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Beliefs about Food Education and Healthy Food Consumption in Food Insecure Areas

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Walden University
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Abstract

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MS, Walden University, 2016

BA, University of North Carolina at Charlotte, 2008

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Health Education and Promotion

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Abstract

Many food desert residents suffer from food insecurity as a result of residing in communities where access to affordable, healthy foods is limited. This limited access can make it difficult for these residents to consume healthy foods, such as fruits and vegetables, on a consistent basis. To increase access to healthy foods, interventions such as the building of supermarkets, the introduction of mobile farmers markets or mobile produce markets, and the conversion of local corner stores into healthy corner stores are often introduced to food desert communities. However, these intervention efforts fail to focus on non-physical factors, such as the food insecure residents' beliefs about healthy food preparation and consumption, which may be affecting their consumption of healthy foods. To explore these beliefs, a qualitative study was conducted in which 18 participants were recruited using convenience sampling at mobile farmers market locations. Intercept interviews were used to collect the data, which were analyzed using the inductive coding process and Albert Bandura's social cognitive theory. The study results indicated that individuals living in food insecure areas believe that exposure to food education could boost their self-efficacy in utilizing this education and that this exposure could also lead to the consumption of more fruits and vegetables. These findings have the potential to affect positive social change on an individual, familial, and organizational level if incorporated as a foundational element in interventions aimed at addressing food insecurity.

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Dedication

I would like to dedicate this dissertation to my daughter, Kaylen, who is her Mommie's biggest supporter and encourager. Kaylen, you watched Mommie work extremely hard for this and I hope my journey inspires you and helps you realize that you can achieve anything you put your mind to. I just know that you are going to change this world with your kind and giving spirit and I cannot wait to watch as you leave your mark! The world is yours, my beautiful, brown-skinned girl!

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Wow, what a journey! A journey that I could not have completed without the help of so many important people. First, I want to thank God for everything but especially for instilling in me a drive that would not let me give up on myself or this process. I want to thank my mom, Phyllis Westbrook, for always telling me "you've got this!" and for raising a strong, tenacious, and resilient Black woman. You are a force to be reckoned with and being raised in that environment made me the same and I am forever grateful. I want to thank my dad, Nicolas Churchill, for always letting me know that my purpose in life is to be great at whatever it is I set my mind to. I would also like to thank any and everyone who has ever prayed for me, given me an encouraging word, or helped me during this journey. I appreciate you more than you will ever know.

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Chapter 1: Introduction to the Study

A community is considered a food desert when its residents lack access to affordable healthy foods (Centers for Disease Control and Prevention [CDC], 2017a), and this lack of access can make it difficult for food desert residents to consume healthy foods, including fruits and vegetables, on a consistent basis. As a result, many food desert residents suffer from food insecurity, which the U.S. Department of Agriculture (USDA; 2020a) defines as the reduced intake of quality foods and/or the reduced intake of food in general, depending on the degree of food insecurity. For example, in 2013, 61,090 people in Forsyth County, North Carolina, were found to be affected by food insecurity, or lack of healthy food consumption, despite many residents having access to various food resources (City of Winston-Salem, 2016). These data demonstrate that simply supplying healthy foods is not a guarantee that food insecure residents will know how to prepare, cook, and consume those foods. Nutrition and weight status, a Healthy People 2020 (2022) topic, discusses how efforts to change a person's diet should focus on addressing their individual behaviors, in addition to the policies and environments (including their communities) that support these behaviors. To address this dilemma, I sought to determine two things: if residents living in food insecure areas believed that they could learn and confidently mimic food preparation and cooking skills from food education activities and how these beliefs could affect their future healthy food consumption.

Past studies have either focused on interventions that increased food desert residents' access to healthy foods, such as fruits and vegetables, or interventions that focused on introducing food and nutrition education (Fitz et al., 2017; Gary-Webb et al.,

2018). But combining these two types of interventions may create a more effective intervention as using only one of the interventions was not enough to influence a community to change their eating behaviors (Gary-Webb et al., 2018). However, despite instances of these interventions being combined, food deserts continue to exist and people continue to experience food insecurity (Best & Johnson, 2016; Medina et al., 2017), which highlights a breakdown in the interventions as well as a gap in the literature.

To address the breakdown in these interventions, I sought to determine if the participants believed that, if exposed to food education activities, they could perform the tasks learned from those activities at home. More specifically, I combined the potential future exposure to food education with increased access to healthy foods and then focused on the participants' perspectives regarding if they believed they could perform food educational tasks at home and if doing so could lead to them preparing and consuming more fruits and vegetables. If so, this has two potential social implications: more food insecure residents increasing their fruit and vegetable consumption and health education specialists revising current and/or creating new food insecurity interventions that include the perspectives and beliefs of food insecure residents. The rest of Chapter 1 will address the research gap in the literature concerning food insecure residents' beliefs regarding food education and will use past literature to support the main purpose of the study. The remainder of this chapter will also provide a detailed account of the research problem, including its relevancy and significance to current times, while also introducing the methodology and theoretical framework of the study.

Background

Past studies have shown that food desert residents not only have limited access to healthy foods but also have limited access to the locations where healthy foods are sold (Dubowitz et al., 2015). As a result, many interventions have been implemented to increase the availability of and accessibility to healthy foods in food desert communities, including the building of supermarkets, the introduction of mobile farmers markets, and the transition of local corner stores into healthy corner stores (Ramirez et al., 2017). However, most studies and intervention efforts fail to look beyond these geographical improvements to focus on other factors, such as food education, that may affect healthy food consumption in food desert residents (Rodier et al., 2017). Food desert residents' access to food sources was not the only factor that affected the items that they purchased and consumed, as food education played a significant role as well (Rodier et al., 2017). Thus, it may be more promising to include food education in food accessibility interventions as this combination can help encourage the consumption of healthier foods (Rodier et al., 2017). The Food and Agriculture Organization (FAO; n.d.) of the United Nations defines food and nutrition education (also referred to in this study as food education) as education that is created to help people improve and maintain healthy eating behaviors. Food education actions can consist of many different forms including educational pamphlets, educational videos, and cooking demonstrations (FAO, n.d.). This study provides pertinent information concerning the intrapersonal reasons behind why some residents living in food insecure areas may not be increasing their consumption of fruits and vegetables despite having access to these foods and the different types of food

education activities and resources mentioned by the FAO.

Problem Statement

The geographical layout of a food desert is important, but that is only one factor that impacts healthy food consumption; lack of food education is another critical factor (Rodier et al., 2017). Providing food insecure residents with healthy foods, some of which they may have never seen nor eaten, without also providing them with information and education regarding how to prepare, cook, and consume those foods is a disservice to the residents. However, even with food education and an improved geographical layout introducing more healthy foods to the community, some food desert residents are surprising researchers by not increasing their fruit and vegetable intake. Research on Pittsburgh food desert residents showed that most of the study participants shopped for food outside of their neighborhood despite having a supermarket within their neighborhood (Dubowitz et al., 2015). This information reveals that a lack of access to healthy foods was not the prominent reason why there was not an increase in healthy food consumption, meaning there must be other factors affecting the participants' healthy food consumption (Dubowitz et al., 2015).

Many research efforts have concentrated on interventions that either supply food insecure residents with healthy foods or food education; however, there is a gap in the literature concerning the beliefs that these residents may have toward food education and their ability to prepare healthy foods. Per the Healthy People 2030 Economic Stability domain, within which Food Insecurity is listed as a key issue, future research efforts investigating the qualities of households and communities that influence and contribute to

food insecurity are needed (Healthy People 2030, n.d.). The data from these future research efforts could be used to improve current public health programs or could be used to create new public health interventions that will focus on alleviating food insecurity in more effective ways (Healthy People 2030, n.d.).

Purpose of the Study

I sought to determine the beliefs that residents living within food insecure areas had in terms of their ability to confidently implement food education techniques at home if they were to be exposed to food education in the future. I also sought to determine if the participants believed that executing these food education techniques could lead to the increased consumption of fruits and vegetables. Knowing these beliefs and expectations could help researchers understand why some food insecure residents may not increase their consumption of healthy foods (i.e., fruits and vegetables) despite having increased access to these foods through various sources, such as mobile farmers markets or fruit and vegetable stands. The findings from this qualitative study may be relevant to other food desert and food insecure communities with similar demographics and could be used to create new or strengthen current interventions that address food insecurity within food desert neighborhoods.

Research Questions

- RQ 1: What are the beliefs about food education among residents living within food insecure areas?
    - Subquestion 1: What are the beliefs about the usefulness of food education among residents living within food insecure areas?

  - Subquestion 2: What are the beliefs about the feasibility of completing food education at home among residents living within food insecure areas?

- RQ 2: If residents living within food insecure areas were to be exposed to food education activities, what do they believe their outlook on their future consumption of fruits and vegetables would be?
  - Subquestion 1: If they were to be exposed to food education activities, how would residents living within food insecure areas describe their self-efficacy concerning their potential future use of the food education techniques learned from those activities?
  - Subquestion 2: What healthy food consumption outcome expectations do residents living within food insecure areas believe they would have if they were to be exposed to food education?

Theoretical Framework

The theory that was used for this study was the Social Cognitive Theory (SCT), which was created by Albert Bandura. Bandura created the SCT to focus not only on the initiation of new behaviors but the maintenance of these new behaviors as well (Boston University School of Public Health, 2019). The SCT posits that there is a dynamic relationship between a person's personal experiences, their environment, and their behaviors (Bandura, 1986). This dynamic relationship is one of reciprocity as these factors continuously influence each other, affecting how people learn and maintain certain behaviors (Bandura, 1986).

The information acquired from this study coupled with the SCT helped to answer

the research questions (RQs) as this theory considers an individual's experiences which, in this study, were the participants' experiences, or lack thereof, with preparing and cooking healthy foods. These experiences, or cognitive and personal factors, could help illuminate why participants may not be consuming healthier foods despite increased accessibility to and availability of these foods. The participants' experiences might also provide insight into whether receiving food education could increase their healthy food consumption (Rodier et al., 2017). Experiences are shaped by personal factors, which include perspectives and beliefs. In this study, people's perspectives and beliefs were analyzed using the self-efficacy and expectations constructs of the SCT. Self-efficacy is the confidence a person has in their ability to successfully perform a specific action or behavior to attain certain results (Bandura, 1997a). For this study, self-efficacy was defined as the participants' beliefs concerning their ability to perform food education techniques if exposed to food education activities in the future. Expectations (referred to as outcome expectations in this study) are defined as cognitions that are cataloged by a personal assessment of the probability of certain occurrences taking place (Bandura, 1986). In this study, outcome expectations were defined as the anticipated outcomes associated with performing food education techniques, including the potential increase in the consumption of healthy foods.

Nature of the Study

This study used a basic qualitative approach, and intercept interviews were conducted to explore how the beliefs about food education among residents living within food insecure areas could affect their future consumption of healthy foods based on their

confidence in utilizing food education techniques at home. Qualitative research values and focuses on the intricacy of a person's lived experiences, suggesting that there are not static truths that apply to everyone but rather multiple truths that consist of situation-specific factors and various perspectives (Ravitch & Carl, 2016). Knowing this, a qualitative approach, more specifically a phenomenological approach, was the most appropriate research design for this study as the data that was collected from the intercept interviews involved the perspectives of the study participants. Phenomenology involves a person's experiences about a situation or thing and can help researchers understand the various factors, such as perspectives, that can impact a person's behaviors and overall life (Rodriguez & Smith, 2018).

Definitions

Food desert: When a community's residents lack access to affordable healthy foods, which can make it difficult for food desert residents to consume healthy foods, including fruits and vegetables, on a consistent basis (CDC, 2017a).

Food education: Education that consists of food preparation and cooking skills.

Food education activities: Activities that present food education, such as live cooking demonstrations and cooking demonstration videos.

Food desert resident: A person who resides in a food desert.

Food insecure resident: A person who experiences food insecurity.

Food insecurity: Defined as the reduced intake of quality foods and/or the reduced intake of food in general; there are differing degrees of food insecurity (USDA, 2020a).

Food source location: A location where food can be purchased (e.g., mobile produce market [MPM], farmers market, mobile farmers market, grocery store, convenience store, fruit, and vegetable stand, etc.). In this paper, the MPM acronym and the mobile farmers market term are used interchangeably unless otherwise noted.

Healthy foods: In this paper, the term *healthy foods* is defined as and interchangeable with fruits and vegetables, unless otherwise noted.

Assumptions

It is important and necessary for researchers to state any critical assumptions pertaining to their research, as these assumptions are an integral part of the foundation upon which their study stands (Leedy & Ormrod, 2010). With the researcher stating their self-evident truths, the reader can review the research and compare their assumptions to those of the researcher (Leedy & Ormrod, 2010). For this study, it was assumed that the study participants answered all the demographic and intercept interview questions honestly and accurately. It was also assumed that the study participants understood the questions that they were asked as I specified, before beginning the intercept interviews, that the participants could and should ask for clarification if any of the interview questions were not clear or were difficult to understand.

Scope and Delimitations

Studies that focused on increasing food desert residents' access to healthier foods using interventions such as mobile produce markets (MPMs) have seemingly been effective in doing so (Rose & Richards, 2004; Zepeda et al., 2014). Studies that have taken the use of MPMs a step further by adding a nutrition education component also

seem to be effective in increasing the use of MPMs (Best & Johnson, 2016; Medina et al., 2017). Despite these types of interventions, food insecurity is still an issue that plagues many households and communities (USDA Economic Research Service [ERS], 2020). Thus, there may be more factors involved that hinder food insecure residents from increasing their consumption of healthy foods that past research and literature have yet to highlight (Gary-Webb et al., 2018). Concentrating on this gap, this study utilized a qualitative approach to determine if residents living within food insecure areas believed that they could consume more healthy foods if they were to use food preparation and cooking skills and techniques learned from future food education.

Delimitations are factors of the research that the researcher can control (McGregor, 2018); in this study, I controlled who could and could not participate. More specifically, those who lived within the immediate vicinity of the food source locations could participate in the study. Those who did not live within these areas were not allowed to participate; their exclusion was an effort to prevent the introduction of outlier data. Outliers would have included people who liked to shop at the food source location despite living within a community where the residents are less likely to experience food insecurity, based on the USDA Food Access Research Atlas (2020b). These shoppers could have been considered outliers as their experiences with food could have differed from those of the residents living within the food insecure areas (i.e., the outliers may have been more knowledgeable in preparing and cooking healthy foods), thus affecting the transferability of the study data to other food insecure communities.

Challenges and Limitations

The recruitment of participants posed a few challenges; however, each potential challenge was dealt with as it arose. For example, community residents who were not able to participate in the study due to time constraints were informed that they could participate later if they were still interested. Those who demonstrated a lack of interest in participating were thanked for their time in listening to the brief explanation of the study. Initially, I expressed concern that not having a confidential space where the interviews could be conducted could have been an issue for the participants, but none of the participants expressed this concern before, during, or after their interviews.

Unlike delimitations, limitations are factors that typically arise during the study and are not under the control of the researcher (McGregor, 2018). One limitation that often arises in qualitative research is transferability, which refers to researchers using the data from a study's sample population to represent a larger population (Given, 2008). In this study, the delimitation of only allowing the immediate food insecure community's residents to participate fed into the study data being transferable. This is because gathering information from residents who lived within the food insecure area helped to prevent outliers, thereby allowing the sample population to more closely resemble a larger population of people who live in similar food insecure areas.

Significance

Past studies have either focused on the introduction of food interventions, such as MPMs or grocery stores, or the introduction of food education. When used independently, food education and food desert/food insecurity interventions (i.e., those

that aim to increase the availability of healthy foods) may be less effective, as increasing access to healthy foods may not be beneficial if the person does not possess the skills needed to prepare and cook these foods. The results of this study could lead to positive social change, which the Walden University Center for Social Change (2020) defines as the intentional formation and application of ideas and the utilization of interventions to encourage the positive development of people, their communities, the establishments within their communities, and different societies and cultures. My efforts to encourage positive social change align with the potential contributions that this study could make to the field of health education.

In terms of health education specifically, researchers and health education specialists could use the data from this study to further their knowledge concerning how food accessibility and food education affect the beliefs of food insecure residents regarding healthy food preparation, cooking, and consumption. More specifically, this increased knowledge could be useful in the creation and tailoring of more effective interventions that target food insecurity by using qualitative information specific to the target population. For example, if researchers were to determine that a majority of the residents within a food desert did not believe that they could prepare and cook certain foods, then interventions introduced to that community could include cooking demonstrations or classes to address this lack of knowledge and confidence. These types of tailored interventions could lead to an increase in healthy food consumption amongst food insecure residents living in food desert communities, thus creating positive social change within those communities while also contributing to the field of health education.

Summary

Food deserts often yield residents who suffer from food insecurity, which is a nationally recognized health disparity. Many interventions have been created in response to food deserts and food insecurity and typically consist of ways to introduce healthy foods into the community or provide food education to the residents. While both types of interventions address the issue of food insecurity, these interventions may not have a considerable impact on the target community, highlighting another facet of the food insecurity issue that needs to be addressed. In this study, that facet included the beliefs that residents living within food insecure areas had regarding their future healthy food consumption if they were exposed to future food education activities. Gaining insight into the residents' beliefs provided information concerning the literature gap that highlighted the disconnect between food insecure residents and the food insecurity interventions to which they were exposed. Chapter 2 addresses the literature gap in more depth and was used to support the need for this study.

Chapter 2: Literature Review

Interventions such as MPMs were created with a primary focus of introducing healthy foods, such as fruits, vegetables, and whole grains, to food desert communities to combat food insecurity (Gary-Webb et al., 2018). Despite this introduction, some researchers have not seen a noteworthy increase in healthy food consumption, which highlights a breakdown within these types of interventions (Gary-Webb et al., 2018). Some researchers have suggested that these types of interventions have the potential to be more effective if they include a nutrition/food education element (Fitz et al., 2017). Other authors have discussed researching the perspectives of food desert residents to determine additional factors that may impact their food insecurity (Christaldi & Pazzaglia, 2020).

This chapter reviews several topics and their relation to this study. First, Albert Bandura's SCT is presented, with specific attention to the self-efficacy and expectations constructs. Then, the importance of these two constructs to the study is discussed. Next, food deserts, food insecurity, and the interventions developed to address these issues are examined followed by the examination of other factors that can add to the effectiveness of these interventions as suggested by past researchers. Food education and nutrition education are then explained, along with the interventions in which these education approaches were the main focus. Lastly, literature supporting the importance of fruit and vegetable consumption is reviewed.

Literature Search Strategy

The Walden University Library and Google Scholar search engines were used to access relevant, peer-reviewed literature within the following databases: Health Sciences,

Academic Search Complete, MEDLINE, CINAHL, Education Source, and ProQuest Health & Medical. Within these databases, the following keywords were used: *Social Cognitive Theory, self-efficacy, expectations, phenomenology, food deserts, food insecurity, food desert interventions, food insecurity interventions, food education, nutrition education, nutrition education interventions, and fruit and vegetable consumption*. To ensure the relevance of the journal articles, the publication date was set to include literature from 2015 to 2021. Seminal articles and original books, from which pertinent information was retrieved, were used in this review as well. Citation chaining was also used to find additional articles containing information relevant to the study. Lastly, qualitative and mixed methods articles were the focus of the literature search as the content being explored in this study is of a qualitative nature. All of the information that follows is the result of an iterative process that involved synthesizing relevant journal articles and extracting information that was pertinent to highlighting the literature gap that I strived to address with this study.

Theoretical Framework

Social Cognitive Theory

Constructed by Albert Bandura (1986), the SCT proposes that there is a relationship between someone's behaviors, their environment, and their personal experiences and that these entities constantly affect each other. The SCT serves as a theoretical framework that can be used to examine, understand, and explain the relationship between a person and external and internal factors, also known as determinants (Bandura, 2004). For example, a person's behavior can be influenced

externally by their environment, incentives, and potential punishments as well as internally by their beliefs, experiences, and expectations (Wulfert, 2021).

In the past, the SCT has been widely used in observational learning studies where researchers were studying the behaviors and actions that children and adults displayed after observing certain behaviors and actions (Wulfert, 2021). One of the studies that has become a classic example of the use of the SCT is known as the Bobo Doll Experiment (Bandura et al., 1961). Conducted by Bandura, this experiment involved groups of children who were either exposed to an inflatable Bobo (clown) doll being physically attacked or engaged in a non-harmful manner (Bandura et al., 1961). Bandura found that the children who observed the physical attack modeled the same behavior when provided the opportunity to interact with the doll while the children who observed people interacting with the doll in a non-threatening way modeled this behavior and interacted with the doll in a similar, non-threatening manner (Bandura et al., 1961).

The SCT has also been used in the development of many interventions that aim to influence people's eating behaviors. Researchers have used the SCT to pinpoint and address the various factors that impact people's consumption of healthy foods (Vaughan et al., 2018). In this study, the SCT was used to determine if, after receiving future food education, people's beliefs about this education could influence their self-efficacy and expectations regarding utilizing this food education at home.

The SCT consists of six constructs: reciprocal determinism, behavioral capability, observational learning, reinforcements, expectations, and self-efficacy (BUSPH, 2019). This literature review focuses on the self-efficacy and expectations constructs and

provides pertinent information supporting the use of these constructs in this study. Bandura and Locke (2003) expressed the significant impact of self-efficacy on a person's motivation levels, performance, and behavior and found it to be the foundation of motivation. Strengthening a person's self-efficacy can lead to the exertion of more effort, potentially increasing the person's chances of successfully overcoming obstacles and achieving goals (Bandura, 1997b). Outcome expectancies differ from self-efficacy in that they are the beliefs that specific behaviors or actions will produce specific outcomes (Bandura et al., 1977). The expectations construct was chosen for this study because I sought to determine if the participants believed that their future fruit and vegetable consumption could be influenced by engaging in future food education activities. The self-efficacy construct was chosen for this study because I attempted to determine if the participants believed that their self-efficacy regarding their food preparation and cooking skills could be influenced if they were exposed to food education activities

Self-Efficacy

Bandura (1997a) defined self-efficacy as the confidence a person has in their ability to successfully perform a specific action or behavior in an effort to attain a certain result. Belief is an integral part of confidence, as someone must believe that they are capable of completing the actions that will produce the results they desire (Bandura, 1997b). Beliefs are therefore a fundamental part of not only the creation of goals but the execution and outcomes of those goals as well (Bandura, 1997b). More specifically, beliefs serve as the motivational component of self-efficacy while also contributing to the levels (e.g., high vs. low) and strength of self-efficacy (Bandura, 1997b). People are more

apt to take on new behaviors if they believe that they can successfully execute those behaviors (AbuSabha & Achterberg, 1997). Contrarily, if a person believes that a behavior is unachievable, they are more likely to avoid engaging in that behavior altogether (AbuSabha & Achterberg, 1997). A person's resiliency when persevering through adversity is dependent on their belief in their ability to accomplish a goal and reap the associated benefits (Bandura, 1997b). A person's beliefs can also impact how they use the skills they have acquired (Bandura, 1997b). For example, a person possessing the skills needed to complete an action or task can experience these skills being overridden if they lack confidence and possess self-doubt about being able to successfully perform the skills (Bandura, 1997b).

The self-efficacy construct can be found at the core of many interventions that revolve around nutrition and health, as researchers have suggested that incorporating this construct can produce a more effective intervention (AbuSabha & Achterberg, 1997; Bruce et al., 2018). When a health behavior model that excludes self-efficacy is used in the development of interventions, predictability and the ability to explain the resulting behaviors are lost (Bandura, 1998). Bandura (1998) stresses that attitudes, especially those associated with intentions, are typically predictable and that self-efficacy is consistently predictable. Past research has supported this claim, highlighting self-efficacy as a strong and dependable predictor of health behavior (AbuSabha & Achterberg, 1997). A study by Vaughan et al. (2018) further supports this claim, as study participants who had healthier diets seemed to have positive attitudes and higher levels of self-efficacy concerning their ability to consume healthier foods. Similarly, in Winkler and Turrell's

(2009) study, those who were more confident in cooking vegetables purchased vegetables more regularly. Therefore, examining confidence, which is a key element of self-efficacy, concerning the cooking of healthy foods can be another factor that is assessed when addressing the consumption of healthy foods, particularly fruits and vegetables.

One way to boost a person's self-efficacy is through vicarious experiences as people are more likely to believe that they can accomplish a goal if they see others, with similar skillsets, accomplishing that same goal (Bandura, 1997b). The techniques learned from food education can potentially impact a person's food choices in a positive manner, such as consuming more fruits and vegetables (Banna et al., 2016). This information about vicarious experiences and food education was used to determine if the participants believed that their self-efficacy concerning their food preparation and cooking skills, and therefore their fruit and vegetable consumption, could be influenced if they were exposed to food education activities.

Expectations

The expectations construct of the SCT involves the consequences that are expected as a result of a particular behavior (Boston University School of Public Health, 2019). More specifically, outcome expectations consist of the way a person judges the possibility of their current behaviors influencing their future behaviors once a behavior change has been made (AbuSabha & Achterberg, 1997). In this study, expectations (synonymous with outcome expectations in this dissertation) were defined as the outcomes that the participants believed could happen if they were to receive food education, including if the participants believed that there would be a change in their

consumption of healthy foods. Like self-efficacy, outcome expectations can impact health behaviors (Bandura, 1998). Outcome expectations can be positive or negative, thereby serving as incentives or disincentives (Bandura, 1998). The belief that a new action or health behavior can produce a positive and beneficial outcome is indicative of a positive outcome expectation. The belief that this same action or behavior can produce a negative and detrimental outcome is indicative of a negative outcome expectation. Figure 1 shows the effects that a person's efficacy expectations and outcome expectations, which are synonymous with self-efficacy and outcome expectations in this study, can have on their behaviors and the outcome of these behaviors (Bandura, 1977).

Figure 1

The Effects of Efficacy and Outcome Expectations on a Person's Behaviors and Outcomes

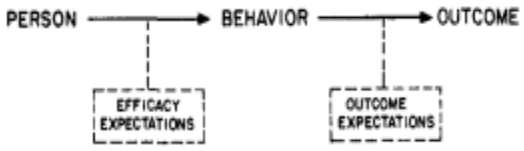


Figure 1. Diagrammatic representation of the difference between efficacy expectations and outcome expectations.

Note. From "Self-Efficacy: Toward a Unifying Theory of Behavioral Change," by A. Bandura, 1977, *Psychological Review, 84*(2), p. 193. Copyright 1977 by the American Psychological Association. Reproduced with permission.

Combining the Self-Efficacy and Expectations Constructs for Increased Effectiveness

Past research has demonstrated that SCT-based cooking skills interventions have increased the self-efficacy and knowledge of participants regarding their cooking skills and nutritional knowledge (Abood et al., 2004; Levy & Auld, 2004). However, when the

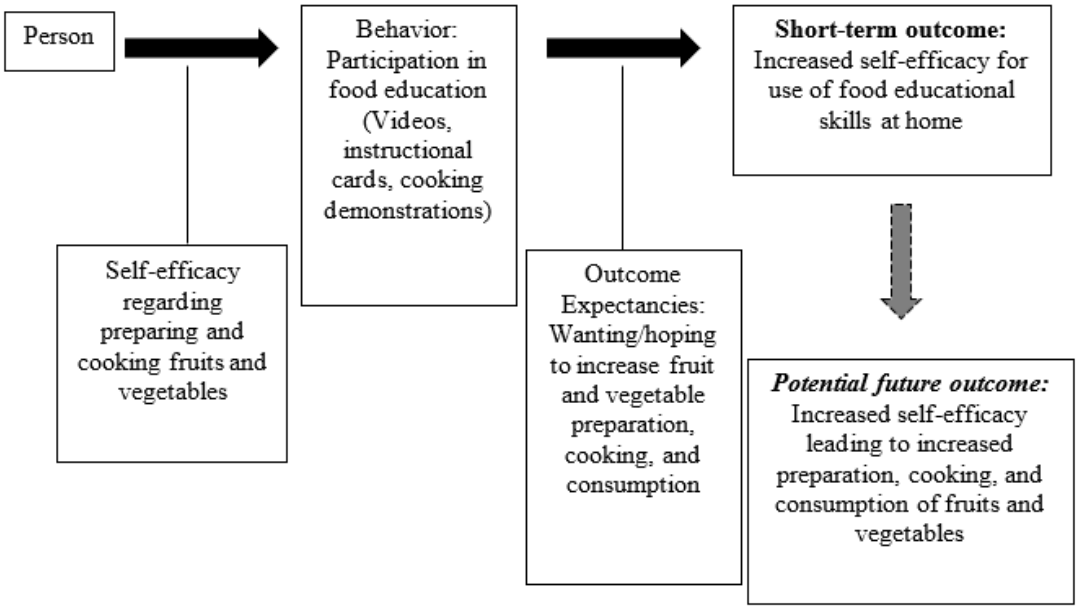
focus of an intervention is long-term change, the expectations construct should be paired with the self-efficacy construct as expected outcomes are dependent on self-efficacy (AbuSabha & Achterberg, 1997). Combining the self-efficacy and expectations constructs can not only prompt behavior changes but can also help explain the changes themselves and the process required to accomplish them (AbuSabha & Achterberg, 1997). This study focused on short-term outcomes, as the expectations and self-efficacy constructs were paired to determine if the participants believed that they could use food education skills at home after being exposed to future food education activities. Short-term outcomes were chosen over long-term outcomes because it is often easier for people to envision short-term outcomes as opposed to long-term outcomes that they cannot yet visualize (AbuSabha & Achterberg, 1997).

Using the SCT to determine short-term effects is not new; many researchers have examined SCT-based interventions and their short-term effects on the participants. Wu et al. (2013) examined three short-term time points (immediately after birth, 4 weeks after birth, and 8 weeks after birth) when studying breastfeeding self-efficacy in 74 nursing mothers. Wu et al. wanted to determine if individualized, self-efficacy-focused breastfeeding teaching sessions would increase the number of mothers who chose to nurse right after giving birth as opposed to those who received the standard breastfeeding teaching sessions (the control). The mothers who received the intervention demonstrated a significant increase in their breastfeeding self-efficacy, were more inclined to breastfeed immediately after birth, and were more likely to continue to breastfeed up to 8 weeks after birth.

For this study, Figure 2 shows how exposure to food education activities could boost a person's self-efficacy regarding preparing healthy foods at home. This boost in self-efficacy could potentially result in the short-term outcome expectation of an increase in fruit and vegetable consumption. Future research efforts could utilize and build on the results of this study to develop and implement interventions that will introduce food education activities and focus on long-term outcomes when pairing the self-efficacy and expectation constructs.

Figure 2

A Diagram Showing the Possible Outcomes Associated with Exposure to Food Education



Literature Review Related to Key Concepts

Phenomenology

The basic premise of the phenomenological approach is to understand the essence of a phenomenon and why it occurs. The phenomenological approach was selected for

this study because the study topic was derived from past research that emphasized the issue of food insecure residents having access to healthy foods and food/nutrition education yet still not increasing their consumption of these foods, which is the phenomenon (Creswell, 2007). More specifically, this study used a transcendental/psychological phenomenology approach, as this approach is less concerned with the researcher's interpretations of the phenomenon and more concerned with the study participants' experiences (Moustakas, 1994). Moustakas (1994) further explained that the transcendental approach means that the information is received as is without being clouded by any preconceived notions and/or biases, as will be explained in detail in Chapter 3. This allows the participants' beliefs and thoughts to be gathered and viewed objectively as opposed to subjectively (Moustakas, 1994).

Once the phenomenological data were collected, they were broken down into codes and themes. These codes and themes were then used to create a textural (i.e., what was experienced) and structural (i.e., how it was experienced) description of the participants' experiences (Moustakas, 1994). It is from the combination of the textural and structural descriptions that the overall core and meaning of the phenomenon can emerge (Moustakas, 1994). For a phenomenological approach, it is recommended that data are collected from five to 25 participants (Creswell, 2007). This study included 18 participants, all of whom resided within the food insecure areas where the study was conducted.

The phenomenological approach was chosen for this study because it provided an understanding of why, despite having access to healthy foods and food education,

residents living in food insecure areas still may not have been consuming the recommended amounts of fruits and vegetables. More specifically, this approach provided an opportunity to learn the participants' beliefs and expectations regarding their ability to prepare and/or cook fresh fruits and vegetables at home and if they believed they could consume more fruits and vegetables if exposed to food education. The information learned from this study could inform future researchers who are looking to close the gap between food insecurity and the effectiveness of food insecurity interventions.

Food Deserts and Food Insecurity

Food Deserts

A community is considered to be a food desert when its residents have limited access, if any access at all, to stores that sell affordable, healthy foods (Ver Ploeg et al., 2011). In the United States, food deserts began to emerge as people with higher socioeconomic statuses (SES) moved to suburban areas followed by large supermarkets, leaving the inner-city, low-income communities without retailers that sold fresh produce and healthy foods (Leland, 1987; Pothukuchi, 2005). Decades later, close to 23.5 million people within the United States reside within a food desert community, many of whom have a low SES and face racial and ethnic disparities (K. M. Bower et al., 2014; Kumanyika et al., 2014; Nussbaum, 2020; Walker et al., 2010). More specifically, Black and Hispanic communities seem to have more fast-food restaurants and fewer supermarkets and grocery stores than the communities of their White counterparts (K. M. Bower et al., 2014; Kumanyika et al., 2014; Walker et al., 2010). For food desert

residents who want to shop at a supermarket, they often find themselves traveling at least a mile or more outside of their neighborhood whereas their White counterparts typically have convenient access to a supermarket within their neighborhood (Zenk et al., 2005).

The Retail Food Environment Index (RFEI) is used to highlight the ratio of fast-food restaurants and neighborhood convenience stores to locations that sell produce, such as supermarkets and grocery stores (Zhang & Huang, 2018). Researchers have reported statistically significant correlations between RFEI and fruit and vegetable consumption (Zhang & Huang, 2018). In particular, residents living in food deserts and food insecure areas that have more fast-food restaurants and fewer grocery stores seem more likely to experience less consistent fruit and vegetable consumption (Hsiao et al., 2019; Zhang & Huang, 2018). Research has shown that simply offering increased access to healthy foods is not enough as this increased access does not always equate to an increase in healthy food consumption (Cummins et al., 2014). For example, Allcott et al. (2019) found that the arrival of a supermarket within a food desert does not equate to the residents purchasing healthier foods. This disconnect between food desert/food insecurity interventions and food desert/food insecure residents demonstrates the need for researchers to create multi-faceted interventions that appeal to people who are experiencing different food inequities. This study explored how a future, multi-faceted approach consisting of food education and increased access to healthy foods could impact a person's healthy food consumption.

The issue of healthy food accessibility and the cost of healthy foods are two additional factors that perpetuate food desert conditions and food insecurity, highlighting

that these communities are “underserved and overcharged” for food, which is an essential necessity (Howerton & Trauger, 2017; Nussbaum, 2020). This limited access to nutritious foods can result in poor dietary choices and nutrition which can lead to an increase in the risk of developing various diseases and obesity (Nussbaum, 2020). Food desert conditions are not only influenced by limited access to healthy foods and the costs of these foods, but also by the quality of the healthy foods that are available. Studies have shown that many foods, not just healthy foods, cost more in food deserts even though the quality of these foods is low (Hendrickson et al., 2006; Jetter & Cassady, 2006; Weatherspoon et al., 2013). These high food costs are associated with smaller, conveniently located retail stores (e.g., gas stations and corner stores) where the food desert residents’ food choices typically consist of unhealthy options such as processed foods and snack foods (Bodor et al., 2010; Freedman, 2009). The impact that these unhealthy food options can have on a food desert resident’s diet is so significant that the associated health issues have been classified as major threats to public health (USDA ERS, 2009).

Food Insecurity

In 2020, 13.8 million households within the United States experienced food insecurity (USDA ERS, 2021). The USDA ERS defines food insecurity as a reduction in the consumption of quality foods and/or a reduction in the consumption of food in general (2020). This reduction in food consumption can potentially lead to the disruption of eating patterns, which can have a negative influence on one’s health and overall well-being (Coleman-Jensen et al., 2018; Patterson et al., 2020). There are many factors that

can impact and perpetuate food insecurity, including racial, ethnic, and socioeconomic disparities, access to healthy foods, the quality of healthy foods, and perceived barriers (MacNell et al., 2017; Tucker et al., 2019).

Racial, Ethnic, and Socioeconomic Disparities. A person and a family's eating behaviors can be heavily influenced by the racial, ethnic, and socioeconomic disparities that they experience. In 2016, Black and Hispanic households were more inclined to experience food insecurity than the national average of households that experience food insecurity (Coleman-Jensen et al., 2018). The average percentage of Black households that faced food insecurity in 2017 was 8.5% as opposed to the national average of 4.5% (Coleman-Jensen et al., 2018). A study conducted by Leung and Tester (2019) supports these percentages as they found that non-Hispanic Black adults have the lowest diet quality when compared to other racial and ethnic groups. As far as Hispanic households were concerned, in 2017, 5.5% of these households faced food insecurity and while this percentage was less than that of Black households, it was still higher than the national average of 4.5% (Coleman-Jensen et al., 2018).

The groups that seem to be impacted by food insecurity the most tend to be the women and children of minority racial and ethnic groups, such as Black and Hispanic people, and immigrants (Chilton et al., 2009; Denney et al., 2017; Kalil & Chen, 2008; Nord et al., 2010). In the United States, one out of five households has children younger than 18 years old facing food insecurity (Denney et al., 2017). Immigrant Latina mothers are almost twice as likely to experience food insecurity than their White counterparts (Denney et al., 2017). Black and Hispanic girls, whose obesity rates are respectively

20.7% and 21.4%, are more likely to be obese than their White and Asian counterparts and their obesity is associated with food insecurity (CDC, 2017b). Children who face food insecurity are also more prone to learning and developmental issues (Hartline-Grafton & Dean, 2017). These learning issues can consist of a lack of concentration and low school performance and can lead to incidences of emotional and behavioral issues as well (American Academy of Pediatrics, 2015). In addition to these learning and developmental issues, food insecure children are also more likely to be sick and recover more slowly from their illnesses, with some even being hospitalized more than children who are food secure (American Academy of Pediatrics, 2015).

When it comes to socioeconomic disparities, many of the families who experience higher rates of food insecurity are less educated while the families who experience lower rates of food insecurity are more educated (Denney et al., 2020). Typically, families experiencing food insecurity live in low-income areas however in Denney et al.'s study, they found that highly and less educated families could live in the same neighborhood and still have different experiences with food security (2020). This finding highlights how education, or lack thereof, can affect a family's food security no matter their built and social environment (Denney et al., 2020). This education disparity can potentially lead to the larger issue of less-educated families, living within food secure neighborhoods, not receiving much-needed food assistance due to their needs being overshadowed by the advantaged community in which they reside (Denney et al., 2020).

Burke et al. (2018) explain that many of the less educated families who experience higher rates of food insecurity due to having a lower SES are Black. Amongst

Black households, Burke et al. (2018) also noticed an association between racial discrimination and food insecurity severity. Racial discrimination and a low SES are factors that affect the economic security of Black families which can then affect, and potentially limit, their access to healthy food environments (Burke et al., 2018). This limited access, along with SES, race, and ethnicity are but a few of the many factors that can negatively impact a person's diet and overall health and well-being.

Access to Healthy Foods. Making healthy food choices is imperative to one's overall health and wellness however people's food purchasing behaviors can be influenced by their access to healthy foods (Herbert et al., 2014). Lack of transportation has been found to be a prominent factor in food insecurity (USDA ERS, 2009). MacNell et al. (2017) interviewed mothers from 42 families living within a Raleigh, North Carolina food desert, as labeled by the USDA, and found that almost half of the interviewees either did not have a car or did not have access to a car, both of which had an effect on the interviewees' food shopping behaviors. To combat this lack of transportation, many of the families either used public transportation or relied on family and friends for rides to the supermarket (MacNell et al., 2017). One mother stated that, due to a lack of personal transportation, she was only able to shop at the more expensive neighborhood grocery store (MacNell et al., 2017). Other mothers stated that they would use public transportation to get to the supermarket but then would have to take a taxi back home to avoid the cumbersome task of utilizing public transportation while carrying multiple bags of groceries (MacNell et al., 2017). Although helpful, taxi rides can be expensive and can ultimately become an additional financial burden (MacNell et al.,

2017). Transportation issues also had an effect on the frequency of the mothers' grocery shopping trips (MacNell et al., 2017). Mothers with their own personal transportation were able to conduct bi-weekly shopping trips, with some mothers even visiting a grocery store every week (MacNell et al., 2017). Mothers without their own transportation mentioned visiting the grocery store about once a month (MacNell et al., 2017).

From their study, MacNell et al. (2017) were able to highlight the multi-faceted factors that affect food insecurity while also showcasing how individuals interact "with their food environment". Studies like MacNell et al.'s focus on the important influence that a person's environment can have on their diet (Glanz et al., 2005). Bandura (2007) wrote about the influence that a person's environment can have on their well-being, of which food consumption is a factor. Many people who live in food deserts, which house many low-income individuals, have poorer diets than those who do not, and this is due to various factors that act as barriers to healthier eating behaviors (Cooksey Stowers et al., 2020; Wolstein et al. (2015).

Quality of Healthy Foods. One issue that the MacNell et al. (2017) study participants discussed was their access to fresh, high-quality vegetables. One mother mentioned that although she had access to a supermarket that was three miles away from her home, that supermarket did not have the freshest selection of vegetables (MacNell et al., 2017). There was another supermarket that did have the fresher, higher quality vegetables that this mother preferred to purchase however it was six miles away from her home (MacNell et al., 2017). Another mother also stated her preference for shopping at a supermarket outside of the neighborhood due to the larger selection of food choices

(MacNell et al., 2017). These examples demonstrate how food quality can be a barrier that deters people from consuming healthy foods.

Efrati et al. (2018) discovered a significant and positive relationship between the quality of healthy food and the quality of a person's diet. Unfortunately, not everyone has access to quality healthy foods. Supermarkets within high socioeconomic neighborhoods carry higher quality fruits and vegetables while the quality of fruits and vegetables within low socioeconomic neighborhoods is poorer (Crawford et al., 2017). Low socioeconomic grocery stores also lack a wide variety of the fruits and vegetables that are kept in stock (Crawford et al., 2017).

Perceived Barriers. The factors (e.g., attitudes, beliefs, and cooking knowledge and skills) that can influence the eating behaviors of an individual or a family can also be perceived barriers (Herbert et al., 2014). Food insecure individuals may perceive or view the costs of healthy foods as a barrier that is preventing them from consuming these foods. Crawford et al. (2017) found that people with a low SES believe that healthy foods are too expensive and not worth the money. A grocery store within a low-income neighborhood can even sell fruits and vegetables at a low cost and this cost may still prove to be too expensive for the population being served (Crawford et al., 2017).

Access to healthy foods is another perceived barrier that people may believe is preventing them from consuming healthy foods. Surveys conducted by the North Carolina Department of Social Services revealed that low-income families believe that they would consume more fruits and vegetables if they had more access to affordable fresh produce (Leone et al., 2017). The lack of access that these low-income families are

experiencing could be the result of perceived barriers that they are encountering. Dave et al. (2017) conducted a study on 54 food pantry clients to determine their perspectives about the barriers that they felt prevented them from eating healthy. Many of the participants felt that their finances prevented them from eating healthy, with one client stating that they were simply happy that their children had something to eat, regardless of if it was deemed healthy or not (Dave et al., 2017). Many of the food pantry clients also thought that healthy food was more expensive and therefore more difficult to purchase and consume consistently (Dave et al., 2017). In regard to time, many of the clients mentioned that they did not have the time to cook a healthy meal and therefore resorted to fast-food, take-out, or not-so-healthy food items at home that could be prepared quickly (Dave et al., 2017). Food access was an issue with about half of the clients, as they lacked the transportation needed to go to a grocery store to purchase healthy foods (Dave et al., 2017). Many of the young food pantry clients also reported not having the skills needed to cook fresh produce which kept them from purchasing these items (Dave et al., 2017). Future food insecurity intervention efforts could greatly benefit from health education specialists learning about a community's perceived barriers to healthy eating as the information presented within the intervention efforts would be more relatable and more specific to the target population, which could result in positive social change not only amongst the individuals but also the food insecure community as a whole.

Food Desert and Food Insecurity Interventions

In an effort to provide assistance to food insecure residents, the United States government created the following three food assistance programs: The Special

Supplemental Nutrition Program for Women, Infants and Children (WIC), the Supplemental Nutrition Assistance Program (SNAP), and the National School Lunch Program (Coleman-Jensen et al., 2016). Many of the recipients of these benefits are low-income and reside in food deserts (Nussbaum, 2020). In 2015, 59% of households experiencing food insecurity used at least one of these programs, with some households using more than one based on their needs (Coleman-Jensen et al., 2016). For SNAP specifically, about 42.2 million people used the program as of 2017, many of whom were "low income Black adults" (Chang et al., 2017; Patterson et al., 2020; Purtell et al., 2012). In addition to government food assistance programs, various other programs and entities, such as farmers markets, MPMs, and community gardens were established to bring fresh, quality produce to food insecure people residing in food deserts (Robinson et al., 2016).

The Lancaster Central Market, the first farmers market in the United States, appeared in 1730 in Lancaster, Philadelphia, and was extremely popular amongst the city's residents and farmers (Neal, 2019). After World War II, people began wanting different types of foods that were not available at the Lancaster Central Market, or other farmers markets, and that is when foods from states like Florida and California began appearing all over the United States by way of national food distribution, the birth and rapid rise of supermarkets, and the rise of the frozen food industry (Hamilton, 2003). This influx of foods and goods through these new national distribution lines resulted in less business for the local farmers, causing many farmers markets to close consequently (Schupp, 2019). It was not until the 1970s that farmers markets began to resurface as new

consumers, such as chefs, scouted for locally sourced foods to use and feature in their restaurants (Schupp, 2019). This re-emergence led to the United States government tasking the Agricultural Marketing Service branch of the USDA with seeking out and recording the number of operational farmers markets within the United States (USDA AMS; 2017). With all the United States' farmers markets now recorded in one place, research concerning farmers markets became more frequent (Schupp, 2019). More specifically, those who shopped at farmers markets were the basis of many research efforts as scholars sought to determine the types of people who frequented the markets and why they did so (Schupp, 2016). Scholars also researched the communities where the farmers markets were located (e.g., were they located in communities with higher SES or in areas that were deemed food deserts?) (Schupp, 2016).

Another catalyst responsible for the re-emergence of farmers markets was the growth of suburban communities, which resulted from those with a higher socioeconomic standing leaving the inner city; supermarkets followed suit and were primarily built within these suburban communities (Pothukuchi, 2005). Consequently, this led to a reduction in the number of supermarkets operating within inner city, lower socioeconomic neighborhoods (U.S. House Select Committee on Hunger, 1990). Making matters worse, before moving to the suburbs, many supermarkets forced other inner city food locations out of business, turning these communities into food deserts and leaving the residents with retailers like gas stations, dollar stores, and convenience stores (Gallagher, 2007; Leland, 1987). These retailers only had a limited number of foods, many of which were not fresh and healthy (Gallagher, 2007; Leland, 1987). Over time,

these conditions within food deserts have contributed to poor nutrition, a rise in obesity, and a rise in other diet-related health issues and diseases amongst residents (USDA ERS, 2009).

The introduction of farmers markets into food desert communities has been one of the interventions that has been financially successful for the farmers while also providing the residents with fresh, healthy foods (Schupp, 2019). Many large cities, such as Baltimore and Chicago, have reported, in their newspapers, that the introduction of farmers markets to food desert communities not only provides the residents with healthy produce but can also be used to help tackle obesity and the economic disparities that affect many food desert residents (Todd, 2012; White, 2012). To provide more access to healthy foods than that of a stationary farmers market or supermarket, community-based interventions such as MPMs have become very popular as they are flexible, cost-effective interventions that allow for easier transport of fresh fruits and vegetables to and within a community (Hsiao et al., 2019; Robinson et al., 2016; Weissman et al., 2020). The flexible and adaptive nature of MPMs also allows for the diversification of foods being sold based on the communities being served (Weissman et al., 2020). For many vulnerable populations within developing countries, informal and unofficial MPMs are their primary source of fresh produce (Hsiao et al., 2018). Within the United States, the earliest recorded MPM created to address the inequalities within a local food system was the People's Grocery Mobile Market in West Oakland, California (Robinson et al., 2016). This MPM, which was based out of a solar-powered van, was launched in 2002 and remained open for the next five years (Robinson et al., 2016). Other examples of MPM

vehicles that are used include the converted school bus used by The Bus Stop Market Shoppe program and the refrigerated truck used by the Inter-Faith Food Shuttle (Inter-Faith Food Shuttle, n.d.; The Bus Stop Market Shoppe, 2020). The creators of the People's Grocery Mobile Market wanted the MPM to bring awareness to and address the disparities that food insecure residents encounter regarding food and their health (Robinson et al., 2016).

Over time, the use of MPMs spread across the United States, and even into Canada as new MPMs were being introduced to food insecure individuals within food desert communities (Robinson et al., 2016; Weissman et al., 2020). Many of the MPMs operating today do so within urban food deserts however there are a few MPMs that operate within rural food deserts as well, like the Gorge Grown Mobile Farmers' Market in the rural Columbia Gorge areas of Washington and Oregon (Robinson et al., 2016). MPMs are even used to assist elderly populations and those whose physical mobility is limited (Robinson et al., 2016). Examples of these types of MPMs include The Green Machine Mobile Food Market, located in Memphis, Tennessee, and Garden on the Go, located in Marion County, Indiana (Robinson et al., 2016).

Those who operate MPMs tend to do so in locations with a lot of traffic and high visibility, to attract as many customers as possible (Robinson et al., 2016). Examples of these locations include parking lots, senior assisted living facilities, community and recreation centers, schools, parks, community health clinics, and libraries (Robinson et al., 2016). Most MPMs are set up like a grocery store, where customers can walk down a row (if the MPM is set up outside) or an aisle (if the MPM is set up within a converted

bus) to browse and shop for fresh produce (Robinson et al., 2016). Some MPMs will even utilize tents and tables to display fresh produce (Robinson et al., 2016).

Those who operate MPMs often do so with a schedule that allows them to visit multiple communities and facilities within a week (Robinson et al., 2016). As a result of their convenience (as it relates to geography and increasing access to fresh produce), MPMs can be effectively used to help mitigate various barriers, such as those associated with where a person lives and their socioeconomic standing (Robinson et al., 2016). Many MPMs have been successful due to community engagement during the program creation process (Rummo et al., 2021). Community engagement is effective because it allows for the breakdown of the social barriers that can hinder access to healthy foods (Robinson et al., 2016). With the resolution of the socioeconomic and geographic barriers, MPMs can allow for increased access to fruits and vegetables, which has been linked to healthier eating behaviors and has also been positively associated with the increased consumption of fruits and vegetables amongst those who utilize them (Rose & Richards, 2004; Zepeda et al., 2014).

In Springfield, Massachusetts, Hsiao et al. (2018) reviewed the survey data collected from the patrons who shopped at the Go Fresh MPM during the last two weeks of its 2014 season (Hsiao et al., 2018). Specifically, Hsiao et al. reviewed the data that was collected from 143 patrons who lived in eight of the food desert communities that were a part of the study. Hsiao et al. found that the number one quality of the MPM that the shoppers liked was the convenience of the market's location, as it was located within their communities and close to their homes. The shoppers also enjoyed the food

demonstrations, food samplings, and nutrition counseling that the MPM offered (Hsiao et al., 2018). As far as the price and quality of the produce were concerned, almost half of the patrons were content with both the prices and the quality of the foods (Hsiao et al., 2018). Overall, Hsiao et al. found that MPMs can have a positive influence on food desert residents' food choices, leading to healthier food choices and healthier eating behaviors through increased access to healthy, affordable foods and nutrition and food education.

Leone et al. (2017) conducted a study to determine if their MPM, the Veggie Van, could boost fruit and vegetable consumption in low-income communities. The Veggie Van sold boxes of fresh produce from local farmers at discounted prices and provided recipes, cooking demonstrations, and nutrition education (Leone et al., 2017). Leone et al. found that the Veggie Van did have an effect on shoppers and their eating behaviors. For example, those who shopped at the Veggie Van increased their daily fruit and vegetable consumption by 1.6 servings and decreased their processed food and sugar consumption (Leone et al., 2017). 76.5% of the Veggie Van shoppers also reported choosing and eating healthier snacks while 58.8% stated that they were cooking more meals at home (Leone et al., 2017). The Veggie Van shoppers stated that their changed eating and cooking behaviors were due to their Veggie Van shopping trips (Leone et al., 2017).

Like the GoFresh and Veggie Van MPMs, the Somerville Mobile Farmers' Market, located in Sommerville, Massachusetts, has successfully provided low-income communities with inexpensive, fresh produce from local farmers for over five seasons (Satin-Hernandez & Robinson, 2016). To create the Somerville Mobile Farmers' Market, community stakeholders were engaged to determine the needs of the community

concerning access to healthy foods (Satin-Hernandez & Robinson, 2016). Due to the community's robust immigrant population, many of the stakeholders provided potential solutions to help increase the residents' accessibility to healthy foods based on successful strategies that were utilized in their native countries (Satin-Hernandez & Robinson, 2016). For example, one stakeholder suggested filling carts with produce and taking the carts to various neighborhoods every day as this was done in her native country (Satin-Hernandez & Robinson, 2016). As a result of this suggestion, rolling racks, on which basins were placed and filled with fruits and vegetables, were used to display and sell the produce to the residents (Satin-Hernandez & Robinson, 2016). Satin-Hernandez and Robinson (2016) realized that an MPM might be more effective and may reach more residents if it is a true collaboration between the community and those who are trying to help (i.e., neighborhood organizations, public health departments, etc.). Satin-Hernandez and Robinson continued to engage the community by hiring residents to work at the Somerville Mobile Farmers' Market. Satin-Hernandez and Robinson expressed that this type of direct engagement helped to increase their awareness of the assets that the residents had access to and the needs that still needed to be fulfilled. The employees, being a trusted part of the community themselves, were, therefore, able to provide insightful feedback that may otherwise have been lost upon the researchers (Satin-Hernandez & Robinson, 2016). For example, one employee was the driving factor behind the MPM's match program, which gave 50% discounts to people using various government assistance benefits (such as SNAP and WIC) and to those who lived in the same areas but may not have qualified for any government assistance programs (Satin-

Hernandez & Robinson, 2016). The Somerville Mobile Farmers' Market offered fresh, quality produce from local farmers to residents at prices that were lower than the average retail prices, making these healthy foods affordable and accessible (Satin-Hernandez & Robinson, 2016).

Rummo et al. (2021) also found that pairing MPMs with financial incentives can also lead to low-income residents purchasing more fruits and vegetables. Rummo et al. conducted a study in which low-income residents using SNAP benefits were given an automatic 50% discount when shopping at the MPM known as Food on the Move in Providence, Rhode Island. Rummo et al. found that combining accessibility with affordability resulted in the Food on the Move customers purchasing more fruits and vegetables. The combination of these two factors can help alleviate economic disparities amongst low-income individuals experiencing food insecurity. Alleviating the economic disparities associated with purchasing fruits and vegetables may not only increase the purchasing of these foods but can potentially lead to an increase in the consumption of these foods which could result in food insecure individuals having a lower risk of developing chronic diseases (Rummo et al., 2021). Adding discounts to MPM programs is a way of optimizing the programs so that more people not only utilize the MPMs but are also encouraged to purchase and consume more fruits and vegetables as a result (Rummo et al., 2021). An incentive was not offered for participation in this study; however, the data from this study could be combined with future study efforts that offer incentives, possibly creating a more effective intervention.

It is important to note that some researchers have stated that simply providing

healthy foods by use of MPMs is not a fix but rather a temporary solution because the issue of food insecurity should be addressed within the food systems that are already in place (Schupp, 2019). These food systems consist of many entities and factors that affect their dynamic, including supermarkets and other stores that sell foods within a food desert, food and nutrition education, and the cost and quality of these foods. Although this study took place at different mobile farmers market locations, the beliefs of individuals living within food insecure areas regarding the preparation, cooking, and consumption of healthy foods could be used to address some of the issues within the already established food systems, possibly providing a solution for this portion of the issue. This study was an attempt to demonstrate how a multi-faceted intervention could be used to address the multiple factors associated with food insecurity and fruit and vegetable consumption.

Food Education and Nutrition Education

Food Education

Food education (e.g., cooking demonstrations, cooking classes, cooking videos, recipe cards, etc.) can be used to boost cooking confidence and self-efficacy in addition to boosting one's skills concerning the preparation of nutritious foods (Overcash et al., 2018). Many studies have used the terms food preparation and cooking skills interchangeably but they are not the same. Food preparation can include skills such as cutting a whole pineapple or opening a pomegranate while cooking skills refer to heating food (Huyard, 2020). This dissertation focused on food preparation and cooking skills being two separate activities, as just using the term *cooking skills* could have resulted in

the reader thinking solely about the skills needed to heat food (Huyard, 2020).

Those who teach food education can utilize various methods, such as printed materials, food preparation, cooking classes and videos, and food shopping demonstrations, to relay pertinent and practical information to those in need of changing their eating behaviors. Printed materials, such as food preparation handouts and recipe cards, can be used to influence eating behaviors. Research has demonstrated that, when used to promote the consumption of fruits and vegetables, recipe cards not only influenced patrons to purchase fruits and vegetables but those who used the recipe cards increased their consumption of these foods as well (Liu et al., 2017). These results suggest that supermarkets and other food source locations can utilize food education items like food preparation cards (e.g., a card with instructions and pictures demonstrating how to cut a whole pineapple) and recipe cards to encourage healthy food shopping and eating behaviors (Liu et al., 2017).

Food preparation and cooking classes can also be used to relay valuable food education. These classes are often taught in school settings, grocery stores, and in community spaces such as churches, community kitchens, or recreation centers, and provide participants with basic food preparation and cooking skills, easy recipes, and important nutritional education (Hawkes, 2013). Food preparation and cooking classes, such as the Jamie's Ministry of Food-Australia program (JMoF), have been shown to have a positive effect on people's knowledge, beliefs, and attitudes about healthy eating (Herbert et al., 2014). For example, the participants of the JMoF program, which was created by Jamie Oliver, a celebrity chef, decreased the number of fast-food meals that

they purchased while increasing their fruit and vegetable purchases (Herbert et al., 2014). The participants' beliefs that they could prepare and cook a healthy meal from scratch in only 30 minutes increased as well because of the program (Herbert et al., 2014). The researchers also observed an increase in the positivity of the participants' attitudes involving the preparation and cooking of inexpensive meals (Herbert et al., 2014). This rise in positive attitudes was due to helpful tips such as fruits and vegetables being less expensive when they are in season versus when they are out of season (Herbert et al., 2014). As a result of the JMoF program, many participants expressed that they purchased a wider variety of fruits, vegetables, and other fresh foods as opposed to processed foods (Herbert et al., 2014). Even six months after finishing the program, some of the participants continued engaging in their newly adopted healthy shopping, cooking, and eating behaviors and were spending less money on fast-food meals as a result (Herbert et al., 2014). Overall, the JMoF program helped many of the participants become more confident in purchasing, preparing, and cooking healthy foods and, as a result, some of the participants even continued engaging in these healthy behaviors after the completion of the program (Herbert et al., 2014). My study had a similar aim as the main goal of the study was to determine if the participants believed that being exposed to food education could have a positive effect on their eating behaviors based on their belief of whether they could execute the preparation and cooking skills learned from the food education at home.

Although past research has supported the effectiveness of food preparation and cooking demonstration classes being used to foster healthier eating behaviors, these

classes can be expensive due to the various costs associated with the class, such as paying for the instructor's time, the cost of the space where the class is held, and the cost of the foods being used in the demonstration. To combat these costs while still providing active instruction, some researchers and health education specialists began using food preparation and cooking demonstration videos. Just like the in-person demonstration classes, these demonstration videos have been found to have a positive influence on food preparation and cooking skills (Riska, 2018). Such videos have even been found to be influential in the training of undergraduate students studying to become future nutritionists and dietitians (Jones & Rathman, 2020). The USDA Food and Nutrition Service has even taken on the task of presenting food preparation and cooking demonstration videos, amongst other resources, to the public through their SNAP-Ed Connection program (USDA SNAP-Ed, n.d.). The SNAP-Ed Connection program offers online resources designed to help people choose, prepare, and eat healthier meals (USDA SNAP-Ed, n.d.). Some of these resources include basic cooking tips, kitchen measurement guides, and cooking terminology definitions along with food preparation and cooking videos that demonstrate various skills such as how to safely cut vegetables and how to prepare and cook a casserole (USDA SNAP-Ed, n.d.). It is important to note that one of the main goals of food education, whether delivered via class or video, is to boost people's food preparation and cooking confidence to ultimately encourage them to adopt and keep healthier eating behaviors.

To examine the effects that cooking confidence has on vegetable purchasing and consumption, Overcash et al. (2018) conducted a cooking skills study with 89 parent-

child duos and found that a boost in healthy food cooking confidence can lead to an increase in the number of vegetables kept in one's home, which can lead to an increase in the consumption of these vegetables. For example, prior to the study, the mean number of vegetables being kept in participants' homes was 16.1 however, upon completion of the study, this number rose to 17.9 (Overcash et al., 2018). As far as cooking confidence was concerned, Overcash et al. questioned participants about a wide range of vegetables and saw a mean increase from 16.5 to 19.6 regarding the participants being very sure or extremely sure that they could cook these vegetables.

Not only can increasing one's cooking skillset result in healthier eating behaviors but it can also lead to a positive attitude change towards preparing, cooking, and eating healthier foods (Stephens et al., 2020). Having a more positive attitude towards preparing, cooking, and consuming healthy foods is important because a person's attitude can positively or negatively influence their food shopping, preparation, and consumption behaviors (Hearty et al., 2007). Hearty et al. (2007) performed a study with 1,256 participants and determined that there is a definite association between one's perception of and attitude towards healthy eating and one's diet. The participants who had positive attitudes about healthy eating and were more motivated to engage in healthy eating behaviors had better diet profiles than those with negative attitudes (Hearty et al., 2007). In this study, I sought to determine if the participants thought that exposure to food education could have positively influenced their beliefs and self-efficacy regarding their ability to prepare and cook fruits and vegetables at home (outcome expectation).

Nutrition Education

Nutrition education is centered around the nutritious benefits of consuming healthy foods but also focuses on what can be done to improve nutrition (FAO, n.d.). Nutrition education includes teaching food insecure individuals not only how to make healthy food selections but how to identify and avoid poor food selections as well (FAO, n.d.). For example, nutrition education can focus on the benefits associated with consuming healthy foods and drinking more water, while also emphasizing the importance of limiting sodium and sugar intake (Hawkes, 2013). Nutrition education can also include lessons on how to properly read nutrition labels and how to plan healthy meals (Andrews et al., 2017).

Nutrition education has even been used to create effective public health campaigns to encourage healthy eating behaviors (Hawkes, 2013). Evidence indicates that interventions/campaigns promoting the consumption of fruits and vegetables have potentially boosted the consumption of these foods as studies have shown increases in fruit and vegetable consumption after the introduction of such interventions and campaigns (Hawkes, 2013; Pivonka et al., 2011; Pomerleau et al., 2005). The United States' "5 a day" fruit and vegetable campaign (which later became the "More Matters" campaign) is but one example of this type of intervention campaign (Hawkes, 2013). Hawkes (2013) writes that those who knew of the More Matters campaign were more prone to consume more than the five servings of fruit and vegetables a day that the campaign recommended. Campaigns such as these are simple yet effective as they provide the population with easy-to-remember nutrition education (Hawkes, 2013). Such

campaigns can come in a variety of forms, including television commercials, radio commercials, and print ads.

Food and nutrition education activities, which are often taught together, can increase one's food preparation and cooking skills while also impacting their knowledge and consumption of nutritious foods. For example, activities and materials that demonstrate how to cook nutritious meals can help people become more resilient to food insecurity when they are in possession of healthy foods (Iacovou et al., 2013). Combining various food education approaches, such as combining food preparation and cooking demonstrations/videos with printed materials, creates a multi-faceted approach, which may increase the effectiveness of the food education that is being taught. Health professionals, such as nutritionists and health education specialists, who teach food and nutrition education should understand that their teachings should encompass more than the notion that healthy eating is only about consuming the right blend and amount of nutrients (de Almeida et al., 2019). These professionals need to determine and understand the factors that affect eating behaviors so that they can develop and deliver interventions that can effectively address these factors, thus potentially helping people adopt healthier eating behaviors and healthier lifestyles (de Almeida et al., 2019). In this study, I inquired about the participants' beliefs regarding learning and executing food preparation and cooking techniques and if the participants believed that replicating these techniques could lead to an increase in fruit and vegetable consumption.

Fruit and Vegetable Consumption

A healthy diet should consist of fruits and vegetables because the consistent

intake of these foods is associated with a lower risk of developing various chronic diseases, in addition to being associated with lower mortality rates (Boeing et al., 2012; Ramsay et al., 2016; World Health Organization [WHO], 2003). The WHO (2020) recommends that adults and children should consume five portions of fruits and vegetables each day. Adults and children experiencing food security are generally more inclined to consume more fruits and vegetables while people who experience food insecurity typically are not able to consume the recommended daily number of fruits and vegetables on a consistent basis and therefore have a higher risk of developing the following chronic diseases: cancer, hepatitis, hypertension, asthma, arthritis, diabetes, stroke, coronary heart disease, and chronic obstructive pulmonary disease (Gregory & Coleman-Jensen, 2017; Murillo-Castillo et al., 2020). Consequently, these chronic diseases are associated with higher mortality rates (Patterson et al., 2020). The WHO (2019) estimates that, in 2017, 3.9 million worldwide deaths occurred as a result of insufficient fruit and vegetable consumption.

The reason why the consumption of fruits and vegetables is so highly recommended is that these foods contain important beneficial nutrients, such as antioxidants, minerals, dietary fiber, vitamins, and electrolytes (Slavin & Lloyd, 2012). Using fruits and vegetables for their beneficial properties dates back to the times of early medicine when certain types of foods were prescribed as treatments for specific ailments (Slavin & Lloyd, 2012). For example, dietary fiber is associated with a lower prevalence of cardiovascular disease (CVD), while cranberries are associated with the prevention and treatment of urinary tract infections (Fu et al., 2017; Slavin & Lloyd, 2012).

The United States government's public health initiative, MyPlate, recommends the consumption of 1 to 2 cups of fruit and 1 to 3 cups of vegetables every day, all of which are dependent on physical activity level, age, and sex (USDA, n.d.-a, n.d.-b). In 2009, none of the states within the United States met these daily fruit and vegetable consumption recommendations (Lee-Kwan et al., 2017). Between 2000 and 2009, the prevalence of consuming the daily recommended amounts of fruit decreased significantly (a statistical significance), from 34.4% to 32.5% (Lee-Kwan et al., 2017). Insufficient fruit and vegetable intake is partly due to a lack of access to these foods and a lack of availability of these foods (Murillo-Castillo et al., 2020). This insufficient consumption of fruits and vegetables signifies the need for interventions that will focus on the barriers preventing increased consumption (Lee-Kwan et al., 2017). These barriers can be physical as well as non-physical, like the beliefs that the participants in this study may have regarding food education. Knowing these beliefs can inform future research as researchers will be more aware of these barriers and can therefore address them with more effective interventions.

As previously mentioned, the consumption of fruits and vegetables is associated with one's overall health and well-being (Tayyem et al., 2020). To see just how much of an effect fruits and vegetables had specifically on CVD, Tayyem et al. (2020) conducted a case-control study with 398 participants, all of whom were referred to the study team by the participants' physicians based on a coronary angiography. The types of fruits and vegetables that the participants consumed in addition to the frequency with which they were consumed over a 12 month period were recorded using an Arabic Food Frequency

Questionnaire (FFQ) (Tayyem et al., 2020). Tayyem et al. determined that the participants who engaged in higher levels of physical activity consumed more servings of fruit per day (consuming anywhere from 2 to more than 4 servings of fruit) while those who either were not physically active or engaged in low levels of physical activity consumed fewer servings of fruit per day. Banana consumption, specifically, can reduce the risk of CVD from 62% to 44% (Tayyem et al., 2020). Tayyem et al. also found that increasing vegetable consumption to 3 servings a day considerably decreases the incidence of CVD. For instance, consuming 1-2 servings of grape leaves, stuffed vegetables, and cauliflower a week was associated with a significantly lower risk of CVD (Tayyem et al., 2020). Additionally, increasing the consumption of onions and mixed vegetables to 3-6 servings a week significantly decreased the risk of CVD as well (Tayyem et al., 2020). Other vegetables, such as broccoli, lettuce, and other leafy vegetables, also seemed to lower the risk of CVD but the effects were not statistically significant (Tayyem et al., 2020). These findings highlight the importance of fruit and vegetable consumption as these foods not only help protect against CVD but may also help protect against other non-communicable diseases, thus promoting lifelong wellness (Tayyem et al., 2020). This study aimed to examine the participants' beliefs concerning food education to determine if the participants thought that they could use the skills from future food education to consume more fruits and vegetables. If the participants were to consume more fruits and vegetables in the future after receiving food education, then they would be taking agency over their health since fruits and vegetables can help protect one from non-communicable diseases (Tayyem et al., 2020).

Wolfenden et al. (2021) completed an umbrella review of various interventions that promoted the consumption of fruits and vegetables and found that school-based interventions that supplied fruits and vegetables for free or for a reduced price documented an increased consumption of these foods amongst the students. Afshin et al. (2017) found research that determined that fruit and vegetable consumption can increase up to 14% if their cost is reduced by 10%. The consumption of fruits and vegetables has been shown to decrease by 6.5% when the costs of these food items are increased by 10% (Cornelsen et al., 2014). Schools that incorporated nutrition education also documented an increase in fruit and vegetable intake (Wolfenden et al., 2021). Many school-based interventions are executed by government entities and are supported by past research (Wolfenden et al., 2021). Wolfenden et al. also found that farmers markets and MPMs can be used to help boost people's fruit and vegetable intake by improving access to these foods. Contrarily, building new grocery stores within food insecure communities may contribute to unhealthy eating due to increased access to less healthy foods (Wolfenden et al., 2021). This increased access to less healthy foods can be detrimental to fruit and vegetable consumption, despite the grocery stores increasing the residents' access to fruits and vegetables (Wolfenden et al., 2021). This detrimental effect on fruit and vegetable intake is also due to the increased exposure to marketing within the grocery store that is focused on less healthy foods (Wolfenden et al., 2021). So, simply increasing access to healthy foods is not always enough to encourage increased consumption of these foods. The umbrella review conducted by Wolfenden et al. (2021) supports the diversification of interventions so that they appeal to the diverse target populations being

served. My study was conducted within food insecure communities, which typically house diverse populations, so the collection of demographic data (e.g., race and ethnicity, gender, religion), and socioeconomic factors (e.g., income and education) could have provided more diverse information about the participants. In future research efforts, this diverse data could be collected and then used to inspire positive social change by effectively addressing the various yet specific barriers that hinder healthy food consumption amongst diverse food insecure individuals.

Home and community gardens are becoming another popular, diverse intervention strategy for promoting healthier eating as residents are provided the opportunity to be actively involved in their journey towards making healthier eating choices (Phulkerd et al., 2020). Phulkerd et al. (2020) conducted a study amongst 2,802 non-farmers in Thailand to examine a possible association between having a home garden and sufficient consumption of fruits and vegetables. Consuming at least 400 grams of fruits and vegetables a day was considered sufficient while anything less was considered insufficient (Phulkerd et al., 2020). From their study, Phulkerd et al. discovered that there was a positive, significant association between having a home garden and sufficient fruit and vegetable consumption. More specifically, those with home gardens were more inclined to consume sufficient amounts of fruits and vegetables by 1.6-fold than those without home gardens (Phulkerd et al., 2020). Those who regularly engaged in physical activity were also more likely to have a home garden (Phulkerd et al., 2020). Tending a home garden can even increase physical activity, which can contribute to overall health and well-being (Phulkerd et al., 2020). Participants who were fearful of consuming fruits

and vegetables due to potential pesticide contamination were more inclined to create a home garden to grow fruits and vegetables that they could safely consume (Phulkerd et al., 2020). Phulkerd et al. even went so far as to mention that fear tactics could be used in future interventions aimed at increasing people's fruit and vegetable intake. Fear can have a positive effect on a person's intentions and attitudes, ultimately working as a motivating factor for the person to change their current, possibly harmful health behaviors to more positive health behaviors (Phulkerd et al., 2020). Health promoters often use fear as a tactic to increase awareness about risky health behaviors to get people to adopt healthier behaviors (Phulkerd et al., 2020). So, future marketing strategies highlighting the risks associated with eating fruits and vegetables potentially contaminated with pesticides while highlighting the benefits and safety of home/community gardening could empower people to take agency over their health and eating behaviors by creating their own home/community garden (Phulkerd et al., 2020). Phulkerd et al. even suggested that the government should take an active interest in promoting and supporting home gardening as it has a positive effect on food security and health. Although my study focuses on food source locations such as mobile farmers markets, the self-efficacy and outcome expectations data that will be collected can be used to inform home gardening programs as well. For example, future studies could focus on a person's self-efficacy regarding their ability to cultivate a home garden and if they believe that their home garden could yield quality fruits and vegetables that they can consume (outcome expectation).

Although important for everyone, fruit and vegetable consumption plays a major

role in an expectant mother's pregnancy, as the vitamins and nutrients that the fruits and vegetables contain are pertinent to the unborn child's current and future health (Osmond & Barker, 2000). Unfortunately, many expectant mothers do not consume the daily recommended number of fruits and vegetables and as a result, their fetuses are forced to acclimate to a limited amount of nutrients, causing fetal undernutrition (Osmond & Barker, 2000). To adapt to undernutrition, the fetus undergoes various changes including blood flow redistribution, changes in metabolism, and placental and fetal hormone production changes (these hormones control the fetus' growth) (Osmond & Barker, 2000). In addition to causing low birth weight, fetal undernutrition can lead to permanent structural and metabolic changes which could lead to various diseases later in life, such as hypertension, coronary heart disease, and noninsulin-dependent diabetes (Osmond & Barker, 2000). While everyone should consume the recommended daily amounts of fruits and vegetables to help maintain optimal health, the fact that an expectant mother's diet can affect her unborn child for the rest of their life demonstrates the tremendous importance of adequate fruit and vegetable consumption.

The consumption of fruits and vegetables is also associated with improved mental health. In a population-based study in Canada, those who consumed greater quantities of fruits and vegetables reported a lower prevalence of anxiety, depression, and psychological distress (McMartin et al., 2013). Bronte-Tinkew et al. (2007) found the contrary to be true in mothers experiencing food insecurity as they were more prone to having an inadequate diet which led to a higher prevalence of anxiety, depression, and psychological distress as a result (Bronte-Tinkew et al., 2007). This is because the

mother's access to healthy foods is often compromised and as a result, there is a possibility that the way she feeds her infant and/or children may be compromised as well (Bronte-Tinkew et al., 2007). Mothers facing food insecurity are also more inclined to experience higher levels of depression than mothers who are food secure (Bronte-Tinkew et al., 2007). Consequently, children living in food insecure homes with their depressed mothers are more likely to be in fair or poor health (Bronte-Tinkew et al., 2007). Ward et al. (2019) expanded on this research by conducting a study to examine the effects that maternal depression can have on a child's physical health, particularly their diets. Ward et al. discovered that the children of mothers who are depressed have a higher risk of poor and limited nutrition intake, resulting from a lack of food in general with a specific lack of fruit and vegetable consumption. Now that it is known how a parent's health and circumstances can affect a child, future research should be conducted to deeper the understanding of this parental health/child health relationship while future interventions should examine maternal depression to determine if there are other factors involved that can also negatively affect a child's health and diet (Ward et al., 2019). The data from my study, particularly the beliefs surrounding food education, could be combined with future maternal and child health research efforts to create interventions that can effectively address food insecurity and fruit and vegetable consumption issues amongst expectant mothers.

Consumption of fruits and vegetables can even have a positive effect on your appearance. Fruit and vegetable intake can increase the red, orange, and yellow pigment within the skin, giving it a healthy-looking appearance (Cairns et al., 2020). Cairns et al.

(2020) conducted a study with four groups of 200 United Kingdom (UK) participants to determine if they knew that fruits and vegetables could have an effect on their appearance and if knowing this motivated the participants to want to consume more fruits and vegetables. Of these participants, 487 were not aware that diet and skin color were linked (Cairns et al., 2020). 457 of the participants stated that learning about the association between fruit and vegetable intake and appearance prompted them to want to consume more fruits and vegetables (Cairns et al., 2020). It was noted that younger participants, between the ages of 18 and 26, were more motivated to increase their fruit and vegetable intake to improve their appearance than older participants, whose ages ranged from 40 to 60 (Cairns et al., 2020). Contrarily, the gender of the participants did not have a significant effect on being motivated to consume more fruits and vegetables to improve appearance as both women and men were equally inclined to do so (Cairns et al., 2020). The same can be said for participants of high and low SES as both groups were equally motivated to increase their fruit and vegetable consumption if it meant improving their appearance (Cairns et al., 2020). In terms of race and ethnicity, Black, Asian, and White participants were motivated to improve their appearance by increasing their fruit and vegetable intake (Cairns et al., 2020). And while 720 participants were motivated to consume more fruits and vegetables to positively influence their appearance, 792 participants were motivated to do so because of the health benefits associated with fruit and vegetable consumption, such as the reduced risk of developing non-communicable diseases such as cancer and heart disease (Cairns et al., 2020). Cairns et al.'s study findings demonstrate the diverse benefits associated with the adequate consumption of

fruits and vegetables and could be used in future, multi-faceted interventions promoting the increased consumption of these foods, such as with my study.

Nutrition and Food Education Intervention Examples

In addition to introducing healthy foods to food insecure residents, researchers have suggested that future studies include an educational portion because merely supplying communities with healthy foods is not enough on its own to change a community's eating behaviors (Gary-Webb et al., 2018). For example, some researchers examining MPMs saw an increase in the use of MPMs due to the inclusion of nutrition education in the form of recipe cards, food tastings, and cooking demonstrations (the latter of which can consist of food and nutrition education combined) (Best & Johnson, 2016; Medina et al., 2017). This study aims to determine if the participants believe that receiving food education could influence their ability to confidently perform food education tasks at home.

Past studies, such as those conducted by Garcia et al. (2016) and Herbert et al. (2014), that examined the effectiveness of live cooking demonstrations have shown a positive association between the demonstrations and the study participants acquiring new, healthy eating behaviors. For example, Moreau et al. (2015) conducted a study on 144 adults and found that, after an eight-session cooking course (complete with cooking demonstrations), the participants' demonstrated an increase in nutrition knowledge, were more confident in their ability to consume healthy foods and, as a result, increased their fruit and vegetable consumption to five or more servings per day. Unfortunately, live cooking demonstrations and classes can be costly and can present obstacles, such as time

and location restraints for the participants (Bramston et al., 2020). Bramston et al. (2020) set out to determine if transforming cooking demonstrations into short cooking videos and moving them to a social media platform could combat these obstacles, thereby potentially leading to a better outcome due to the popularity of social media amongst young adults. For their study, Bramston et al. (2020) focused on attempting to increase 34 young adults' calcium intake through short cooking videos containing easy-to-follow recipes that included the use of calcium-rich foods such as yogurt, cheese, spinach, and fish (Bramston et al., 2020). To gather feedback about the videos, Bramston et al. held focus groups and had participants complete questionnaires. From the focus group sessions, Bramston et al. learned that the participants thought that social media was a great platform for food and cooking education. Upon viewing the videos, the participants expressed high levels of confidence regarding the probability of cooking the same calcium-rich meals at home (Bramston et al., 2020).

Many researchers have also conducted studies during which nutrition education videos were used to address food insecurity, such as the study performed by Amaro et al. (2017) that consisted of 218 Latina women. The women were divided into two groups; one group watched one video while the other group watched the same video and an additional video (Amaro et al., 2017). The first video featured a Latina nutrition health educator who explained the different elements of the MyPlate diagram while shopping for the corresponding foods in a Latino supermarket (Amaro et al., 2017). The second video showcased a Latina mother exhibiting the MyPlate components as she shopped for groceries in a Latino supermarket with her child (Amaro et al., 2017). Two months after

watching the videos, the participants were asked to complete a questionnaire and the validated Self-Efficacy of Eating and Purchasing Healthy Foods Scale (Amaro et al., 2017). The questionnaire captured demographic, family, and food shopping information while the Self-Efficacy of Eating and Purchasing Healthy Foods Scale was used to gauge the participants' self-efficacy levels regarding their food shopping behaviors (Amaro et al., 2017; Pawlak & Colby, 2009). Both groups reported positive improvements in their food shopping behaviors, an increase in self-efficacy levels, and an increase in choosing healthier food selections while grocery shopping (Amaro et al., 2017).

Fitz et al. (2017) conducted a study to examine the effectiveness of food education using a program called The Garden of Hope at Ohio State University. This program introduced cancer survivors to online plant-based cooking videos, which included foods such as kale chips and veggie burgers, that were specific to their nutritional needs as survivors (Fitz et al., 2017). The participants were encouraged to purchase fresh herbs, fruits, and vegetables, after which they viewed short cooking videos that not only highlighted the cancer-fighting nutrients within these foods but also demonstrated how to use the foods to prepare a nutritious meal (Fitz et al., 2017). Using email recruitment methods, Fitz et al. had a total of 249 participants watch the two online food education videos while 146 of those participants completed the accompanying online survey. Over 90% of the participants reported that, after watching the videos, they could see themselves consuming more plant-based meals (Fitz et al., 2017). Almost all of the participants noted that the videos not only provided nutrition education but that they also contained techniques pertinent to the development of their cooking skills (Fitz et al.,

2017). In the future, Fitz et al. suggested that similar interventions be rooted in theories that focus on changing a person's eating behaviors; my study is rooted in the SCT.

Cooking videos, such as the ones used in the Fitz et al. (2017) study, have the potential to be even more effective than in-person cooking demonstrations as they are more easily accessible and the user can control the video (e.g., rewind certain parts and/or replay entire video), thus controlling the intake of the information (Surgenor et al., 2017). Surgenor et al. (2017) tested this assumption by examining the potential effects that different types of food education could have on 160 participants. The study consisted of four focus groups, each with 40 participants, that were subjected to a different intervention: 1) just the recipe card; 2) the recipe card along with the cooking demonstration video; 3) the recipe card and the cooking demonstration video which was divided into different steps; and 4) a recipe card and unrestricted control of the video cooking demonstration, similar to a YouTube video (Surgenor et al., 2017). The participants in the second, third, and fourth focus groups reported that they felt that the cooking demonstration videos boosted their self-efficacy, reassuring them of their newly acquired cooking skills (Surgenor et al., 2017). The participants in the fourth focus group reported the most favorable results because they were able to control the cooking demonstration video, which seemed to aid them in understanding the food education and acquiring the new cooking skills (Surgenor et al., 2017).

Nutrition and food education classes, demonstrations, and videos can be incorporated into interventions that have been tailored to address food insecure communities. Interventions that are tailored to meet the specific needs of a food insecure

community (e.g., introducing food and nutrition education and MPMs) could lead to the increased consumption of healthy foods amongst the individuals living within that community. Based on the literature presented in this chapter, increasing the consumption of healthy foods can have a positive effect on a person's health and well-being, demonstrating the positive social change that such tailored interventions can encourage amongst food insecure individuals and within food insecure communities.

Summary

In an effort to address food insecurity, many researchers have mainly studied the physical factors, such as built environments, (e.g., fast-food restaurants and supermarkets) that can affect eating behaviors (Zhang & Huang, 2018), while others have focused on nutrition and food education (Fitz et al., 2017). Past studies have also highlighted the positive impact that an added nutrition/food education component can have on the eating behaviors of individuals who are exposed to interventions designed to address food insecurity (Best & Johnson, 2016; Gary-Webb et al., 2018; Medina et al., 2017). Despite these efforts, there is still a disconnect between increased access to affordable fruits and vegetables and fruit and vegetable consumption. To acknowledge this disconnect, I researched the beliefs of residents living in food insecure areas to determine their potential self-efficacy levels and outcome expectations concerning exposure to future food education. Chapter 3 provides information on the research methodology, study design, participant sample, participant recruitment, and the data collection and analysis processes.

Chapter 3: Research Method

Over the years, interventions such as MPMs have been developed to address the problem of food insecurity in food desert communities. However, despite these interventions, the consumption of healthy foods has not significantly increased within these communities (Gary-Webb et al., 2018). This lack of consumption emphasizes a breakdown within these interventions, with some researchers suggesting that the addition of a nutrition/food education element could assist in making these interventions more effective (Fitz et al., 2017). This study focused on gathering the perspectives of residents living within food insecure areas concerning their belief in their confidence to prepare healthy foods at home if they were to be exposed to food education activities.

In this chapter, the research method is presented in detail along with the study methodology and my role as the researcher in the study. This chapter also describes how participants were selected and recruited for the study in addition to the data collection and analysis plan. Lastly, this chapter provides information on the credibility, transferability, dependability, and confirmability of the study and the study results.

Research Design and Rationale

The central concepts that this study addressed involved the participants' self-efficacy and outcome expectations concerning their potential future preparation and consumption of healthy foods if exposed to food education. Cooking skills interventions have been used to improve nutrition knowledge, introduce participants to a variety of vegetables, increase participants' liking of various vegetables, and increase the number of vegetables that participants keep in their homes (Overcash et al., 2018). Similarly,

including nutrition education, such as nutritious food demonstrations with tastings, can be an influential part of the plan to increase healthy food consumption (Ramirez et al., 2017). I conducted this study to learn more about the participants' beliefs and expectations concerning food education and the preparation and cooking of healthy foods to provide valuable insight into what it would take for them to increase their healthy food consumption. To determine these beliefs, the qualitative phenomenology tradition was chosen, with intercept interviews chosen to collect data. The RQs were formulated to explore the participants' beliefs that can affect their eating behaviors:

- RQ 1: What are the beliefs about food education among residents living within food insecure areas?
    - Subquestion 1: What are the beliefs about the usefulness of food education among residents living within food insecure areas?
    - Subquestion 2: What are the beliefs about the feasibility of completing food education at home among residents living within food insecure areas?
- RQ 2: If exposed to future food education activities, what do residents living within food insecure areas believe their outlook on their future consumption of fruits and vegetables would be?
    - Subquestion 1: If they were to be exposed to food education activities, how would residents living within food insecure areas describe their self-efficacy concerning their potential future use of the food education techniques learned from those activities?
    - Subquestion 2: What healthy food consumption outcome expectations do

residents living within food insecure areas believe they would have if they were to be exposed to food education?

The examination of beliefs, expectations, and behaviors is characteristic of qualitative research, as exploratory research is needed to gain insight into not only what these three factors encompass but also how they can be influenced (Given, 2008). Additionally, these three factors can impede health or be beneficial to health, and qualitative research can provide insight into these benefits and impediments (Given, 2008). Qualitative research has helped, and continues to help, researchers understand more about all aspects of health, from illness to overall well-being (Given, 2008).

Typically, when researchers are studying a sample population's beliefs about a specific idea or intervention, they use a qualitative study method such as an interview, as interviews allow the participants to express their particular views and experiences (Turner, 2010). The intercept interview format was chosen as the most appropriate design to capture the data for this study regarding the participants' beliefs on food education and the consumption of healthy foods. An intercept interview is a commonly used data collection method consisting of a face-to-face interview that is conducted in a public location and is comprised of open-ended questions that provide researchers with detailed information in a short amount of time (Flint et al., 2016). Intercept interviews require minimal participant burden, which is more appealing to potential participants who cannot devote a lot of time to a study (Dillman et al., 2014). Due to time constraints and the data collection location being in a public place, I was warm and welcoming to cultivate an inviting setting for potential participants (Kolb, 2008). In past studies, intercept

interviews have been used to examine the impact of healthy food interventions (Lawman et al., 2015; Pelletier et al., 2016). This data collection method allows researchers to gain even more insight on a particular topic that otherwise may not be provided by quantitative research (Anderson, 2007).

Role of the Researcher

In this study, as with many other forms of qualitative research, the researcher's role is that of an authoritative figure and an instrument of the study (Given, 2008). As the most important instrument of the study, I was willing to step outside of my comfort zone to approach possible participants and quickly build a rapport so that I could complete the study (Johnson, 2017). For this study, my duties included creating the intercept interview questions and using them to collect, analyze, and interpret the data collected from the participants, who represented the target population being examined (Flick, 2018; Given, 2008).

Potential Research Biases and Potential Conflicts of Interest

Bias is any type of influence that can distort a study's results (Polit & Beck, 2014). In terms of any personal bias regarding answers to the intercept interview questions, it was imperative for me to first recognize and acknowledge my subjective views on the study topic (Given, 2008). In this study, this acknowledgment came in the form of a completed reflexivity statement. Additionally, the intercept interviews were not performed at my place of work nor the known workplace of any family members, friends, and/or acquaintances. Research involving acquaintances is often scrutinized by the research community because this conflict of interest can introduce bias, potentially

skewing the study results (Given, 2008). I did not come into contact with any known acquaintances during the data collection phase, so this was not an issue.

Ethical Issues and Concerns

I have experience working closely with the Institutional Review Board (IRB) at my workplace because of the research projects that I have managed and assisted with professionally. As a result, I understood how important it was to not only work closely with the Walden University IRB but to also heed their guidance, policies, and protocols to ensure that every portion of the study was ethically sound. These IRB policies and protocols stem from the Belmont Report of 1978, which established three standards required for research to be conducted ethically: (a) respect for persons, (b) beneficence, and (c) justice (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1978). These three principles are the basis for many IRB procedures, including informed consent and the protection of populations that have been deemed vulnerable, such as racial and ethnic minorities, minors, and those who are economically disadvantaged (Given, 2008; University of Virginia, 2021). In this study, the locations that I visited were within food insecure communities that may have housed economically disadvantaged residents. This information was presented to the IRB. I did not speak with any potential participants, nor did I advertise for or conduct any portion of the study until the IRB issued their approval as their approval was needed to avoid unfavorable interactions with federal authorities (Given, 2008; Wake Forest University, n.d.).

As the authoritative figure of the study, it was important for me to collect data

without introducing bias, and that began with ensuring that the interview questions were carefully worded so that they did not produce biased responses (Given, 2008). The intercept interview questions were reviewed by my doctoral committee chair and mentor, my second doctoral committee member, and my university research reviewer. In addition to having the intercept interview questions professionally reviewed, I also created an interview guide that outlined the intercept interview process from start to finish to not only ensure that all of the necessary steps were covered and all of the pertinent information was gathered, but that the framework of the study was also maintained, which decreased the possibility of personal bias interjection (Given, 2008).

Methodology

Participant Selection

The population that this study targeted consisted of residents living within food insecure areas, and the USDA Food Access Research Atlas was used to locate these areas. The USDA Food Access Research Atlas involves a map that shows the areas where people who fall into the low-income and low food access census tracts reside (USDA, 2020b). The map identifies the communities that fall into these two census tracts by using four different measures of low access (USDA, 2020b). The four measures are as follows: LI and LA at 1 and 10 miles (Urban and rural residents who live more than 1 and 10 miles, respectively, away from the nearest supermarket), LI and LA at half a mile and 10 miles (Urban and rural residents who live more than half a mile and 10 miles, respectively, away from the nearest supermarket), LI and LA at 1 and 20 miles (Urban and rural residents who live more than 1 and 20 miles, respectively, away from the

nearest supermarket), and LI and LA using vehicle access (Over 100 housing units without a vehicle that are more than half a mile away from the nearest supermarket or there are a significant number of residents who live more than 20 miles away from the nearest supermarket; USDA, 2020b). The measure that was used to locate participants for this study included areas where urban and rural residents were more than 1 or 10 miles, respectively, away from a supermarket (USDA, 2020b). I ventured to three of the satellite locations that a local Charlotte, North Carolina community organization services with a mobile farmers market to help combat food insecurity. The USDA Food Access Research Atlas map was used to verify that the mobile farmers market was being set up in food insecure areas located within Charlotte and Concord, North Carolina. According to their website, this local community organization's mission is to use various means, such as food and nutrition education and mobile farmers markets, to address food insecurity by providing fresh, local produce to food insecure communities. As noted on the website, the organization can service as many as 30 communities a month due to the effectiveness and efficiency of the mobile farmers market. The mission of this organization along with the communities that it serves made it a great organization to work with for this study.

Participant Recruitment

Participants for this study were recruited using convenience sampling, which is a nonprobability sampling method where participants are recruited by researchers because they are convenient, readily available data sources (Etikan et al., 2016; Lavrakas, 2008; Rivera, 2018). It is because of these positive attributes that this recruitment method has been used in the majority of academic social research (Leiner, 2016). For this study, I set

up a data collection station at the food source locations and asked patrons if they were interested in participating in a short study. If they answered “yes” or wanted more information, the entire study process was explained to them, after which they were able to decide if they wanted to participate (as long as they were 18 years of age or older) or forego participation. The participants also received verbal and written (in the informed consent form) communications stating that their participation in the study was completely voluntary and that they could exit the study at any point during the study process.

To help combat the limitations of convenience sampling such as not using set procedures, which affects replication (Rivera, 2018); introduction of outliers (Etikan et al., 2016); and bias (Leiner, 2016), potential participants were asked two pre-screening, inclusion criteria questions: their birthdate and their address. If the potential participants met the age requirement of being 18 years of age or older, their addresses were entered into the USDA Food Access Research Atlas to determine if they lived within the food insecure area. If the residents met the pre-screening criteria, they were then asked if they wanted to participate in the study, at which point they were given the informed consent form to review and sign. After signing the consent form, the participants were asked to complete a short demographic survey that collected their names, birthdates, addresses, and email addresses. People who lived outside of the food insecure area were excluded from being able to participate. None of the study proceedings with any of the participants needed to be halted as none of the participants expressed not wanting to participate in the study at any time during the study proceedings.

In qualitative research, particularly with non-probability sampling, researchers

often aim to reach data saturation, which occurs when an adequate amount of data has been collected so that the researcher can develop a strong understanding of what is being studied (Hennink & Kaiser, 2020). Many researchers, such as Given (2008) and Guest et al. (2006), have put this saturation number between 10 and 20 participants. To ensure saturation, and because of the limitations that convenience sampling can potentially present (e.g., not fully representing the target population), 18 participants were recruited for the study.

Instrumentation

Initially, I wanted to conduct the intercept interviews before the participants collected their food items, if possible, however, no one would have been restricted from participating as long as they met the inclusion criteria. This preference was due to the concern that shoppers may not have been willing to participate after collecting their food items due to various reasons, including needing to get home to put away their groceries and/or needing to get home to prepare lunch or dinner. Before beginning the interviews, but after the informed consent forms were signed, the participants' demographic information, including their name, birthday, address, and email address, was collected and entered into a SurveyMonkey questionnaire on an iPad.

After the demographic questionnaire was completed, the recording function of the iPad was used as the data collection instrument; no one was filmed using the camera of the device. Initially, I planned to use the video recording function of the iPad and an iPhone to record the audio; however, I ran into issues, which are explained in Chapter 4, that prevented me from using the iPhone in this manner. The video function on the iPad

was tested before arriving at each food source location so that any volume or recording issues could be resolved beforehand. This method (iPad only) was previously used when I pilot tested the interview questions and was found to be extremely effective and reliable. This data collection method was appropriate for this study because it was free of charge and was more inviting to the participants as they only had to agree to the audio of the interview being recorded and did not have to concern themselves with being on camera. Recording the interviews allowed for the participants' words to be captured verbatim, eliminating any interviewer influence in the form of editing or interpretation (Patton, 2015). Once completed, I transcribed the interviews and sent a copy of the transcript to each participant within two weeks via email or postal mail. If, after receiving the transcripts, the participants found that they misunderstood a question or did not provide the answers that they meant to provide, they were given an opportunity to make corrections and submit them via email however none of the participants submitted any corrections.

I developed the questions that were asked during the intercept interviews. These interview questions were reviewed by my doctoral committee chair, my second doctoral committee member, my University Research Reviewer, and Walden University's IRB. To develop the interview questions, I started with the RQs and then evaluated the concepts that the study explored. The questions that were asked are as follows:

- Please explain any previous food education you have received in the past (i.e., cooking classes, watching a cooking show or video, watching a parent cook).
    - Did you use any of the food preparation and cooking tips from this food

education at home?

  - If so, what was easy about using the food preparation and cooking tips from this food education at home?
  - If so, what was difficult about using the food preparation and cooking tips from this food education at home?

- If you were exposed to food education that demonstrated new fruit and vegetable preparation and cooking tips, how do you believe your confidence to use those tips at home would be affected?
- Please explain whether you believe receiving food education tips on how to prepare and cook fruits and vegetables could help you eat more fruits and vegetables in the future.

Some of the interview questions were pilot tested in January 2019 via telephone as a part of my Advanced Qualitative Reasoning and Analysis doctorate course. Based on this pilot testing, and research conducted to prepare for the study, some of the interview questions were modified to better address this study's RQs and purpose. For the pilot process, I recruited three interviewees. These interviewees were each sent a formal email that contained Walden University's Participant Protocol, Walden University's IRB Email-Format Consent Form for Practice Interview, and the interview guide (which underwent peer debriefing). Once the three interviewees consented to participate, their interviews were scheduled and conducted (two were conducted on January 16, 2019, and one was conducted on January 26, 2019). Immediately after completing each interview, the audio from the videos was transcribed into a word document. The transcripts were

then analyzed and coded using the in vivo and process coding styles (Saldana, 2016).

The interview questions for this study were standard across all 18 participants. Each participant was asked the same question in the same order, which followed the traditional social science research interview approach (Patton, 2015). All but one of the questions were also open-ended, which facilitated the ability to obtain in-depth information as opposed to simple yes or no answers (Patton, 2015). I initially estimated that I would spend approximately 7 hours recruiting and interviewing participants at each mobile farmers market location and I had planned to revisit these locations as many times as necessary to meet the participant recruitment goal. It was estimated that the entire process (i.e., initial engagement, reading and signing of the informed consent form, collection of demographic data, and completion of the intercept interviews) would take about 20 minutes per participant. Once the interviews were complete, the participants were thanked for their time. I was the only person who was involved in the study on the researcher side and therefore was the only person collecting, transcribing, and analyzing the data.

Risks Associated with Participating

There were minor risks associated with participating in this study. These risks included minor discomforts that the participants may encounter on a daily basis such as: using an iPad for the SurveyMonkey questionnaire and sitting down at a table and answering interview questions. I had hand sanitizer and wore two masks, and the participants also wore a mask during the entire process (a mask was provided to the participants if they did not have one). I also positioned my chair to be six feet away from

the participants to maintain social distancing guidelines (CDC, 2020). With these measures in place, the study posed minimal risk to the participants' health and well-being.

Data Analysis Plan

Initially, I planned on transcribing all of the interviews from one location before conducting the next round of interviews at the next location. The interviews were transcribed manually by listening to the audio recordings and typing the data into a Microsoft Word document. Once transcribed, the data were analyzed using an inductive coding process, which allowed for the examination and organization of the data, after which the data was then converted from its raw state into the study findings (Linneberg & Korsgaard, 2019). The codes created from the data also helped me understand the data and the participants' beliefs regarding the study topic (Linneberg & Korsgaard, 2019). Since this study involved only one researcher, the intracoder reliability process was utilized. This process, which is used by only one researcher, consists of reviewing the codes produced from the first round of coding and refining or changing any mediocre codes into more suitable codes that can better encompass the data (Given, 2008). The codes that were refined or changed were marked as such, to keep an accurate audit trail (as explained in the following paragraphs) of the data analysis process (Given, 2008).

The inductive coding process that was used for data analysis consists of the in vivo coding style (Linneberg & Korsgaard, 2019; Saldana, 2016). In vivo coding, also known as literal or verbatim coding, involves using the participants' actual words and short phrases as the codes, which is appropriate for this study since the beliefs of the

participants were being examined (Saldana, 2013, 2016). The use of in vivo coding is suitable for almost all qualitative studies, especially when the researchers want to honor the voice and words of the interviewees (Saldana, 2013). In vivo coding is also a great coding option for new qualitative researchers as using the interviewees' own words as codes incorporates an aspect of safety and security (Saldana, 2013). More specifically, a researcher is less likely to incorrectly code the data if they are using the participant's own words as the codes. In vivo coding can result in the creation of several different codes however the codes help to narrow down the data, highlighting the data's similarities, variations, and intricacies (Linneberg & Korsgaard, 2019).

To begin the coding process, phrases and/or behaviors that were related to the RQs and the topic of the study were extracted from the data and labeled (Given, 2008). These phrases and behaviors were then separated into different categories, which is known as the second coding cycle (Given, 2008; Linneberg & Korsgaard, 2019). Lastly, the categories were examined to draw conclusions from the data in the form of important themes (Given, 2008).

Issues of Trustworthiness

Ensuring that qualitative data are trustworthy utilizes parameters outside of the internal validity, reliability, objectivity, and generalizability parameters that are known in quantitative research (Given, 2008). The parameters used to ensure that qualitative data are trustworthy include credibility, transferability, dependability, and confirmability (Given, 2008). It is important for these concepts to be different from those used in quantitative research because qualitative researchers require a certain amount of freedom

when extracting findings and interpreting data that do not fit into the quantitative standard (Given, 2008). However, the quantitative and qualitative concepts are parallel, and comparing them can help a quantitative researcher determine what a qualitative concept means and vice versa for a qualitative researcher (Given, 2008). In other words, the following quantitative and qualitative concepts, respectively, can be compared to each other: generalizability and transferability, internal validity and credibility, reliability and dependability, and objectivity and confirmability (Given, 2008). Below, more details are provided on the qualitative data trustworthiness concepts and how they were achieved in this study.

Credibility

The credibility of the data begins with the coding process as the codes, which represent the researcher's interpretation of the data, should accurately reflect the beliefs expressed by the participants (Given, 2008). The data in this study were coded using the in vivo coding style, which used the interviewees' own words as codes, thus accurately reflecting the thoughts and beliefs expressed by the participants (Given, 2008) Using open-ended questions during the intercept interviews also added to the credibility of the data, as close-ended questions result in data that is defined by the questions and not by the actual participants (Given, 2008). Only one of the interview questions was close-ended (Did you use any of the food preparation and cooking tips from this food education at home?). Lastly, I engaged in intracoder reliability during the coding process, which consisted of reviewing and refining any mediocre codes from the first round of coding into codes that better encompassed the data (Given, 2008).

Transferability

Researchers should be mindful when selecting participants for a qualitative study as those participants will serve as representatives for a larger group or population (Given, 2008). Being able to take what is learned from the data that the participants provide (personal) and connect that information to the previously mentioned larger group or population (a community) is transferability (Given, 2008). Transferability also focuses on ensuring that the interpretations of the data fully answer the RQs, thus presenting a comprehensive understanding of the study topic (Given, 2008).

The process of transferability begins with selecting participants that are good representatives of the community that is being studied (Given, 2008). When recruiting participants for this study, patrons who did not live within the immediate food insecure communities were excluded from participating as their inclusion could have meant the inclusion of potential outliers to the dataset (e.g., living in a community that, per the USDA Food Access Research Atlas, was not labeled as a food insecure area). To uphold this standard, only the mobile farmers markets within these communities (as determined by the USDA Food Access Research Atlas) were selected as data collection locations.

Dependability

For research to be dependable, the research process must be documented clearly so that it is traceable by readers (Tobin & Begley, 2004). One way that a researcher can facilitate dependability is by creating an audit trail. An audit trail shows readers all of the decisions made by the researcher (Nowell et al., 2017). In this study, the audit trail consists of the intercept interview transcripts, the field notes, the data codes from the

coding process, and my reflexivity statement (Nowell et al., 2017).

Confirmability

Confirmability of the data occurs when it is clear that the researcher's findings and interpretations resulted from the raw data (Tobin & Begley, 2004). A researcher can help ensure that their findings and interpretations are confirmable by ensuring that the data is also credible, transferable, and dependable, as confirmability is a result of these three aspects of trustworthiness being met (Guba & Lincoln, 1989). Findings and interpretations are also confirmable when the researcher and reader can use them to understand the study topic from the participants' perspectives (Given, 2008). In this study, in vivo coding, which involves codes that are derived from the participants' own words, was used. This coding process showcases the data from the participants' perspectives, meeting the demands of the confirmability concept. Meeting all of the demands of these four concepts helped ensure that the study findings and interpretations were trustworthy.

Ethical Procedures

The IRB is guided by the United States Food & Drug Administration's (FDA) regulations to protect human research subjects (US FDA, 2019). To prevent unethical research acts from taking place, the IRB created feasible policies from three main assumptions (Given, 2008). The first assumption is "respect for human dignity" and, through the IRB policies, is upheld by ensuring that anyone involved in research should consent to being a participant (Given, 2008). The second assumption is the "balancing of harms and benefits" and is supported by ensuring that researchers use research designs

that pose the least amount of risk to the participants while maximizing the benefits to the participants and society (Given, 2008). The third assumption is “justice” and it influences the policies that protect groups from being disproportionately singled out by research (Given, 2008).

Before beginning any aspect of the study, the study proposal was entered into the Walden University IRB database so that the IRB committee could evaluate the proposal to ensure that the study did not pose any ethical concerns (Given, 2008). The proposal was approved and the IRB approval number is 09-02-21-0567576. People visiting the food source locations were able to participate in the study as long as they were 18 years of age or older and lived in the immediate food insecure community to reduce the risk of outliers being introduced into the dataset. Potential participants were given the informed consent form to read over and question. Those who decided to participate were asked to sign and date the informed consent form. The informed consent form included my contact information, in case the participants had questions after their interviews were complete, along with a statement notifying the participants of the option to withdraw from the study at any time. All participants were asked to sign and date two copies of the informed consent form, one for my records and one for their records.

To maintain the confidentiality of the participants, I did not ask any questions during the recording of the interview that could have caused the participants to expose identifiable information about themselves (the participants’ demographic information was collected prior to beginning the interview process and was not recorded). Since the participants’ names were not provided in the recording, an alphanumeric character was

generated for each participant, written on each participant's informed consent form, and was stated at the beginning of each interview recording to differentiate between the participants' interviews. The alphanumerical labeling began with A-1. Per Walden University's IRB office, the informed consent forms and the data that was collected for this study must be kept for five years and stored in a place that only I have access to (L. Munson, personal communication, September 18, 2020). The interview data will be securely kept on my computer, which is password-protected. Only I know the password to this device. The data collected with the SurveyMonkey questionnaire is being stored on SurveyMonkey's information system within world-class data centers, which have the following physical security features: 24/7 monitoring, cameras, visitor logs, entry requirements, and dedicated cages for SurveyMonkey hardware (SurveyMonkey, 1999-2021). The interviews recorded on the iPad were emailed to the researcher's Walden University email account and deleted from the iPad; only I know the password to this email account. The interview recordings are also on my computer for which I am the only person who knows the password.

Summary

This chapter provided information about the intercept interview methodology that will be used in this study, focusing on how this specific methodology involves minimal participant burden and has been used to examine healthy food interventions in the past. Chapter 3 also provided details about the data collection locations and the patient recruitment strategy, including the efforts that were taken to help ensure that the data were not skewed by outlier data. The data collection and analysis processes were also

described at length, including how the data were recorded, transcribed, and coded along with the process that was utilized to ensure that the data were trustworthy. Chapter 3 also included in-depth information about the ethical precautions that were used, the entire IRB process, and the measures that were taken to protect the participants and the data that they provided during the study. The study findings and results will be presented in Chapter 4.

Chapter 4: Results

Increased access to healthy foods does not always equal increased consumption of these foods (Cummins et al., 2014). Most interventions fail to examine the other factors that may influence healthy food consumption among food insecure residents (Rodier et al., 2017). There is also a gap in the literature concerning food insecure residents' beliefs and expectations regarding food education, their confidence in executing food education, and fruit and vegetable consumption. The purpose of this qualitative study was to determine the beliefs and expectations that residents living within food insecure areas have regarding the likelihood of implementing food education at home if they were to be exposed to this education as well as how this education could affect their fruit and vegetable consumption. The communities from which the residents were recruited were areas that are visited by the mobile farmers market once a week. The RQs used to address the purpose of the study were designed to determine the beliefs of residents living in food insecure areas regarding the usefulness and feasibility of food education in addition to what they believed their future outlook on fruit and vegetable consumption would be after being exposed to food education. In this chapter, I describe the study settings and present the participant demographics and the data collection process. This chapter will also include the data analysis process and will provide evidence of trustworthiness.

Setting

The study participants were interviewed at two mobile farmers market locations; one location is an outdoor market, and the other location is an indoor market. Both markets, which are located in Concord, North Carolina, are satellite locations of a local

Charlotte, North Carolina community organization that services food insecure communities throughout Charlotte and Concord, North Carolina. I used the USDA Food Access Research Atlas (referred to as the *research atlas* for the remainder of this chapter) to locate these two satellite locations (USDA, 2020b). Each of the interviews was conducted on the outskirts of the markets to prevent interrupting the participants' shopping experiences and their interactions with the market staff members.

Demographics

To participate in this qualitative study, the participants had to be 18 years of age or older and had to live within the immediate food insecure area that was being served by the mobile farmers market, as verified by the research atlas. The research atlas involves a map that highlights areas within the United States that house residents who fall into the low income (LI) and low access (LA) to food census tracts (USDA, 2020b). Within this map, users can select up to four different measures of LI and LA, which can be used to locate specific communities within these two census tracts (USDA, 2020b). The four different measures are as follows: LI and LA at 1 and 10 miles (Urban and rural residents who live more than 1 and 10 miles, respectively, away from the nearest supermarket), LI and LA at half a mile and 10 miles (Urban and rural residents who live more than half a mile and 10 miles, respectively, away from the nearest supermarket), LI and LA at 1 and 20 miles (Urban and rural residents who live more than 1 and 20 miles, respectively, away from the nearest supermarket), and LI and LA using vehicle access (Over 100 housing units without a vehicle that are more than half a mile away from the nearest supermarket or there are a significant number of residents who live more than 20 miles

away from the nearest supermarket; USDA, 2020b). I chose the measure where urban and rural residents live more than 1 and 10 miles, respectively, away from a supermarket because past research has demonstrated that food desert residents often have to travel at least one mile outside of their neighborhood to find a supermarket (USDA, 2020b; Zenk et al., 2005). The research atlas was used to confirm that the potential participants lived within the food insecure area being served by the mobile farmers market.

After confirming that the participants were 18 years of age or older and that they lived within the food insecure community, the participants were given an informed consent form to review, sign, and date. Once the informed consent form was completed, I gathered four demographic components (name, date of birth, address, and email address) from each participant and entered this information into a SurveyMonkey questionnaire. The participants were given an alphanumeric label to protect their identities during the interviews. There are five alphanumeric labels that are missing from this study: A-2, A-3, A-5, A-6, and A-10. The first four labels represent the four residents whose interviews could not be used in the study due to them not being residents of the immediate food insecure area (explanation provided in subsequent paragraphs). Alphanumeric label A-10 was accidentally skipped during the labeling of the informed consent forms. For the rest of this chapter, the participants will be referred to by the numeric portion of their alphanumeric label (e.g., Participant A-1 will be referred to as Participant 1).

Data Collection

After receiving approval from the Walden IRB on September 2, 2021, I began the data collection process, which lasted from September 15, 2021, to November 4, 2021.

Within this timeframe, 22 interviews were conducted, 18 of which were used for the study (explanation provided in subsequent paragraphs). These 18 interviews were conducted at two mobile farmers market locations: one indoor site at a community art gallery and one outdoor site in a local church parking lot. Both of these mobile farmers markets were held weekly. Initially, the duration of the art gallery market was 2 hours during my first visit; however, for every subsequent visit, the market's hours were adjusted for the autumn months to one-and-a-half hours. The outdoor market at the church lasted for 1 hour each week. On average, the entire data collection process, from initiating contact with a patron to completing a participant's interview, lasted about 10 minutes. The participants' demographic information was collected via the SurveyMonkey questionnaire on an iPad as were the interviews.

Variations in Data Collection Plan and Unusual Circumstances

In the original data collection plan, it was proposed that 7 hours would be spent recruiting and interviewing participants; however, approximately 14 hours were spent completing the participant recruitment and data collection process. In terms of the informed consent form, I initially planned to provide participants with a copy of this form one of two ways—by email or by having them sign an additional copy of the form—so that both they and I could keep a copy for our respective records. Ultimately, the Walden IRB stated that it would be more efficient if each participant was given a copy of their consent form onsite. To comply with this directive, all participants were asked to sign two copies of the informed consent form: one for their records and one for my records.

Additionally, the original data collection plan included having the participants

complete the SurveyMonkey demographic questionnaire themselves. Before beginning the data collection process, my dissertation committee chair completed this demographic questionnaire to test for any issues that could have arisen with the participants. This test revealed that it would be easier if I entered the demographic information into the questionnaire on behalf of the participants to limit participant burden and mistakes (e.g., using the iPad keyboard to enter information and navigate between each question). For the birthdate portion of the demographic information, instead of using a specific date to verify the birthdate, similar to the Food & Drug Administration's Digital Age Verification Calendar that is used by retailers to verify the age of someone buying tobacco products, all participants were asked for their date of birth (U.S. Food & Drug Administration, 2020).

Initially, I sought to use two mobile farmers market locations as data collection sites. I began the data collection phase on September 15, 2021, by visiting the first market, which was in the parking lot of an elementary school in Charlotte, North Carolina, but I realized through direct contact, observation, and speaking with the market staff members, that most of the residents who attended this market were Spanish-speaking residents. I do not speak Spanish and did not prepare any of the study materials to meet the needs of Spanish-speaking residents, so I did not attempt to include these residents in the study and ultimately decided not to visit this site again. To replace this market, I cross-checked all the organization's market sites with the research atlas and found one more location in Concord, North Carolina that fit the study parameters. The organization's executive director granted permission for access to this site for data

collection purposes. Both sites where data collection took place were located in Concord, North Carolina. It took 2 to 3 hours to get to each site, depending on the site location.

In the initial data collection plan, a recruitment goal of 20 participants was set. This number was based on previous research that recommended the recruitment of five to 25 participants when using the phenomenological approach (Creswell, 2007). The goal of 20 participants was also based on researchers stating that data saturation for non-probability sampling (i.e., the intercept interviews completed for this study) is between 10 and 20 participants (Given, 2008; Guest et al., 2006). A total of 22 interviews were collected; however, four of the interviews could not be included in the study due to the residents not living within the food insecure area. These four interviews were not transcribed or analyzed as a result. The four unusable interviews (A-2, A-3, A-5, and A-6) were conducted on September 17th and 24th. I was unable to use the research atlas to confirm the residents' addresses onsite due to a loss of internet connection. I informed the residents of this issue, collected their demographic information on paper, completed the interviews, and informed the residents that their addresses would be checked against the research atlas at a later time. I later confirmed that their addresses were not within the food insecure area. The residents were contacted via email or mail and were thanked for their interviews and time contribution but were informed that their interviews could not be used for the study. I entered all the demographic information that was collected on paper into the SurveyMonkey questionnaire and shredded the paper to protect the participants' identities.

In addition to the number of recruited participants, I began to believe that I had reached data saturation when I noticed the following: many of the patrons visiting the markets had either already been interviewed, had declined to be interviewed, or did not meet the screening qualifications. There were fewer new potential participants that I had not yet encountered, and I was noticing similar answers and information when transcribing the interviews. Noticing similar information in the interview transcripts combined with the dwindling market visitors due to colder weather added to my thought that not only had data saturation been reached with 18 participants but that it would be increasingly difficult to recruit new participants during this time of year. On November 17, 2021, my dissertation committee agreed that saturation had been reached and that I could end the participant recruitment process.

Initially, I proposed that the interviews would be conducted prior to the participants shopping for their fruits and vegetables, thinking that the participants would be more eager to leave and less likely to want to participate if they had already collected their food items. Contrarily, each interview was collected after the participants finished their shopping so as to not interrupt the flow of the markets or interfere with the staff members' jobs. In terms of the collection of data, the interviews were initially going to be recorded using the video functions of both an iPad and an iPhone. After ineligible Participant 2's interview, however, all subsequent interviews were recorded using only the iPad. I was unable to use the iPhone in addition to the iPad due to the iPhone overheating.

Originally, the participants were only going to receive a copy of their interview

transcript if requested, but this was changed in the informed consent form, and everyone received a copy of their transcript. At the beginning of the interviews, the participants were informed that, if after receiving their transcripts they found that they had misunderstood a question or did not provide the answers that they meant to provide, they could make corrections and send those corrections to me via email within 2 weeks of receiving the transcripts. Any transcripts that were corrected would have been used in the study instead of the original transcripts. None of the participants informed me that corrections needed to be made to their transcripts despite this being reiterated when sending the transcripts.

Lastly, in the original data collection plan, it was stated that all of the interviews would be transcribed immediately after leaving the data collection sites and prior to visiting another market site. However, I was unaware of the site changes that would take place, nor did I initially plan to visit each market site every week during the data collection period. The frequency of the market visits did not allow enough time for the interviews to be transcribed immediately after completion; however, all transcripts were transcribed within 2 weeks.

Data Analysis

I transcribed all of the interviews and checked each transcript against its respective recording three times to ensure that the transcripts were accurate. In the transcendental approach, the data are received as is and are not obscured by preconceived notions or biases (Moustakas, 1994). This approach allows for the participants' words, thoughts, and beliefs to be gathered and viewed objectively versus subjectively.

Following this approach, I coded the data using the in vivo coding style and the intracoder reliability process. In vivo coding, also known as verbatim coding, involves using the participants' own words as the codes themselves, while the intracoder reliability process involves reviewing the codes created during the first round of coding and refining any mediocre codes into more suitable codes that better encompass the data (Given, 2008).

To begin coding the data using the in vivo coding style, each transcript was reviewed and the phrases and words that encompassed the participants' thoughts and beliefs regarding the interview questions were highlighted. Once the transcripts were reviewed and the in vivo codes were highlighted, all 45 of the initial in vivo codes were put into an Excel spreadsheet. Within this spreadsheet, there is a tab for each participant containing the in vivo codes specific to their interview. Each in vivo code was color coded, and a color key was created for organizational purposes. I then took a 24-hour break from the data to ensure that following up with the intracoder reliability process and identifying the categories would occur when I was refreshed. The list of the 45 initial codes can be seen in Appendix C.

Upon returning to the data, I reviewed the initial codes to determine if any needed to be refined using the intracoder reliability process and did find some of the codes to be repetitive. These repetitive codes were combined with other similar verbatim codes to ensure that the list of codes was refined and well-encompassing of the data. Although the intracoder reliability process calls for the refining of mediocre codes into more sophisticated codes, the repetitive codes were combined versus changed as changing the

codes would mean that they could no longer be considered verbatim codes (Given, 2008). Having codes that were no longer verbatim codes would defeat the purpose of using the in vivo coding style as this style was selected because the codes generated from using it accurately reflect the participants' thoughts and beliefs regarding food education and healthy eating. The final list of 33 codes can be seen in Appendix D.

Once the coding process was complete, I then began the process of identifying categories. These categories consisted of the final verbatim codes that were grouped based on their similarities and reoccurrence, refining the intent and information provided by the verbatim codes (Given, 2008; Linneberg & Korsgaard, 2019). The list of the initial 14 categories is included in Appendix E. Although the intracoder reliability process is for the codes specifically, I did refine some of the categories as well to ensure that the categories were good representations of the codes. The refined list of the final five categories can be seen in Appendix F.

From these categories, I was able to extract four themes, all of which represented constructs specific to the study topics of food education, the consumption of fruits and vegetables, and the participants' beliefs about their confidence regarding the cooking and preparation of fruits and vegetables. After refining the codes and categories, I ended up with 33 in vivo codes, five categories, and four themes from the data. Once identified, the categories and themes were checked against the RQs to ensure that the data aligned with the information being sought after regarding the research problem. There were no discrepant cases in this study.

Evidence of Trustworthiness

Credibility

All of the credibility strategies that were described in Chapter 3 were followed. The in vivo coding style was used to ensure that the participants' words and thoughts were accurately captured and then the intracoder reliability process was used to combine duplicate codes, thus refining the verbatim codes. I asked all but one open-ended question during the interviews as open-ended questions enforce the credibility of the data as the participants' answers to these questions reflect their thoughts and beliefs (Given, 2008). Close-ended questions result in the data being defined by the questions and not by the participants (Given, 2008). For the one closed-ended question (Did you use any of the food preparation and cooking tips from this food education at home?), the participants were asked to expand upon this answer with two follow-up open-ended questions (If so, what was easy about using the food preparation and cooking tips from this food education at home?; If so, what was difficult about using the food preparation and cooking tips from this food education at home?) which allowed for the extraction of more in-depth data.

Transferability

I did not deviate from the transferability strategies originally suggested in Chapter 3. I used the research atlas to ensure that the market patrons who wanted to participate in the study lived within the immediate food insecure area as all of the participants needed to be good representatives of the community (Given, 2008). Those who did not live within the immediate food insecure area were excluded from participating in the study. Including residents who lived within the food insecure community was important as the

data collected from them has the potential to represent other food insecure communities and residents, which highlights the importance of having transferable data (Given, 2008). Transferability also focuses on the researcher's interpretations of the data which means fully answering each RQ for a comprehensive understanding of the research topic. All of the codes, categories, and especially the themes were cross-checked with the RQs to ensure that each question was answered (Given, 2008).

Dependability

As with the transferability strategies, I did not deviate from the dependability strategies that were listed in Chapter 3. To ensure that the research was dependable, the data collection process was documented using an audit trail. This audit trail consisted of the intercept interview transcripts, the field notes, the in vivo codes, and my reflexivity statement (Nowell et al., 2017; Tobin & Begley, 2004).

Confirmability

I did not depart from the confirmability strategies as expressed in Chapter 3 either. I used in vivo coding, which ties in with the confirmability concept of the study findings and interpretations resulting from the raw data, which included the participants' perspectives and beliefs about food education and healthy eating (Tobin & Begley, 2004). Confirmability of the data can also occur when the researcher can ensure that their findings and interpretations are credible, transferable, and dependable since confirmability is the result of these three aspects of trustworthiness being met (Guba & Lincoln, 1989). Lastly, confirmability also occurs when the researcher can use the study findings and interpretations to understand the study topic from the participants'

perspectives and I was able to do this because of the verbatim coding (Given, 2008).

Results

The purpose of this qualitative study was to determine beliefs that individuals living within food insecure communities have about food education and their expectations regarding the use of food education techniques and tips and the consumption of fruits and vegetables. The interview questions were created to gather the information that, when combined, would answer the RQs. In this section, each of the themes will be presented followed by the ways in which these themes answer each RQ.

Theme 1: Every Participant Had Been Exposed to Some Form of Food Education

When asked the first interview question, 1. Please explain any previous food education you have received in the past (i.e., cooking classes, watching a cooking show or video, or watching a parent cook), every participant revealed some form of food education to which they had been exposed. The most popular form of food education amongst the participants was cooking shows, with 10 participants stating as much. Most of the participants simply stated that they watched cooking shows but did not provide the specific types of cooking shows or channels that they liked to watch. Some of the participants were very specific with their answers. For example, Participant 4 stated that they love watching Rachel Ray's cooking show while Participant 8 stated that they "watch a lot of Hell's Kitchen." And although Participant 22 did not mention Hell's Kitchen specifically, they did mention that they "love Gordon Ramsey." Participant 11 also did not provide a specific cooking show but instead stated that they watch "a lot of the cooking shows on Food Network."

Watching parents was the second most common form of food education amongst the participants. Nine participants stated that they watched their parents cook. When asked, Participant 14 mentioned "growing up around their parents and grandparents." Participant 15 mentioned something similar, stating that they watched both their mother and grandmother cook.

The third most common form of food education was cooking classes, with eight participants stating that they've taken cooking classes at some point in their life. Four of the participants (4, 11, 15, and 21) attended a local cooking class offered by the county in which they reside. Some participants received some of their food education in a school setting. Specifically, Participant 14 stated that they took a home economics course in elementary school while Participant 15 majored in home economics in college.

The fourth most common form of food education was nutrition education, which was mentioned by three of the participants. Participant 14 stated that they took a "standard health class" in school where they learned nutritional information such as the food groups. Participant 20 mentioned that they studied nutrition in college while Participant 22 stated that they were a nurse and that the schooling for this career included "a lot of nutrition classes."

A few participants also seemed to seek out food education through various virtual platforms. For example, two participants stated that they have used YouTube to watch cooking videos. Participant 4 stated that they would "go on Pinterest" to see how to prepare the baby eggplants they picked up at that day's market. Participant 22 stated that they use Google a lot, mentioning that if they see a meal that Gordon Ramsey has

prepared on a show that looks good, they will look up the recipe using Google.

A couple of the participants were exposed to food education in a professional manner. Participant 8 stated that they "used to be a chef" while Participant 12 stated that they "cooked for 25 years" in many different places. Contrarily, there were a few participants who were self-taught cooks, often learning as they went. Participant 19 mentioned that simply cooking things "always teachers you something." Participants 14 and 22 spoke about their childhood and having to fend for themselves and teach themselves how to cook for reasons such as being raised by a single mom and their parents working and not being home to cook for them, respectively. All of the codes and categories from which Theme 1 was identified can be seen below in Table 1.

Table 1

Codes and Categories Associated with Theme 1

Theme 1	Category	Codes	Number of Participants
Every participant had been exposed to some form of food education	1: Food education	1: Watched my parents	9 out of 18
		2: Cooking shows	10 out of 18
		3: Cooking classes	8 out of 18
		5: Chef	2 out of 18
		6: Self-taught myself how to cook	2 out of 18
		15: YouTube	2 out of 18
		16: Google	1 out of 18
		17: Pinterest	1 out of 18
		32: Nutrition	3 out of 18

Theme 2: Importance of Food Education and Healthy Eating

Theme 2 was identified from the category of the same title, which emerged from six codes that can be seen in Table 2. The data from which this theme emerged were prominent throughout many of the participants' answers to Interview Questions 2, 3, 5,

and 6 (2. Did you use any of the food preparation and cooking tips from this food education at home?; 3. If so, what was easy about using the food preparation and cooking tips from this food education at home?; 5. If you were exposed to food education that demonstrated new fruit and vegetable preparation and cooking tips, how do you believe your confidence to use those tips at home would be affected?; 6. Please explain whether you believe receiving food education tips on how to prepare and cook fruits and vegetables could help you eat more fruits and vegetables in the future.). Five participants talked specifically about how they were either raised with learning food education or they passed food education and other healthy behaviors on to their children. Participant 1 attested to both of these instances, stating that it was easy to use food education in their home because they were "raised with it" and that they also exposed their children to food education as well. Participant 13 mentioned several times that they grew up with healthy eating habits due to being raised in a household where these habits were regularly practiced. As a result of growing up in this manner, Participant 13 now engages in healthy eating habits themselves. Participants 14 and 22 (a married couple who were interviewed separately on different days) elaborated on their family experience, stating that they tasked their daughter and son with purchasing enough food with $20 or $30 to cook a meal for the entire family once a week. Participant 22 spoke about how this taught their children how to cook and how to budget. Both Participants 14 and 22 spoke about how they did not receive a lot of food education from their parents, due to their parents having to work and not being home around dinner time, so they "decided to do things differently" with their kids. As a result, their college-aged daughter not only referenced a

memory about their family garden when completing a school writing assignment but also has her own garden in which she grows vegetables and spices.

Some of the participants also spoke about how they felt it was important for kids to be exposed to food education. Participant 20 expressed how there are “a lot of kids that’s not used to eating vegetables” and how cooking classes could be helpful in getting kids to eat different vegetables. Participant 23 talked about food education being “extremely important” and how it should be brought “back to school.” Participant 22 spoke about how food education should be taught in elementary school, even for simple actions such as “how to crack an egg or put toast in the toaster” because “kids are very capable, they just don’t know.” Speaking about themselves, Participant 22 expressed the belief that if they knew as a child what they now know as an adult, they “could’ve been healthier and made healthier choices.” While not speaking about children specifically, Participant 19 did make the statement that “education is power”, explaining that the more education people receive regarding the foods they consume, the more they’ll want to visit mobile farmers markets.

Three of the participants spoke specifically about why the consumption of fruits and vegetables is good for health reasons. Participant 7 stated that they like fruits and vegetables and that they have to have them in their diet due to their stomach. Participant 8 spoke about having to have their gallbladder removed and how consuming a lot of fruits and vegetables helped them to shed excess weight. Lastly, Participant 12 attributed the health problems experienced by the elderly and by people who receive disability benefits to the fact that they’re not given enough money to purchase healthy foods.

Participant 12 went on to state that, as a result of a lack of money, some people have to visit food banks, explaining that most of the food acquired from these organizations "are not good to eat" and that they often provide "canned food and junk foods and that's not healthy."

Some of the participants also talked about their consumption and use of healthy foods and fresh ingredients in addition to liking to try new foods. For example, Participant 17 stated that since they started visiting the mobile farmers market, they have "tried so many different vegetables" which has allowed them to "step outside of the box." Participant 4 spoke specifically about their visit to the market on the day of their interview as this visit led to them acquiring baby eggplants which they were not accustomed to preparing and cooking. To combat this lack of knowledge, Participant 4 stated that having the baby eggplants would prompt a Pinterest search for a recipe when they got home. Participant 23 also spoke about their use of fresh vegetables, stating that they grew up always having fresh vegetables that were used in various ways, such as on tacos or in smoothies.

Table 2

Codes and Categories Associated with Theme 2

Theme 2	Category	Codes	Number of Participants
Importance of food education and healthy eating	3: Importance of food education and healthy eating	9: I was raised with it	5 out of 18
		21: Like to try new things	5 out of 18
		25: They really should bring it back to school	3 out of 18
		29: Fresh ingredients	4 out of 18
		31: Education is power	3 out of 18
		33: Health issues	3 out of 18

Theme 3: The Use of Food Education and Healthy Food Consumption Can Be Influenced by Various Factors

Theme 3 was established using answers obtained from all six of the interview questions. The category and all of the codes associated with Theme 2 can be viewed in Table 3. The beliefs about the usefulness of food education varied amongst the participants. Participant 4 discussed how using some of the herbs and spices that were used in the food education they were exposed to not only "made a big, big difference in the taste" but also led to them using less salt when cooking. Participant 9 also spoke on how taking what they learned about different seasonings and applying this knowledge when cooking helped make their food taste better. Participant 18 had a similar answer, stating that the food education they'd received was useful because it taught them "what goes with what the best for the best flavor". Participant 19 mentioned that, when exposed to food preparation and cooking tips, it is easy to use the tips at home because "you don't have to reinvent the wheel" due to having an "example to follow". Participant 20 made a similar statement when speaking about how being exposed to food education made it easy for them to use those tips at home because it kept them from fumbling their way through a recipe once it was time for them to try it on their own. Participant 11 spoke about the usefulness of food education in a different way, stating that some of the tips may not introduce new foods but can introduce new food pairings, like "a watermelon salad with mint added". They went on to add that they loved both of those ingredients separately but would never have thought about combining them had it not been for the food education that they had received.

Fourteen out of the 18 participants answered some form of yes when asked the second interview question (2. Did you use any of the food preparation and cooking tips from this food education at home?). The factors that affected the use of food education at home varied amongst the participants. For Participant 7, using food education at home was feasible as it allowed them to use ingredients that they already had at home which, to them, “was a good thing”. For Participant 8, the possibility of using food education at home was “pretty easy” seeing as how they were a chef and were able to apply that knowledge in their own kitchen. Participant 9, like many of the other participants, grew up watching their parents cook and mentioned that the exposure to this specific type of food education made it easy to use this education at home because they were accustomed to it. Similarly, Participant 13 mentioned that they “grew up in a household that practiced pretty good habits”. As a result, it was easy for Participant 13 to use the healthy food preparation and cooking skills they learned growing up in their own home because they didn’t have to “think about them” as these skills had become “life-long habits” for them.

The beliefs of the participants regarding food education varied amongst the participants based on their different experiences. For example, Participant 16 spoke about how seeing and executing the preparation and cooking tips performed in a cooking class made it “easier to do at home”. Similarly, Participant 11 mentioned that seeing food preparation and cooking tips “applied firsthand” in cooking classes and on cooking shows made it easier to use those tips at home.

Some participants found it rather difficult to use food education tips at home due to different factors. For example, Participant 8 mentioned that not having the equipment

necessary to prepare and/or cook foods made it difficult to use food preparation and cooking tips at home. Participant 23 provided more specifics, stating that one can get overwhelmed when using baking dishes as not using the correct size could result in the food not cooking properly, causing the recipe to be a “complete disaster”. Lacking the equipment needed to prepare healthy foods is not the only issue that some of the participants discussed. Some participants discussed how some healthy recipes required ingredients that they may not have at home. In this particular situation, Participant 4 stated that if a specific recipe requires an ingredient that will only be used one time, they “don’t even purchase it”. Participant 15 shared a similar sentiment, stating that sometimes, new recipes “require so many ingredients” that have to be purchased yet only get used one time, resulting in having “a cabinet full of stuff”. Participant 14 had a different outlook on not having the ingredients needed to make certain dishes as they were raised in Nigeria and mentioned that it is difficult to find certain ingredients here in the United States that are a major part of the Nigerian diet. They mentioned that one can try to look for these ingredients at an African grocery store however, many times, they would have to adapt and use substitute ingredients to “get a close, approximate taste”. Although Participant 14 was able to adapt easily, Participant 1 mentioned that learning “new things” and “combining the old-fashioned with the new-fashioned” was a difficulty they faced when using food preparation and cooking tips at home. Contrarily, Participant 18 found it difficult to use the food education tips that they watched their parents engage in because, since their parents did not cook with a recipe, they did not have a recipe to follow.

Table 3

Codes and Categories Associated with Theme 3

Theme 3	Category	Codes	Number of Participants
3: The use of food education and healthy food consumption can be influenced by various factors	Factors that influence food education use and healthy food consumption	4: Inspiration	3 out of 18
		7: Foodies	3 out of 18
		8: I really like food that tastes good and has a lot of flavor	3 out of 18
		10: Adapt	3 out of 18
		14: Equipment	3 out of 18
		18: Have an example to follow	7 out of 18
		19: Supplies I needed	7 out of 18
		20: I didn't find anything difficult (In regard to interview question number 4)	6 out of 18
		22: Open to new information	2 out of 18
		26: Presentation	2 out of 18
		27: Yes (In regard to interview question number 2)	14 out of 18
		28: I like vegetables and I like fruits	3 out of 18
		30: Preparation	3 out of 18

Theme 4: Effects of Future Food Education

Theme 4 was developed from the participants' answers to Interview Questions 5 and 6 (5. If you were exposed to food education that demonstrated new fruit and vegetable preparation and cooking tips, how do you believe your confidence to use those tips at home would be affected?; 6. Please explain whether you believe receiving food education tips on how to prepare and cook fruits and vegetables could help you eat more fruits and vegetables in the future.). Regarding Interview Question 5, 11 out of the 18 participants spoke about their confidence being boosted in some manner. For example,

Participant 19 stated that their “confidence would be increased” while Participant 13 mentioned that their confidence “would be affected positively”. Participant 16 stated that they “feel confident in trying new things” while Participant 17 expressed that their confidence to use new food education at home would be “increased exponentially”. Similarly, Participant 18 stated that their confidence in using new food education tips at home would be affected “greatly” while Participant 23 mentioned that this food education exposure “would help” their confidence in using the tips at home.

Two of the participants did not believe that exposure to new food education would affect their confidence. When asked the fifth interview question, Participant 1 stated that their confidence would be “about the same”. Participant 9 mentioned that, although they “would probably try it”, the exposure to new food education tips would not affect the way that they were cooking at home.

Many of the participants answered some form of yes (e.g., yes, definitely, absolutely) to Interview Question 6, such as Participants 1, 4, 7, 9, 11, 12, 14, 16, 18, 21, 22, and 23. Some participants answered with some form of yes but also chose to elaborate on their answers. For example, Participant 17 expressed that they thought exposure to food education would “definitely” help them eat more fruits and vegetables in the future, especially if the food education involved “a simple recipe”. Participant 11 spoke about how they were “sure the class would help”.

Participants 13 and 15 provided more neutral answers to Interview Question 6. For example, Participant 15 answered with “perhaps” but then elaborated on this answer, stating that they eat a lot of fruits and vegetables anyway and that they even “keep a fruit

bowl". Participant 13 expressed that, while they are "always open to new information", they didn't think that exposure to new food education tips would "drastically change anything" that they did because they already had "pretty good habits".

Table 4

Codes and Categories Associated with Theme 4

Theme 4	Category	Codes	Number of Participants
Effects of future food education	4: Effect of future food education on fruit and vegetable cooking and preparation confidence	11: My confidence would be increased (In regard to interview question number 5)	9 out of 18
		12: About the same (In regard to interview question number 5)	2 out of 18
		13: It would be (Question 5: Exposure to new food education would have an effect but participant did not state if this effect would be positive or negative)	4 out of 18
	5. Effect of future food education on future fruit and vegetable consumption	23: Yes I do think it would (In regard to interview question number 6)	13 out of 18
		24: I don't know that it really would affect me (In regard to interview question number 6)	2 out of 18

RQ 1: What Are the Beliefs About Food Education Among Residents Living Within Food Insecure Areas?

All the participants articulated their foundational beliefs in food education by first expressing that they had been exposed to some form of food education throughout their lives. Half of the participants spoke about being exposed to food education while observing their parents, while others sought out food education sources such as cooking classes, videos, and online recipes. Seeking out food education sources not only

highlights a foundational belief and need for this education but also shows that many of the participants who do so believe food education to be impactful when it comes to their cooking and eating behaviors. The participants spoke about the different ways in which food education is useful to them and the feasibility of the food education they had received. Convenience and exposure to new information and skills were the main aspects of food education that the participants believed added to its usefulness and feasibility. Overall, all of the participants believed in food education while many believed in its usefulness and feasibility.

RQ 2: If Residents Living Within Food Insecure Areas Were to Be Exposed to Food Education Activities, What Do They Believe Their Outlook on Their Future Consumption of Fruits and Vegetables Would Be?

Over half of the participants believed that their confidence in preparing and cooking fruits and vegetables would be boosted in some manner after being exposed to new food education. Half of the participants believed that exposure to new food education tips could inspire them to eat more fruits and vegetables. While a few of the participants stated that they already consumed a lot of fruits and vegetables, they were open to receiving new food education and believed that exposure to this education could have an impact on their consumption of these foods.

Summary

Chapter 4 addressed a multitude of factors, including how the study was carried out, the variations from the initial data collection plan as presented in Chapter 3, and the unusual circumstances that occurred during the data collection process. The results from

the collected data were also presented in this chapter. These results included four main themes, which were identified from the 33 in vivo codes and five categories that were extracted from the raw data:

1. Every participant had been exposed to some form of food education.
2. The use of food education and healthy food consumption can be influenced by various factors.
3. Importance of food education and healthy eating.
4. Effects of future food education.

These four themes were used to answer the RQs which revolved around the participants' beliefs about food education in addition to their beliefs about their confidence to use food education and if doing so could result in eating more fruits and vegetables in the future. In Chapter 5, I will examine the relevance of these four themes based on the SCT, the limitations exposed during the study, the implications and recommendations for potential future research, and the impact these results could have on social change in regard to food insecurity and healthy food consumption.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this qualitative study was to explore the beliefs that residents of food insecure communities had about food education, the belief they had in their confidence to execute food education, and if this use of food education could lead to the consumption of more fruits and vegetables. It was important to explore the residents' beliefs specifically because, despite intervention efforts increasing access to healthy foods, nutrition, and food education, food deserts still exist (Fitz et al., 2017; Gary-Webb et al., 2018). The continued existence of food insecurity highlights a disconnect between intervention efforts and the target populations being addressed.

The major themes that were extracted from the raw data highlighted many important details regarding the participants' beliefs toward the following: food education, their self-efficacy in using food education, and their fruit and vegetable consumption expectations if they were to receive food education. Theme 1 highlights that every participant had been exposed to some form of food education. Theme 2 showcases how important food education and healthy eating are to the participants. Theme 3 emphasizes the point that many different factors can influence the participants' use of food education as well as influence their consumption of healthy foods. Theme 4 involves the participants' thoughts regarding the effects of future food education on both their confidence in preparing and cooking fruits and vegetables and their future consumption of fruits and vegetables. In this chapter, the interpretation of the study findings as they relate to the SCT will be discussed. This chapter will also examine the study limitations that occurred as well as introduce recommendations and implications for future research

and intervention activities.

Interpretation of the Findings

Theme 1: Every Participant Had Been Exposed to Some Form of Food Education

Theme 1 highlights that every participant had been exposed to some form of food education throughout their lifetime. The types of food education that the participants had been exposed to varied. However, the three most mentioned types included watching cooking shows, watching their parents cook, and attending cooking classes, with watching cooking shows being the most popular type. Other forms of food education expressed by the participants included using Google, Pinterest, and YouTube to find recipes, professional chef training, and being a self-taught cook as a result of engaging in cooking activities at home. These results showcase the varied ways in which people can either be exposed to or seek out food education. Past literature has highlighted the benefits of various types of food education and has shown how this education has been used to influence people's healthy cooking and eating behaviors. In terms of cooking classes, these offer many benefits to the attendees, such as food preparation and cooking skills, easy recipes that they can recreate at home, and important nutrition information (Hawkes, 2013). Watching cooking videos is also supported by past research, as they can be used to positively influence cooking skills just like a cooking class with a live demonstration (Riska, 2018). Further, finding recipes via internet search engines can promote both the purchase of and consumption of fruits and vegetables (Liu et al., 2017).

From a transferability standpoint, every participant in this study was exposed to food education at some point in their lives. These study participants serve as

representatives for the people living in food insecure communities, so it could be said that residents living in other food insecure communities have been or could also be exposed to food education at some point in time as well. Ensuring that all of the study participants lived within the food insecure areas being served by the mobile farmers market supports the transferability of the data collected from the study participants to the food insecure community at large.

Theme 2: Importance of Food Education and Healthy Eating

Theme 2 provides insight into how residents living within food insecure areas may feel about the importance of food education and healthy eating. For many of the study participants, the food education tips that they learned were important because the participants found them to be useful when preparing and cooking meals at home. For some of the participants, this change in their food preparation and cooking behaviors also led to a change in their eating behaviors. Nutrition education can be useful in teaching people how to make healthy decisions regarding their diet, in addition to teaching them how to identify and modify the cooking and eating behaviors that can negatively impact their health (FAO, n.d.; Hawkes, 2013). A couple of the study participants spoke specifically about how their diets must include fruits and vegetables to maintain their health. In addition to their own health, some of the participants expressed concern over the health of either their children or children in general regarding healthy eating and food education exposure. The idea of introducing children to food education in elementary school is supported by previous research that noted an increase in students' fruit and vegetable consumption when nutrition education was incorporated into the school

curriculum (Wolfenden et al., 2021).

Public health initiatives such as MyPlate (USDA, n.d.) inform the public about daily fruit and vegetable consumption recommendations along with providing information as to why these foods are beneficial to one's health. The WHO emphasizes the health benefits of consuming the recommended daily amounts of five servings of fruits and vegetables, stating that doing so is not only associated with a lower risk of developing various chronic diseases but is also associated with lower mortality rates (Boeing et al., 2012; Ramsay et al., 2016; WHO, 2003). The consequences of not consuming a healthy diet can emerge as various chronic diseases, including but not limited to cancer, diabetes, stroke, coronary heart disease, and chronic obstructive pulmonary disease (Gregory & Coleman-Jensen, 2017; Murillo-Castillo et al., 2020; WHO, 2020). Despite these recommendations, in 2009, none of the states in the United States met these recommendation goals (Lee-Kwan et al., 2017). However, this study shows that there are residents living within food insecure areas who understand the importance of and like to consume fruits and vegetables and do so on a fairly regular basis. Assuming that the study participants represent the food insecure community at large, it could be said that these communities may also house residents who understand the importance of eating fruits and vegetables and may do so regularly. Residents who do not share this same understanding or do understand but do not consume fruits and vegetables daily may be encountering barriers that are preventing them from increasing their consumption of these foods (Lee-Kwan et al., 2017).

Theme 3: The Use of Food Education and Healthy Food Consumption Can Be Influenced by Various Factors

Many of the aspects of Theme 2 are connected to Theme 3 because some of the reasons why the participants believed food education and healthy eating were important also influenced their use of food education and their consumption of healthy foods. Food education can increase confidence in preparing and cooking fruits and vegetables, which could ultimately lead to an increase in the consumption of these foods (Overcash et al., 2018), so it is important to know about the various factors that can influence the use of food education and fruit and vegetable consumption (Hearty et al., 2007). Some of the participants expressed how their exposure to food education, paired with their access to fruits and vegetables via the mobile farmers market, inspired them to consume more fruits and vegetables. Past literature highlights other influences that can affect the use of food education and fruit and vegetable consumption, such as parents seasoning their children's vegetables, instilling a healthy eating mindset in their children, only providing their children access to healthy foods, and not allowing their children to purchase junk food (Sogari et al., 2018).

It is important to also note that food education can be deemed not useful and/or people can feel as though their use of food education is negatively influenced, impacting their fruit and vegetable consumption. In this study, many of the participants elaborated on the factors that hindered their use of food education and their consumption of fruits and vegetables, such as the lack of kitchen equipment or the supplies needed to execute the food education tips or recipes. These data build upon previous research that has

similarly demonstrated how a lack of kitchen equipment and supplies can be a barrier to healthy food consumption (Dave et al., 2017).

One of the study participants spoke about how they were exposed to bad cooking habits while growing up. Other participants expressed that typically, their parents were too busy or were not at home to show them how to prepare and cook healthy meals. As a result, the participants often found themselves purchasing or cooking unhealthy foods and meals. Due to these experiences, some of the participants expressed their thoughts regarding the importance of children receiving healthy food education. Children may have a difficult time learning how to eat healthy if their parents are not teaching and showing them how to do so, and they may eat more processed foods if their parents are too busy or do not have enough money (Sogari et al., 2018). The data from my study coupled with these supporting data highlight the various ways in which a person's experiences with food education and healthy eating can be influenced.

Theme 4: Effects of Future Food Education

Not only did most of the residents believe that being exposed to future food education could boost their confidence in executing that food education, but they also believed that being exposed to future food education could cause them to eat more fruits and vegetables. In terms of cooking confidence specifically, Overcash et al. (2018) found that their cooking skills study increased the mean number of participants who were either very sure or extremely sure that they could cook a wide range of vegetables from 16.5 to 19.6. Other research has shown an association between a person's perception of and attitude toward healthy eating and their diet (Hearty et al., 2007). Increasing a person's

cooking skill set can lead to them having a positive attitude change towards preparing, cooking, and eating healthier foods (Stephens et al., 2020). These past study findings support my study participants' beliefs in their ability to not only execute food education skills at home but to also use these skills to eat more fruits and vegetables.

RQ 1: What Are the Beliefs About Food Education Among Residents Living Within Food Insecure Areas?

All of the participants articulated that they had been exposed to some form of food education throughout their lives. Half of the participants spoke about being exposed to food education (e.g., observing their parents), whereas others sought out food education sources such as cooking classes, videos, and online recipes. Seeking out food education sources not only highlights a belief in and need for this education but also shows that many of the participants who do so believe food education to be impactful when it comes to their cooking and eating behaviors. The participants spoke to the different ways in which food education is useful to them and the feasibility of the food education they had received. Convenience and exposure to new information and skills were the main aspects of food education that the participants believed added to its usefulness and feasibility. Overall, all of the participants believed in food education while many believed in its usefulness and feasibility.

RQ 2: If Residents Living Within Food Insecure Areas Were to Be Exposed to Food Education Activities, What Do They Believe Their Outlook on Their Future Consumption of Fruits and Vegetables Would Be?

If they were to be exposed to food education, most of the study participants were

confident that they could execute this education and increase their consumption of fruits and vegetables as a result. Past research has shown that people who have more confidence in preparing vegetables purchase vegetables on a regular basis (Winkler & Turrell, 2009). People are also more apt to implement new behaviors if they believe that they can successfully execute those behaviors (AbuSabha & Achterberg, 1997).

Relation to Framework

Both of the RQs and their associated subquestions provided information highlighting the association between the participants' experiences and beliefs and the SCT. More specifically, the answers for RQ 1 and its subquestions provided foundational information about the participants' exposure to food education and their beliefs regarding the usefulness and feasibility of food education, including the many factors that facilitated or hindered their use of this education. The answers for RQ 2 and its subquestions provided a majority of the information that highlighted the association between the participants' answers and the SCT.

The SCT was constructed by Albert Bandura (1986) and suggests that there is a relationship between an individual's behaviors, their environment, and their personal experiences and that these entities constantly affect each other. The SCT can be used to examine, understand, and explain the relationship between a person and external and internal factors, also known as determinants (Bandura, 2004). The SCT consists of six constructs; however, for this study, the RQs were developed using the self-efficacy and expectations constructs (BUSPH, 2019). The self-efficacy construct was chosen because self-efficacy has a significant impact on a person's behavior (Bandura & Locke, 2003),

and I sought to determine if the participants' believed that their self-efficacy regarding food education use would be affected if they were exposed to new food education. The expectations construct, which for this study is referred to as outcome expectations, was chosen because I wanted to determine if the study participants thought that their future consumption of fruits and vegetables could be affected by their engagement in future food education activities. The data from this study show that the participants believed that their confidence to prepare and cook fruits and vegetables could be impacted by their exposure to new food education and that this exposure could also cause them to eat more fruits and vegetables.

In summary, the study findings are full of examples showcasing how the participants' cooking and eating behaviors were influenced by their experiences and environments, how their cooking and eating experiences were impacted by their environment, and how their interactions with their environments affected their cooking and eating behaviors and their experiences with food education, healthy cooking, and healthy eating. Ensuring that all of the participants lived within the food insecure areas being served by the mobile farmers market fosters the transferability of the study findings as the participants represent the food insecure community at large. As a result of this transferability, one could say that a majority of people experiencing food insecurity could have similar self-efficacy beliefs and outcome expectations regarding their preparation and consumption of fruits and vegetables if they were to receive new food education. The transferable nature of the study findings can provide future researchers with the opportunity to connect these findings and the SCT-supported interpretations to the other

food insecure communities.

Limitations of the Study

Limitations are factors that arise during a study that are not under the control of the researcher (McGregor, 2018). In qualitative research specifically, transferability is a limitation that is often of concern. For this study, the delimitation of only opening up study participation to the residents living within the food insecure community being served by the mobile farmers market helped to augment the transferability of the study findings. Adhering to this criterion helped to prevent the introduction of outliers (i.e., people who did not live within the immediate food insecure community) to the dataset. It was important for the study participants to live within a food insecure area where they had access to fresh, quality fruits and vegetables via a mobile farmers market. This is because the foundation of this study revolved around the notion that communities are still being labeled as food insecure despite the residents being exposed to interventions that increase their access to healthy foods.

It should be noted that despite food deserts often housing residents who have a low SES, living in a community that is labeled a food insecure area does not mean that every resident within that community has a low SES and/or is experiencing food insecurity (Walker et al., 2010). This realization applies to this study as well because it is not known if the study participants were actually experiencing food insecurity, despite the USDA Food Access Research Atlas (referred to as the research atlas for the remainder of this chapter) being used to confirm that they lived within the food insecure areas. It should also be noted that the people who visit MPMs may not even live within

the food insecure area that the MPM is serving. During the participant recruitment process, I noticed that not only did many of the visitors for one of the market sites not live within the immediate food insecure area, but they did not live within a food insecure area at all.

I also noticed that almost all of the participants used a vehicle to travel to and from the markets. Information from the USDA ERS (2009) explains that one of the prominent factors that influences food insecurity is a lack of transportation. The participants having access to transportation invites the idea that they may travel to and shop at grocery stores and supermarkets outside of their food insecure community. The markets were open to any and everyone as the staff's main goal was to distribute fresh produce and other healthy food items to anyone who wanted them.

Another limitation included the background noise from the market employees, market patrons, and the outside environment. At each site, the data collection station was set up away from the market; however, the participants and I were still able to hear the patrons talking to each other, talking to the market employees, and the market employees talking amongst each other. Knowing that other people were within earshot during the participants' interviews may have influenced the participants' level of comfort thereby influencing their willingness to fully share their experiences and points of view.

The outdoor market posed a few issues in addition to those previously described. When I started the data collection process in September, the weather was often hot and sunny. I did not have a tent or umbrella to shield the interview table and therefore the participants and I, along with the iPad and iPhone, were exposed to direct sunlight which

caused the iPhone to overheat. The iPhone was being used to supply the iPad with internet capabilities, which were needed to check the potential participants' addresses to determine if they lived within the immediate food insecure area. Until the iPhone cooled down and the internet was restored, all of the potential participants' addresses were written down and checked against the research atlas at a later time to determine eligibility. Despite this lack of internet capabilities, these potential participants' interviews were still collected. Once their addresses were checked against the research atlas, those who were deemed ineligible were sent their interview transcripts and were informed that their interviews could not be used in the study. The paper with the addresses was shredded to protect the participants' identities. The interview table being in direct sunlight also affected one participant, who suggested moving the table to a nearby shaded area before beginning their interview. I heeded this suggestion and the interview station was set up in the shade for all subsequent data collection days at this location.

Two other circumstances that occurred that were beyond my control included the presence of mosquitos and a feral cat rubbing up against the leg of one of the participants during their interview. In terms of the mosquitos, after being bitten during the first round of interviews that were held outside, I subsequently brought mosquito repellant every time after. As far as the feral cat was concerned, the participant shooed the cat away. This was the only time that the cat was an issue.

Recommendations

In the past, researchers focused on interventions that either increased food desert residents' access to healthy foods or introduced food and nutrition education (Fitz et al.,

2017; Gary-Webb et al., 2018). Gary-Webb et al. (2018) even mentioned that combining both of these intervention approaches could create a more effective intervention, which was the route taken by Medina et al. (2017) and Best and Johnson (2016). Despite these efforts, food insecurity and food deserts still exist. This qualitative study was designed to address the gap in the literature concerning the beliefs that residents living in food insecure areas have about food education under the premise that knowing how these residents feel about food education in addition to learning about their experiences with food education could provide insight into why their communities are still deemed food insecure.

This disconnect prompted the exploration of the beliefs that these residents may have about food education and if they believe being exposed to new food education could impact their confidence in using this education and potentially inspire them to consume more fruits and vegetables. The data from this study suggest that most of the people who live in food insecure areas are willing and open to learning new food education skills and believe their confidence to use these new skills could be boosted as a result. The data also suggest that most of these residents believe that exposure to new food education could lead to eating more fruits and vegetables. The study results even provide insight into the facilitators and perceived barriers that could affect food insecure residents' ability to execute food education skills as well as their willingness to eat more fruits and vegetables. Based on these results, there are a few recommendations on which future qualitative research efforts could focus.

In between conducting the intercept interviews for this study, I noticed that the

market employees would often encourage patrons to try new fruits and vegetables that they had not yet tried while also verbally providing the patrons with simple recipes for these foods. Participant 17 mentioned that the food preparation and cooking tips they have received from the market staff members and volunteers are not only easy to execute but have allowed them to try "many different vegetables" in the process. Since past research has demonstrated that using recipe cards to promote the purchase of fruits and vegetables can lead to an increase in the consumption of these foods, future research efforts could focus on MPMs providing recipe cards to the food insecure residents being served (Liu et al., 2017). MPMs often have revolving produce, meaning that a fruit or vegetable that was available one week may not be available the next week. Based on this knowledge, the recipe cards should match the produce being provided at that time.

Although this study explored the participants' beliefs about food education and fruit and vegetable consumption, it did not explore their beliefs concerning the importance of eating these foods nor did it explore the daily number of fruits and vegetables the residents were consuming. Future studies could explore food insecurity from this standpoint as these particular beliefs could impact a person's consumption of fruits and vegetables. In addition to the importance of healthy foods, future researchers could have food insecure residents keep a food diary and document the number of fruits and vegetables they consume every day to determine if they are meeting or failing to meet the WHO and MyPlate fruit and vegetable consumption recommendations (WHO, 2020; USDA, n.d., n.d.). Seeing as how, in 2009, none of the states within the United States met the MyPlate daily fruit and vegetable consumption recommendations, it would

be interesting to know the underlying reasons (Lee-Kwan et al., 2017).

Participants were only recruited from one town in North Carolina; however, as of 2020, food insecurity affects 13.8 million households within the United States (USDA ERS, 2021). Although much care was put into ensuring that the study data is transferable to other food insecure communities, future researchers could seek to expand recruitment efforts in various ways, including recruiting people who are confirmed to be experiencing food insecurity, increasing the number of participants that are recruited, and recruiting participants from different geographic locations (e.g., different cities and towns within one state or across multiple states). The results from this study also highlighted the reality that people who reside in food insecure communities may not be personally experiencing food insecurity. To address this possibility, future studies could include an element where a person's food insecurity is examined and confirmed as part of the inclusion/exclusion criteria. Researchers could investigate the severity of the participants' food insecurity as well.

In phenomenology, it is recommended that data be collected from five to 25 participants (Creswell, 2007). Researchers such as Given (2008) and Guest et al. (2006) state that saturation using the non-probability sampling recruitment method can be reached with 10 to 20 participants. Future studies may expose more information concerning the facilitators and perceived barriers that affect food insecure residents' use of food education if researchers using the phenomenological approach recruit 25 participants and researchers using the non-probability sampling recruitment method recruit 20 participants.

The participants that were recruited for this study were English-speaking residents. Future research efforts could investigate the beliefs that non-English-speaking food insecure residents have towards food education as well. I did encounter several Spanish-speaking patrons but I was not able to screen them to participate in the study due to the language barrier. Based on a study conducted by Coleman-Jensen et al. (2018), Hispanic households are among those that are more inclined to experience food insecurity. This means that there was a chance that those Spanish-speaking patrons not only lived within the immediate food insecure area but may have been experiencing food insecurity as well. In addition to determining their beliefs regarding food education, future researchers could also seek to determine if Spanish-speaking residents face any language barriers and, if so, how these barriers affect their use of food education and their purchase and consumption of fruits and vegetables.

In this study, race and ethnicity were not primary research points; however, past research has shown that the residents of food deserts often have a low SES and experience various racial and ethnic disparities (K. M. Bower et al., 2014; Kumanyika et al., 2014; Walker et al., 2010). Some of these disparities include Black and Hispanic communities having more fast-food restaurants and fewer supermarkets and grocery stores than the communities of their White counterparts (K. M. Bower et al., 2014; Kumanyika et al., 2014; Walker et al., 2010). Black and Hispanic households also experience food insecurity at rates that are higher than the national average (Coleman-Jensen et al., 2018). Denney et al. (2020) also noticed that many of those who experience higher rates of food insecurity are less educated than those who experience lower rates of

food insecurity. Future research efforts could focus on SES, race, and ethnicity and how these factors can impact food insecure residents' beliefs about utilizing food education and fruit and vegetable consumption.

I was not able to provide food education to the participants due to Walden University guidelines. However, future research efforts could provide food insecure residents with food education as opposed to introducing just the idea of exposure to food education as it is not known what types of food education the participants were thinking of when responding to Interview Questions 5 and 6 (5. If you were exposed to food education that demonstrated new fruit and vegetable preparation and cooking tips, how do you believe your confidence to use those tips at home would be affected? 6. Please explain whether you believe receiving food education tips on how to prepare and cook fruits and vegetables could help you eat more fruits and vegetables in the future.). Thinking of the idea of food education versus actually being exposed to food education could have distinctly different effects on a person's confidence in executing this education. Also, the effect that future food education could have on one's self-efficacy regarding the use of that education and their fruit and vegetable consumption could vary depending on the type of food education to which they are exposed. Future research efforts could focus on providing specific types of food education to food insecure residents and exploring their beliefs about the impact this food education has on their confidence to utilize it. Additionally, efforts to examine if they believe using food education could impact their consumption of fruits and vegetables could also be beneficial.

Lastly, the study findings suggest that researchers may benefit from a more in-depth investigation of the types of food education to which food insecure residents have been exposed and their experiences regarding this education. This in-depth information could serve as a detailed baseline that researchers could then use to determine the different factors that affect the food insecure residents' use of the food education they have received and their fruit and vegetable consumption. This suggestion is supported by past literature as Sarkar et al. (2021) spoke about the necessity of assessing a person's daily eating habits to obtain pertinent information that can be used in intervention efforts aimed at improving people's eating behaviors. More specifically, identifying the exact barriers and facilitators that affect food insecure residents' ability to use the food education they receive can prompt researchers and health education specialists to create new or modify existing interventions to be more aligned with the actual needs of the residents. For example, if there are determinants that help facilitate the use of food education, then this knowledge could be used to implement interventions that expand on these facilitators. On the contrary, determinants that are hindrances are also known as perceived barriers and Herbert et al. (2014) stated that these perceived barriers can influence a person's eating behaviors as well.

In terms of outcome expectations, AbuSabha and Achterberg (1997) stated that these expectations involve the way a person judges the possibility of their current behaviors influencing their future behaviors once a behavior change has been made. Speaking more specifically about fruit and vegetable consumption, Banna et al. (2016) said that the techniques that a person can learn from food education can potentially

impact their food choices in a positive way, such as the potential increase in the consumption of fruits and vegetables. Ultimately, interventions that combine these past study findings with the results from my study could not only be used to address food insecurity but could even be used to help people become more resilient to food insecurity as long as they are in possession of healthy foods (Iacovou et al., 2013).

Implications

Positive Social Change

The results of this study highlight many different points of information from individuals living within food insecure communities, including the types of food education they have been exposed to, the facilitators and perceived barriers that have affected their experience with this food education, their self-efficacy concerning using new food education, and their beliefs regarding the effect of new food education on their fruit and vegetable consumption. This study built upon past research by adding the important element of beliefs as the beliefs that individuals living within food insecure areas have concerning the use of food education and fruit and vegetable consumption could serve as part of the foundation for interventions targeting food insecurity. More specifically, knowing food insecure residents' beliefs about the types of food education they have been exposed to, their belief in their ability to confidently perform food education skills highlighting the use of fruits and vegetables, and using these skills to therefore eat more fruits and vegetables could provide insight into how best to effectively address their food insecurity. The findings from this study could contribute positively to social change at the individual, family, and organizational levels.

Individual

When creating the research and interview questions, I focused primarily on the individual residents' personal experiences regarding food education, confidence, and fruit and vegetable consumption. The SCT, which serves as the theoretical framework for this study, focuses on the individual and the constant interaction between their personal experiences, environment, and behaviors (Bandura, 1986). In this study, the participants shared their personal experiences with food education, including the factors that supported and/or hindered their use of this education at home. Knowing that the relationship between these experiences, the food insecure environment, the mobile farmers market, and the participants' fruit and vegetable cooking and eating behaviors is reciprocal means that affecting even one component of this equation can lead to a change in the other two components. In this study, the component that was hypothetically affected was the participants' experiences regarding food education. More specifically, the participants were asked about their beliefs concerning the effects of future food education on their confidence to use this education and if the education could lead to them consuming more fruits and vegetables. In terms of their confidence in implementing food education at home after being exposed to it, half of the participants believed that their confidence to do so would be positively affected. Thirteen out of the 18 participants believed that exposure to food education could lead to them eating more fruits and vegetables. These results support Bandura's theory that factors affecting one component of the SCT reciprocal cycle affect all of the components, leading to the individual experiencing or engaging in some sort of change.

Family

The findings from this study can also be used to affect positive social change on the family level despite the study focusing primarily on the individual. For example, Participant 1 spoke about how they were raised using food education and therefore raised their children to use food education as well. Participants 14 and 22 (a married couple) spoke about how their lack of exposure to food education as kids prompted them to raise their children differently. These participants had their children help cook family meals, gave their children autonomy to prepare meals for the family on their own, and even incorporated family activities such as growing and tending to a family garden. As a result of these familial interactions, the couple's college-aged daughter has her own garden in which she grows vegetables and spices. It is also important to note that half of the participants grew up watching their parents cook and many of these participants expressed that they used the skills learned from their parents in their own homes as adults. These findings show that, oftentimes, food education may not begin and end with one individual but rather can be passed throughout families. Food education can also be passed down from generation to generation, showcasing the broad impact that food education can have.

Organizational

In addition to affecting positive social change at the individual and familial levels, the findings from this study can also be used to affect positive social change at the organizational level. In this study, the mobile farmers market would be considered the organizational level entity to which the participants were exposed. Many organization-

level interventions, such as MPMs, are made to address the needs of an entire population as opposed to the specific needs of the individuals within that population. These types of interventions may also be one-dimensional, focusing on just one aspect of an issue. For example, the core reason why MPMs are implemented is to provide food insecure residents with access to fruits and vegetables (Rose & Richards, 2004; Zepeda et al., 2014). When talking about food insecurity interventions such as those that increase access to healthy foods, Cummins et al. (2014) noted that one-dimensional interventions are simply not as effective at increasing healthy food consumption as interventions using a multi-faceted approach. In other words, food insecure interventions could be deemed more effective if they addressed more than one aspect of food insecurity, such as including elements that could reach food insecure residents on an individual level as well.

During their interviews, a few of the participants mentioned that not having the equipment, supplies, and ingredients needed to execute food education at home can be a hindrance. Other participants spoke about how they research recipes to cook new foods. To create an MPM that addresses more than one issue being experienced by the community residents, printed recipes, simple supplies (e.g., measuring cups and measuring spoons), small kitchen equipment (e.g., a pot and/or a pan,), and ingredients (e.g., spices) needed to prepare the foods available at the MPM could be offered at the MPM. In this scenario, the food insecure community's lack of access to fresh produce is being addressed with the MPM. For the individuals who do not have the supplies, equipment, and/or ingredients needed to prepare the produce, they would have access to these items at the MPM. For those who may have these items but do not know how to

prepare the produce available at the market, taking home a printed recipe card could eliminate this barrier. This is but one example of how a food insecure intervention can use this study's results to implore a varied approach when addressing the needs of the individuals within a food insecure community thus creating positive social change.

Conclusion

Many of the interventions that have been created to address food insecurity often involve increasing access to healthy foods and/or providing food and nutrition education; however, food insecurity is still a prevalent issue that plagues millions of people. The prevalence of this issue highlights a disconnect between these intervention efforts and the people experiencing food insecurity. This disconnect emphasizes the reality that there are other factors outside of exposure to food and nutrition education and access to healthy foods that may be hindering food insecure individuals' consumption of these foods. In exploring these factors, a gap in the literature concerning food insecure individuals' beliefs about food education was discovered. Using Bandura's SCT as the thematic foundation, I sought to explore this gap in the literature by determining if residents living within food insecure communities believed that their self-efficacy regarding the use of food education and their future consumption of fruits and vegetables could be influenced by their exposure to new food education. The study findings suggest that many residents in food insecure areas believe that exposure to new food education could boost their confidence in utilizing this education at home and that this exposure could also lead to them consuming more fruits and vegetables. These results support the reciprocal effect that occurs between a person's environment, their experiences, and their behaviors, as

proposed by Bandura (1986) in the SCT. The study findings could serve as a foundational component of future interventions addressing food insecurity, helping to close the disconnect between healthy food consumption and interventions targeting food insecurity.

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Appendix A: SurveyMonkey Demographic Survey

- What is your first and last name?
- When is your birthday?
- What is your address?
- What is your email address?

Appendix B: Interview Guide

Purpose

The proposed study seeks to describe the expectations and beliefs that residents living within food insecure areas have about implementing food education techniques at home if they were exposed to food education. Knowing these beliefs and expectations could potentially help researchers understand why some food insecure residents may not increase their consumption of healthy foods (i.e., fruits and vegetables) despite having increased access to these foods through various food sources, such as a mobile farmers market.

Research Questions

- RQ 1: What are the beliefs about food education among residents living within food insecure areas?
    - Subquestion 1: What are the beliefs about the usefulness of food education among residents living within food insecure areas?
    - Subquestion 2: What are the beliefs about the feasibility of completing food education at home among residents living within food insecure areas?
- RQ 2: If residents living within food insecure areas were to be exposed to food education activities, what do they believe their outlook on their future consumption of fruits and vegetables would be?
    - Subquestion 1: If they were to be exposed to food education activities, how would residents living within food insecure areas describe their self-efficacy concerning their potential future use of the food education

techniques learned from those activities?

- Subquestion 2: What healthy food consumption outcome expectations do residents living within food insecure areas believe they would have if they were to be exposed to food education?

Materials

- Multiple copies of the informed consent forms
- Legal pad and pen to take notes during the interviews
- Interview guide with interview questions
- iPad for recording interviews and completing SurveyMonkey questionnaire
- iPhone for recording interviews
- Backup external battery for iPad and iPhone
- Table
- Chairs
- Hand sanitizer
- Disinfectant wipes
- Masks (for those who do not have one)

Interview Introduction

Begin recording

Thank you so much for agreeing to participate in this study. I am conducting this study because I would like to know how you feel about food education and if you believe that receiving food education could possibly lead to you eating more fruits and vegetables. I

will use your answers as data in my PhD dissertation. Your participation is completely voluntary and you can exit the study/interview process at any time. If you do not feel comfortable answering a question, you can skip it. Only the sound from the interview will be recorded to protect your identity. During the interview, I will not ask you any information that would allow you to be identified by others (such as your name and your address). After completing your interview, you will receive a typed transcript of the interview within the next two weeks. If, after reading the transcript, you find that you misunderstood a question or did not provide the answer you meant to provide, you can make corrections and send them to my email address within two weeks of receiving the interview transcript. Do you have any questions about what I have said so far? Are you ready to begin the interview?

Interview Questions

- Please explain any previous food education you have received in the past (i.e., cooking classes, watching a cooking show or video, watching a parent cook).
    - Did you use any of the food preparation and cooking tips from this food education at home?
        - If so, what was easy about using the food preparation and cooking tips from this food education at home?
        - If so, what was difficult about using the food preparation and cooking tips from this food education at home?
- If you were exposed to food education that demonstrated new fruit and vegetable preparation and cooking tips, how do you believe your confidence to use those

tips at home would be affected?

- Please explain whether you believe receiving food education tips on how to prepare and cook fruits and vegetables could help you eat more fruits and vegetables in the future.

This concludes the interview. Thank you so much for participating in this study. If you have any questions for me, you can reach me at eboni.drummond@waldenu.edu. I will have your transcript ready within two weeks from today. Thank you and enjoy the rest of your day!

End Recording

Appendix C: Initial Codes

Initial Codes
1: Watching my parents cook
2: Cooking shows
3: Cooking classes
4: Write a recipe down
5: Getting inspiration
6: Healthy eating inspiration
7: Bad habits
8: Chef
9: Self-taught myself how to cook
10: I love cooking
11: I don't do very much of it ("It" being cooking)
12: Foodie
13: I really like food that tastes good and has a lot of flavor
14: I was raised with it ("It" being the ease of using food preparation and cooking tips from food education at home)
15: We grew gardens
16: Combining the old fashioned with the new fashioned
17: My confidence would be increased (In regard to interview question number 5)
18: About the same (In regard to interview question 5)
19: It would be (In regard to interview question 5)
20: Things that I had at home, I can use in my cooking
21: Equipment
22: YouTube
23: Google
24: Pinterest
25: Have an example to follow
26: Supplies I needed
27: I didn't find anything difficult (In regard to interview question number 4)
28: Like to try new things
29: Always open to new information
30: Yes I do think it would (In regard to interview question number 6)
31: I don't know that it really would affect me (In regard to interview question number 6)
32: If I had known what I know now, you know, I could've been healthier and made healthier choices
33: They really should bring it back to school ("It" being food education)
34: It's a lot of kids that's not used to eating vegetables
35: Presentation
36: Yes (In regard to interview question number 2)
37: I already eat a lot of fruits and vegetables
38: What stops people from doing and experimenting with food...is not knowing how to prepare it
39: If you have access to better selection of fruits and vegetables, I think you're more apt to buy the fruits and vegetables
40: Fresh ingredients
41: Not following a recipe because they didn't cook with a recipe ("They" being family

members)
42: Preparation
43: Education is power
44: Not finding the right ingredients
45: Nutrition

Appendix D: Final Codes

Final Codes
1: Watching my parents cook
2: Cooking shows
3: Cooking classes
4: Inspiration
5: Chef
6: Self-taught myself how to cook
7: Foodie
8: I really like food that tastes good and has a lot of flavor
9: I was raised with it ("It" being the ease of using food preparation and cooking tips from food education at home)
10: Adapt
11: My confidence would be increased (In regard to interview question number 5)
12: About the same (In regard to interview question 5)
13: It would be (In regard to interview question 5)
14: Equipment
15: YouTube
16: Google
17: Pinterest
18: Have an example to follow
19: Supplies I needed
20: I didn't find anything difficult (In regard to interview question number 4)
21: Like to try new things
22: Always open to new information
23: Yes I do think it would (In regard to interview question number 6)
24: I don't know that it really would affect me (In regard to interview question number6)
25: They really should bring it back to school ("It" being food education)
26: Presentation
27: Yes (In regard to interview question number 2)
28: I like fruits and I like vegetables
29: Fresh ingredients
30: Preparation
31: Education is power
32: Nutrition
33: Health issues

Appendix E: Initial Categories

Initial Categories	Associated Codes
1: Food education	1, 2, 3, 4, 7, 8, 9, 22, 23, 24, 45
2: Things that hinder using food education at home	21, 26, 38, 41
3: Influences on eating and cooking	5, 6, 14, 20, 39
4: Importance of presentation and flavor	13, 35
5: Kids	33, 34
6: Loves cooking, eating, and trying new things	10, 12, 28, 29
7: Limited cooking	11
8: Importance of food education and healthy eating	5, 17, 30, 34, 43
9: Combining old-fashioned with new-fashioned	16, 44
10: Currently practices healthy cooking and eating behaviors	15, 37
11: Uses food education tips at home	36
12: Ease or difficulty of using food education at home	16, 20, 21, 26, 27, 41, 42
13: New food education effect on fruit and vegetable cooking and preparation confidence	17, 18, 19
14: Food education effect on fruit and vegetable consumption	30, 31, 32

Appendix F: Final Categories

Final Categories	Associated Codes
1: Food education	1, 2, 3, 5, 6, 15, 16, 17, 32
2: Factors that influence food education use and healthy food consumption	4, 7, 8, 10, 14, 18, 19, 20, 22, 26, 27, 28, 30
3: Importance of food education and healthy eating	9, 21, 25, 29, 31, 33
4: Effect of future food education on fruit and vegetable cooking and preparation confidence	11, 12, 13
5: Effect of future food education on future fruit and vegetable consumption	23, 24