. You will need to bring this form with you to the next Session. We will call you to remind you of the upcoming session. If you provide us with an email address, we will send you an email to remind you to bring back this form to the next session.

REMEMBER for each of the 3 columns: **FRESH, CAN/JAR, FROZEN**, you need to list:

1. Number of (Quantity)
2. Amount of each (i.e., Unit)
 - a. For **Fresh** column, you can simply use, Small, Medium, or Large to describe the amount. For example, use small, medium or large to describe a FRESH head of broccoli, a fresh carrot, or a FRESH bell pepper, etc.
 - b. For **Can/Jar** column. Use the Attached Can Diagram to label each can or jar, small, medium, or large.
 - c. **NOTE: for DRIED Vegetables (e.g., dried beans)—list these under the “Can/Jar” column**

(SEE EXAMPLE HERE)

	Fresh	Can/Jar	Froze n
a. Bean Sprouts			
b. Broccoli			
c. Green Peas			
d. Water chestnuts			

HOME FOOD INVENTORY SURVEY- CMF Study

Date Completed:

	Fresh	Can/Jar	Froze n
a. Artichoke			
b. Asparagus			
c. Avocado/guacamole			
d. Bamboo shoots			
e. Bean sprouts			
f. Beans (black, pinto, kidney, navy, white, refried, baked, lima, soy, black-eyed, garbanzo/chickpea, hummus, lentils, split peas)			
g. Beets			
h. Broccoli			
i. Brussels sprouts			
j. Cabbage (sauerkraut, coleslaw)			
k. Cauliflower			
l. Carrots			
m. Celery			
n. Corn (hominy)			

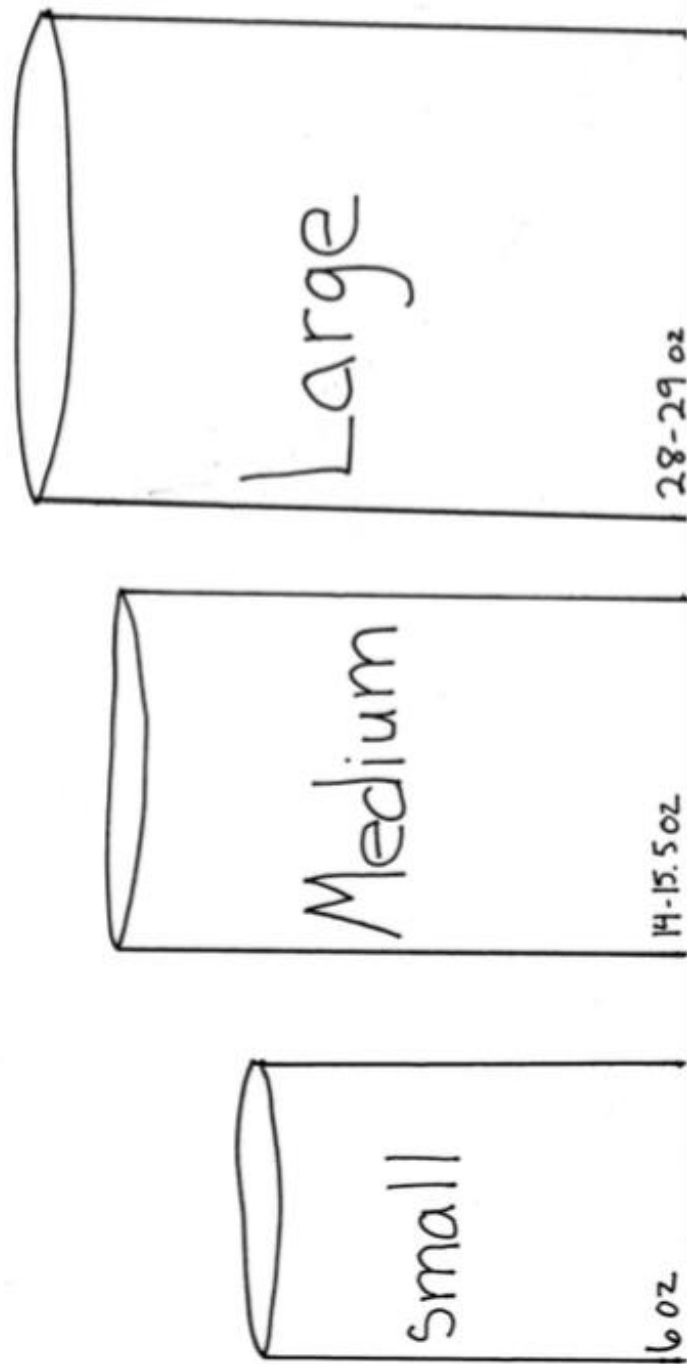
	Fresh	Can/Jar	Froze n
o. Cucumbers (pickles)			
p. Edamame			
q. Eggplant			
r. Greens (spinach, collard, mustard, turnip, kale, bok choy)			
s. Green beans (snap, string, wax)			
t. Jicama			
u. Lettuce (romaine, endive, iceberg)			
v. Mixed vegetables			
w. Okra			
x. Onions (white, red, green, leek)			
y. Peas (green, snap peas, snow peas)			
z. Peppers (red, green, hot)			

aa. Plantains			
	Fresh	Can/Jar	Froze n
bb. Potatoes – white/russet (fries, box mixes, hash browns, potato salad)			
cc. Root vegetables – other than potatoes (yucca/cassava, yautia, taro, rutabaga, parsnip, turnip, radish)			
dd. Soup (vegetable, tomato)			
ee. Squash (butternut, acorn, pumpkin, zucchini)			
ff. Sweet Potatoes/Yams			
gg. Tomatillos			
hh. Tomatoes (Tomato sauce, canned tomatoes, salsa, spaghetti sauce, pizza sauce, tomato juice, in mixed dishes)			
ii. Water chestnuts			
Other			

Other			
Other			

Appendix 13 Can Diagram for Home Food Inventory Survey

Canned Vegetable Sizes



Appendix 14 Follow Up Habit Questionnaire

Session 8,9,10
Participant ID #

Cooking Matters Questionnaire

Check the box by the answer that is best for you. Answer the question about your 9-12 year old child in class with you.

How often did you serve vegetables using a larger spoon at meals last week?	Never <input type="checkbox"/>	Once in a while <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
How hard was serving vegetables using a larger spoon at meals last week?	Not hard <input type="checkbox"/>	A little bit hard <input type="checkbox"/>	Somewhat hard <input type="checkbox"/>	Very hard <input type="checkbox"/>
Having my child help prepare vegetables for meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child help prepare vegetables for meals is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child help prepare vegetables for meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child help prepare vegetables for meals is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Having my child use the MyPlate for meals is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Having my child use the MyPlate at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Leaving the vegetables on the table for my child and moving the other food away during meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Leaving the vegetables on the table for my child and moving the other food away during meals is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Leaving the vegetables on the table for my child and moving the other food away during meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Leaving the vegetables on the table for my child and moving the other food away during meals is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Serving two vegetables at meals is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving two vegetables at meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving two vegetables at meals is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving two vegetables at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving vegetables to my child before meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving vegetables to my child before meals is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving vegetables to my child before meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving vegetables to my child before meals is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Reminding my child to floss his or her teeth every day is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Reminding my child to floss his or her teeth every day is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Reminding my child to floss his or her teeth every day is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Reminding my child to floss his or her teeth every day is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Asking my child about his or her homework every day is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Asking my child about his or her homework every day is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Asking my child about his or her homework every day is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Asking my child about his or her homework every day is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Serving vegetables to my child with a larger spoon at meals is something I do without thinking.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving vegetables to my child with a larger spoon at meals is something I do automatically.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving vegetables to my child using a larger spoon at meals is something I do without having to consciously remember.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>
Serving vegetables to my child with a larger spoon at meals is something I start doing before I realize I'm doing it.	Strongly disagree <input type="checkbox"/>	Disagree <input type="checkbox"/>	Agree <input type="checkbox"/>	Strongly Agree <input type="checkbox"/>

Appendix 15 Cooking Vegetables Questionnaire

Cooking Vegetables Survey
CMF Study

To be completed by the adult person most responsible for preparing food for this household.

1. How confident do you feel about cooking/preparing each of the vegetables listed below? (please check one box for each vegetable)
2. *For this survey, “preparing” food means anything you might do to make the food suitable to eat (for example, make a salad from it)

Vegetable	Not at all sure (1)	Slightly sure (2)	Somewhat sure (3)	Very sure (4)	Extremely sure (5)	Never cooked/ prepared
Asparagus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Avocado/guacamole	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bean sprouts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beans- (black, bean dishes, kidney, lentil, hummus)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Broccoli/Cauliflower	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brussels Sprouts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cabbage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Celery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corn	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cucumber	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Edamame	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Greens (spinach, collard, bok choy, kale)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Green beans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jicama	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lettuce	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mixed vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mushrooms						<input type="checkbox"/>
Okra	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Onion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pepper (red, orange, green)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Peppers (chilies, hot)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plantain	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Potato	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Vegetable	Not at all sure (1)	Slightly sure (2)	Somewhat sure (3)	Very sure (4)	Extremely sure (5)	Never cooked/ prepared
Root vegetables (yucca, rutabaga, beets, parsnip, turnip, taro, carrots)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Squash/Pumpkin	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweet potato/yam	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tomato	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zucchini and other summer squashes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How confident do you feel about using these cooking techniques to prepare vegetables, or mixed meals which include vegetables? (Please tick one box for each technique)

	Not at all sure	Slightly sure	Somewhat sure	Very sure	Extremely sure	Never cooked/ prepared
Boiling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steaming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shallow frying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deep frying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Grilling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poaching	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roasting/baking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stir frying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microwaving	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stewing/braising	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Please tell us how much you agree or disagree with the following statements about cooking with the child you are participating with in this study.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
I enjoy cooking with my child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I cook with my child often.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I would like to cook more with my child.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooking with my child takes too much time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooking with my child can be frustrating.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooking with my child is too much extra work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Appendix 16 Child Cooking Interest Questionnaire

Cooking Interest Survey - Child AFTER COURSE

CMF Study

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

1. How do you feel about cooking?
 - I really like to cook.
 - I kind of like to cook.
 - I'm not sure if I like to cook.
 - I don't like to cook.
 - I really don't like to cook.

2. How do you feel about foods that you have helped cook?
 - I really like foods that I have helped cook.
 - I kind of like foods that I have helped cook.
 - I'm not sure if I like foods that I have helped cook.
 - I don't like foods that I have helped cook.
 - I really don't like foods that I have helped cook.

3. How do you feel about measuring ingredients?
 - I really like to measure ingredients.
 - I kind of like to measure ingredients.
 - I'm not sure if I like to measure ingredients.
 - I don't like to measure ingredients.
 - I really don't like to measure ingredients.

4. How do you feel about making snacks?
 - I really like to make snacks.
 - I kind of like to make snacks.
 - I'm not sure if I like to make snacks.
 - I don't like to make snacks.
 - I really don't like to make snacks.

5. How do you feel about making food with your friends?
 - I really like to make food with my friends.
 - I kind of like to make food with my friends.
 - I'm not sure if I like to make food with my friends.
 - I don't like to make food with my friends.
 - I really don't like to make food with my friends.

6. How do you feel about making food with your family?
 - I really like to make food with my family.
 - I kind of like to make food with my family.
 - I'm not sure if I like to make food with my family.
 - I don't like to make food with my family.
 - I really don't like to make food with my family.

Appendix 17 Child Cooking Efficacy Questionnaire

Cooking Confidence Survey - Child
CMF Study

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

1. I can make a snack with fruit.

<input type="checkbox"/> YES!	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NO!	<input type="checkbox"/> Not sure
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2. I can make a snack with vegetables.

<input type="checkbox"/> YES!	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NO!	<input type="checkbox"/> Not sure
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3. With help, I can use a recipe.

<input type="checkbox"/> YES!	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NO!	<input type="checkbox"/> Not sure
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4. I can help my family make a meal.

<input type="checkbox"/> YES!	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NO!	<input type="checkbox"/> Not sure
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5. I can make a salad.

<input type="checkbox"/> YES!	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NO!	<input type="checkbox"/> Not sure
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6. I can cut up food.

<input type="checkbox"/> YES!	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NO!	<input type="checkbox"/> Not sure
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7. I can measure ingredients.

<input type="checkbox"/> YES!	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NO!	<input type="checkbox"/> Not sure
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8. I can follow recipe directions.

<input type="checkbox"/> YES!	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> NO!	<input type="checkbox"/> Not sure
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Appendix 18 Pearson Correlation Coefficients and Significance Level for
Environmental, Behavioral, and Individual Variables.

	Environmental, behavioral, and individual variables									
	Eating together	Child veg. Liking	Total # of vegetables	Planning behaviors	Parent veg liking	Parent attitude: cook	Parent Attitude: cook w/ child	Child cooking Interest	Child cooking efficacy	Adjusting meals
Eating together	1.00	0.09 0.58	-0.28 0.07	0.25 0.10	-0.15 0.33	-0.05 0.74	0.23 0.13	0.28 0.07	0.05 0.78	0.37 0.02
Child veg. liking		1.00	-0.05 0.78	-0.03 0.83	0.21 0.16	0.05 0.73	0.23 0.13	0.35 0.02	0.17 0.34	0.03 0.86
Vegetable inventory			1.00	0.05 0.76	0.20 0.21	0.10 0.55	0.11 0.49	-0.10 0.55	0.24 0.19	0.07 0.66
Planning behaviors				1.00	0.02 0.90	0.00 0.99	0.38 0.01	0.08 0.63	0.02 0.90	0.60 <0.0001
Parent veg. liking					1.00	-0.24 0.12	0.24 0.12	0.11 0.48	0.36 0.04	0.08 0.63
Parent attitude: cook						1.00	-0.40 0.01	0.01 0.97	0.14 0.42	-0.09 0.55
Parent Attitude: cook w/ child							1.00	0.17 0.28	0.16 0.36	0.35 0.03
Child cook interest								1.00	0.47 0.004	-0.12 0.44
Child cook efficacy									1.00	0.07 0.67
Adjusting meals										1.00

Appendix 19 Spearman Correlation Coefficients of Child and Parent Demographic Information

Demographic Variables										
					Adult race/ethnicity					
	Child age	Child sex	Adult age	Adult education	White	Black	Asian	Indian-Alaskan	Other	Hispanic
Child age	1.0	0.36 0.01 [†]	0.20 0.12	0.14 0.37	0.00 0.99	0.07 0.66	-0.04 0.77	0.11 0.48	-0.07 0.64	-0.10 0.50
Child sex		1.0	0.00 1.00	-0.04 0.80	0.10 0.53	-0.18 0.24	-0.01 0.94	0.14 0.35	0.01 0.97	0.06 0.70
Adult age			1.0	0.41 0.01 [†]	-0.13 0.41	0.35 0.02 [†]	-0.06 0.68	-0.09 0.35	-0.16 0.28	-0.19 0.21
Adult education				1.0	0.15 0.33	0.13 0.42	-0.25 0.11	0.06 0.72	-0.07 0.66	0.00 1.00
White					1.0	-0.31 0.04 [†]	-0.10 0.51	0.06 0.72	-0.41 0.01	-0.36 0.02
Black						1.0	-0.14 0.36	-0.03 0.84	-0.56 <0.0001	-0.49 0.0007
Asian							1.0	-0.07 0.66	-0.19 0.22	-0.16 0.28
Indian-Alaskan								1.0	-0.28 0.07	-0.24 0.12
Other									1.0	0.87 <0.0001
Hispanic										1.0