

EXPLORING PRE-SERVICE EARLY CHILDHOOD EDUCATION (ECE) TEACHERS'
EXPERIENCE WITH NUTRITION EDUCATION

by

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This study aimed to understand early childhood pre-service teachers' thoughts and experiences with nutrition education in their undergraduate program and how these experiences play into their perceptions and future use of nutrition education within their own classrooms. Using phenomenology, eleven in-depth telephonic interviews were conducted with early childhood pre-service teachers from two public universities in the state of North Carolina. All participants were females. Eight participants were White/Caucasian and the remaining three participants were Black/African American. Their ages ranged between 21-46 years (mean age 29 years). Six participants were enrolled in a face-to-face licensure degree-seeking program, while five participants completed their licensure degree program through online education. Only two participants were Licensure Only/Licensure Add-On students, who already had a bachelor's degree in a different or related field to education, and were seeking a Birth through Kindergarten license. Six participants planned to include nutrition related activities during student-teaching. Four emergent themes were familial and life experiences, academic experiences, food choices and mealtime, and strategies. Implications for teacher education programs and the early childhood education field are discussed.

Keywords: early childhood education, pre-service, nutrition, phenomenology

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EXPERIENCE WITH NUTRITION EDUCATION

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Master of Science in Human Development and Family Science

by

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CHAPTER 1: INTRODUCTION

Nutrition knowledge is not intuitive. Most humans, at one point, learn about food groups and healthy eating behaviors. Knowing these concepts is not inherent to being human and must be learned (Unusan, 2007; Unusan & Sanlier, 2007). Young children are taught many aspects of eating: what to eat, when to eat, how much, and even how to eat it (Cotugna & Vickery, 2007). Teaching children about healthy eating from an early age can protect them from childhood obesity and future increased risk of cardiovascular disease, diabetes, high blood pressure, and high cholesterol (Derscheid, Umoren, Kim, Henry, and Zittel, 2010). Alarming, the prevalence of obesity amongst three- to five-year olds in America is over 20% (Ogden, Carroll, Kit & Flegal, 2014). Often referred to as the Stroke Belt, the southeastern region of the United States experiences an increased risk in health problems due to factors including diet and lifestyle according to the National Heart, Lung, and Blood Institute (1996). The Centers for Disease Control and Prevention (2016) reported that 42.7% of North Carolina's youth consumed fruit less than one time daily and 38.7% for the consumption of vegetables daily.

Children's attitudes and preferences towards the taste of different foods are also formed at a young age, making early exposure critical (Sepp & Höjjer, 2016). Nutrition education is successful in the early years of life as children are captive listeners, sensitive, and are working on forming habits (Unusan & Sanlier, 2007). In toddlerhood and early childhood, children are most influenced by those they spend the most time with – their parents and teachers. According to the U.S. Department of Education's National Center for Education Statistics (2016), 58% of children attended center-based care as their primary early care and education source. This occurrence makes childcare centers an ideal setting for the exploration of children's health behavior (Froehlich Chow & Humbert, 2013). Shor and Friedman (2009) state that, other than the home

environment, childcare facilities and educational institutions have more continuous contact with children for nearly the first twenty years of their lives than any other setting. As a result, there is a valuable avenue for teachers to reach and impact children's nutritional habits where they are and from a young age (Shor & Friedman, 2009). Educators have a unique opportunity to incorporate and deliver nutrition education into the classroom, positively impacting children's foundational knowledge for healthy eating behaviors (Derscheid et al., 2010).

Still many studies focus on interventions for educating preschoolers instead of reviewing teacher perceptions and behaviors related to the topic of nutrition education (Sepp & Höijer, 2016; Başkale & Bahar, 2011; McBride & Dev, 2014). Shor and Friedman (2009) affirm that the current literature emphasizes nutrition education at the program level versus the actual integration of content by early childhood educators. For early childhood teachers to feel confident in their abilities to deliver nutrition education in the classroom, teachers must review their own beliefs and practice as well as their nutrition knowledge. Early childhood educators themselves may lack the knowledge and training to intervene successfully (Shor & Friedman, 2009). Meanwhile, many studies call for healthy eating practices to be implemented in preschool classrooms (Derscheid et al., 2010; Unusan & Sanlier, 2007; Cotugna & Vickery, 2007).

Derived from existing literature, this study sought to answer this fundamental research question: What experiences do early childhood education students have with nutrition education and how does this play into their future perceptions as a teacher? Thus, the main purpose of this study was to explore pre-service early childhood teachers' experience and thoughts regarding nutrition education while completing their undergraduate teacher education program. Within this study, pre-service teachers were early childhood students in their senior year, who began their full-time internship in a classroom setting during the subsequent spring semester. In the state of

North Carolina, these interns will receive a licensure in Birth through Kindergarten (BK) Education upon graduation. Thus, in this study, participants were referred to as pre-service teachers. All pre-service teachers were required to complete a final internship within the classroom setting that was one semester long. During this time, they experienced how to co-teach and lead a classroom as a teacher. Thus, these pre-service teachers got to experience the field before becoming lead teachers within their own respective public school Pre-K or Kindergarten setting. In order to understand and explore pre-service teachers' thoughts on nutrition education in their early childhood programs, a phenomenological methodology informed by social learning and sociocultural theoretical frameworks were used. Interviewing pre-service early childhood teachers provided insight into their knowledge and future integration of nutrition education within the early childhood programs.

Understanding BK Licensing Requirements in North Carolina

In North Carolina, teachers must hold a BK license in order to teach in public preschools/kindergartens or in the private child care system (Hegde, Averett, White, & Deese, 2014). Teachers with this license are qualified to work with children from birth up to the age of five years regardless of at-risk classification or diagnosed disabilities (Hegde et al., 2014). Further, they are expected to follow the NC Education Standards in place for the Birth through Kindergarten candidates by the NC Board of Education as they fulfill their teaching requirement. The *Standard Five* of the NC Education Standards for BK clearly states that, "B-K teacher candidates create and adapt environments and intentionally plan and implement an integrated curriculum that facilitates every child's construction of knowledge and provides a strong foundation for lifelong learning" ("Standards," 2009). Falling under that standard, BK teachers' integrate curriculum that promotes health, nutrition, and safety. This promotion includes

modeling and discussing healthy eating habits and exercise with the children (“Standards,” 2009). Teachers are allowed to use discretion on how in depth to go when incorporating healthy eating and exercise.

CHAPTER 2: THEORIES

As we are interested in early childhood education students' experiences with nutrition education, we must consider the way in which we all come to acquire nutrition information. Theory, as a powerful tool that can inform research, can help orient our study within the human development field. These educators have experiences of learning nutrition in formal and/or informal manners throughout their childhood, which, in turn, shapes how they will teach and foster nutrition education in their classroom. Concepts such as role modeling, potential, and self-efficacy are important in both learning and teaching nutrition education. Current child development theories provide support for the idea that educators can influence nutrition knowledge and behaviors.

As children, we learn about nutrition from key sources. Understanding these key sources is helpful in knowing the impact that educators can have on nutrition knowledge and behaviors. It is appropriate to consider the context in which children in preschool and childcare operate. Unusan and Sanlier (2007) identifies that nutrition education is most effective when it utilizes social learning strategies. Both Albert Bandura's Social Learning and Lev Vygotsky's Sociocultural Theories are relevant here. Utilizing social learning and sociocultural contexts to understand children's experience with learning nutrition will provide a context and reasoning for how early childhood educators can be an agent of change for children's nutrition habits.

Early childhood educational settings are an ideal place for children to observe and learn from both their teacher and other classmates. In Bandura's Social Learning theory (1977), this observational learning is critical. Observation is a powerful tool as humans can pick up many behaviors simply by observing. Observation shows us the consequences or rewards of a behavior vicariously as we see what outcomes others receive (Crain, 2005). In order to imitate a behavior

with success, one must pay attention, remember it in a symbolic way, have the needed motor skills, and find positive consequences in the behavior (Crain, 2005). Socialization of children aids this behavioral learning process. Parents and teachers often underestimate how influential they can be as models. Children are constantly watching adults' actions and listening to their commands (Crain, 2005). Other children and media can serve as models too. Early childhood educators can influence children by modeling and encouraging healthy eating within the classroom. Teachers can demonstrate positive messages about foods through their own actions if they have high self-efficacy. Observational learning contributes to self-efficacy, our own belief in our abilities (Crain, 2005). Bandura believed that efficacy guides individuals' actions. Self-efficacy plays a role in how much effort a person will put into an endeavor and the duration of his/her efforts (Bandura, 1997). Fortunately, self-efficacy is not set in stone and can be strengthened in teachers who believe less in their ability to change their own lives and those of their students (Elliott, Isaacs, & Chugani, 2010).

In Lev Vygotsky's Social-Historical Theory, the zone of proximal development is introduced. Schools often measure what students can do on their own (Crain, 2005). However, to consider their potential or to advance their knowledge and skills, it is important to provide support, guidance, and collaboration. The zone of proximal development then is "the distance that children can perform beyond their current level" (Crain, 2005). Parents and teachers can provide temporary assistance to children and reduce it as children gain more knowledge and skill. This concept is known as scaffolding (Crain, 2005). Early childhood educators can utilize scaffolding to give children more responsibility at snack and mealtimes. Children can be in charge of self-hygiene such as washing their hands or fruits. Children may be responsible for getting out their snack or preparing simple items for the class – with teacher assistance along the

way. In addition to being a model in social learning, teachers can provide assistance to help students reach their potential in regards to healthy eating habits. By keeping these theories in mind, this study is informed by how people learn with modeling, scaffolding, and self-efficacy and educators' influential role in that process.

CHAPTER 3: LITERATURE REVIEW

Teachers' Own Knowledge & Educational Background with Nutrition

Educators' own knowledge and practice of healthy nutrition is vital to helping children learn these concepts. Derscheid et al. (2010) reaffirm that teachers who realize the importance of their own health and nutrition behaviors may likely model and promote these in practice when they are teaching their young students. While many states have developed policy for early childhood agencies to promote healthy eating habits and curb childhood obesity, little push has been made to change the practices and beliefs about nutrition of educators before they graduate their undergraduate institution and begin teaching (Derscheid et al., 2010). Many efforts can be seen to encourage and educate teachers in-service on the topic. Training teachers in nutrition is a factor in successful early childhood nutrition education (Unusan & Sanlier, 2007). Much of previous research seeking to understand the experience of pre-service student teachers with nutrition has not been conducted in the United States.

Unusan (2007) was one of the first studies to examine the impact of a nutrition course on preschool teacher candidates' own nutrition practices. Based in Turkey, Unusan (2007) found that undergraduate preschool teacher candidates significantly improved and maintained their own nutrition knowledge and behaviors by taking a 3-credit hour nutrition course. The course focused on applicable knowledge for changes to lifestyle and health as well as basic information on nutrients and energy balance (Unusan, 2007). Within the 140 undergraduate preschool teacher candidates surveyed, there was a significant improvement for 13 of the 18 nutrition practices that were assessed as well as their attitudes towards nutrition (Unusan, 2007). The participants indicated that they would suggest the course to other departments in order to improve the healthy eating practices of the participants themselves as well as the children with whom they may work

in the future. This study demonstrates preliminary support for the positive impact of nutrition coursework in pre-service early childhood educators (Unusan, 2007).

While there is support of the benefits of nutrition coursework, little explicit effort has been made to formally include nutrition in these early childhood education degrees. Similar to Unusan (2007), an Israeli study of 60 first-year Master's graduate students in Early Childhood Education surveyed graduate students about their integration of nutrition education in the classroom (Shor & Friedman, 2009). Shor & Friedman (2009) examined the frequency of the inclusion of nutrition-related components in the classroom, barriers to inclusion, and the importance that the educators put on the nutrition integration. All participants were working in early childhood education at the time of the study. The average length of work experience in early childhood education amongst them was 8.6 years ($SD = 6.33$) (Shor & Friedman, 2009). Participants were asked if nutrition had been addressed in their academic coursework. Most participants (94%) reported that nutrition was never covered during their academic programs (Shor & Friedman, 2009). The absence of nutrition lessons in early childhood education curriculum for college students would help to explain lack of or gaps in nutrition knowledge in pre-service teachers.

While nutrition can be addressed as a whole, large subject, many subtopics exist such as food preparation/cooking. The depth of content makes it hard to tackle as an early childhood educator because there is not a consensus on what subtopics should be focused. Øvrebø (2017) presented a qualitative study in Norway, which explored what undergraduate seniors in pre-school teacher education learned about nutrition during their formal education. Interviews with 15 seniors revealed that the students were not taught basic nutrition concepts that they will need to teach children (Øvrebø, 2017). All students reported receiving no training on nutrients. Only

one student reported having one training session about practical cooking. All students reported learning something about food and meals, but it was limited in its practicality and theory (Øvrebø, 2017). Amongst the group, there was not a common understanding of how to fully incorporate nutrition in the classroom (Øvrebø, 2017). This study identifies a range of areas that could be covered more significantly in early childhood education programs. Without a complete foundational knowledge base of their own, it becomes more difficult for teachers to deliver appropriate content and activities to their preschoolers regarding nutrition habits and practices. As evidenced by these studies, foreign institutions have already begun reviewing nutrition education within formal education programs for educators. There is a need for an investigation of nutrition education perceptions in American pre-service early childhood education programs.

Teachers' Role and Interdisciplinary Integration

Education and creativity are crucial components to successful nutrition education in the classroom. Teachers must have knowledge that they are confident about leading their students in and must be open minded to add nutrition subject matter throughout class. Derscheid et al. (2010), a study with a fairly large sample size ($n = 360$) of in-service preschool teachers, found that childcare educators with higher education levels believed children could be persuaded to eat healthy foods – suggesting the promotion of healthy eating within the classroom. The authors suggest that an ideal intervention to nutrition education in the classroom must first stem from the teachers' opportunities to explore their own knowledge of nutrition (Derscheid et al., 2010). Several years later, after the development of an instrument to understand teachers' self-efficacy and knowledge of nutrition, Derscheid, Kim, Zittel, Umoren, and Henry (2014) found that it was the age of the educator and the knowledge of health practices that was the overall predictor of self-efficacy. Teachers can take advantage of students' previous experience with eating to utilize

food and nutrition as a method to teach more difficult subjects. Children's daily experiences with food provide a foundation from which they can learn new subjects (Carraway-Stage et al, 2015).

Taking an interdisciplinary approach to nutrition education aids integration because it includes nutrition experts although early childhood educators already feel responsible for their students' eating habits. It goes beyond snack time and meal times into other subjects in order to include other disciplines (Carraway-Stage et al., 2015). Because poor nutrition habits are a complex issue that does not come with simple solutions, the need for interdisciplinary collaboration with other professionals, like nutritionists, is present (Shor & Friedman, 2009). Shor and Friedman (2009) found that most participants integrate nutrition in the classroom, yet few collaborate or refer to nutrition specialists. A potential reason for this discrepancy is related to the role of early childhood workers. As early childhood educators, there is an expectation of tending to nutritional needs of students through meal supervision or other activities. However, it is not an explicit part of the educator's role to collaborate with nutrition professionals (Shor & Friedman, 2009). Kenney, Henderson, Humphries, and Schwartz (2011) assessed teachers' perceptions on preschool nutrition through focus groups. Teachers revealed that they felt already committed to the promotion of healthy feeding practices because they saw it as a part of their job. The teachers in this study felt a responsibility to both model healthy eating and expose children to various types of food (Kenney et al., 2011). After attending nutrition workshops, 100% of a 72 Head Start staff member sample reported that the information would be useful in their career (Cotugna & Vickeryn, 2007). Over 95% of the sample revealed the content was interesting and new, and they felt compelled to bring what they learned back into the classroom (Cotugna & Vickeryn, 2007). Outside of using collaboration, early childhood educators can be creative to incorporate food related lessons throughout their curriculum.

Integration of nutrition education in the classroom can take many different forms. A 2016 exploratory study in Sweden explored food as a teaching method in everyday preschool activities (Sepp & Höijer, 2016). Interviews with 45 preschool staff members demonstrated the range of possibilities when integrating nutrition into the class along with advantages and barriers. Cooking with children is an interactive way to teach them about measuring and math (Sepp & H, 2016). These lessons can become a base for more complex math problems as children advance in school. The White House Task Force on Childhood Obesity suggested that older children can do math problems focused around caloric or energy needs (“Solving,” 2010). In addition to math, health and science are subjects that allow for easy integration of nutrition (Unusan & Sanlier, 2007). Allowing preschool children to read a recipe allows them the autonomy to carry out the steps on their own (Sepp & Höijer, 2016). Teachers reported that children began to verbalize and discuss the topic of food more with their classmates, reflecting a higher level of conscious effort and interest. It makes children more open to tasting new foods (Sepp & Höijer, 2016). Despite attempts at the interdisciplinary approach and integration, teachers may still be faced with a number of barriers that must be addressed.

Barriers

A number of barriers exist that discourage teachers from providing nutrition education in the classroom. Teachers reported their own insecurity, ignorance, lack of materials, or lack of experience and enthusiasm about nutrition can cause them to shy away from the integration (Sepp & Höijer, 2016). Sepp and Höijer (2016) explain that food can be a meaningful education tool with a confident teacher and a supportive infrastructure. Nutrition components can be incorporated into the daily activities of preschool, whether that is planned educational activities, meal times, or just the opportunity of a teachable moment (Sepp & Höijer, 2016). This concept

reflects a more holistic approach that brings the conversation of healthy eating into preschool. The authors suggest curriculum should be updated to include food as a teaching tool (Sepp & Højjer, 2016). Shor and Friedman (2009) and Unusan and Sanlier (2007) both support a multidisciplinary approach when training future early childhood educators. Collaboration of various professionals at different levels as well as innovative teaching methods improves the delivery of nutrition education.

Understanding the barriers to the use of nutrition education in the classroom by early childhood educators is the first step in being able to combat the issue. A commonly cited barrier by early childhood educators and students is the lack of sufficient knowledge of the nutrition subject matter as well as the implications for nutrition in children (Shor & Friedman, 2009; Carraway-Stage et al., 2015). As previously stated, it is uncommon for early childhood educators to receive formal nutrition education before service (Shor & Friedman, 2009; Øvrebø, 2017). DiGirolarno, Stansbery, and Lung'aho (2014) identified several challenges to the use of nutrition education in the classroom. These challenges included lacking the proper skills, overburden, ineffective supervision, and weak evaluation. Having supervisors who provide continuous and supportive supervision was a factor when implementing nutrition education, however, supervisors were often busy with a wide array of responsibilities (DiGirolarno et al., 2014). Instruction time limitations can pose a problem for learning about food related topics. Kann, Tellhohann, and Wollen's (2007) study found that elementary school students received, on average, less than four hours of nutrition instruction a year although 10-15 hours of classroom instruction on the topic is likely needed to produce a significant change (Carraway-Stage et al., 2015). Overcoming these barriers is important to improving the state of students' education on nutrition.

CHAPTER 4: METHODS

This exploratory study utilized phenomenological methodology. Phenomenology seeks to understand a common experience, or phenomenon, of a particular group (Creswell, Hanson, Clark Plano, & Morales, 2007). Phenomenology's purpose in qualitative research is to portray participants' commonalities with a certain lived experience (Creswell, 2007). Recently, phenomenology has been successful in understanding elementary school teachers' experience regarding nutrition education in Nebraska. Ten elementary school teachers participated in semi-structured interviews in order to describe their experience with nutrition education. It was found that teachers valued nutrition education and were motivated to help students make healthy eating choices. However, these teachers also recognized barriers to successful nutrition education in the classroom (Hall et al., 2016). A similar approach adapted for pre-service BK teachers would likely have success tapping into their undergraduate experience.

In the current study, it was essential to understand the experiences pre-service BK teachers have regarding nutrition education as a part of their undergraduate early childhood curriculum. Purposive sampling technique was utilized to recruit the participants in this study. To make the study more representative of the BK population in North Carolina, two universities were invited to participate in the study. One university was located in the East and the other in the Western region of North Carolina. At both of these locations, only Senior II students who were completing their internship in a classroom setting in the spring were invited to be a part of this study. In-depth interviews lasting 30-45 minutes were conducted with 11 students from the universities. Because of the detailed nature of phenomenology, experts recommend a sample size of at least ten participants (Creswell, 2007). Roughly an equal number of participants were recruited from each of the universities using purposive sampling techniques. A purposive

sampling technique selects participants based on a specific characteristic in regards to the study's purpose. This type of sampling in phenomenology is common because of the need for a common lived experience (Creswell, 2007). In this study, the selected characteristic was being a Senior II BK intern at one of the two selected universities. For their participation, participants received a \$10 Target e-gift card.

Procedure for Data Collection

Participants were solicited from the two universities via email after approval from the Institutional Review Board was granted. Participants were required to be Senior II students who were completing their internship in a classroom setting within their respective BK programs. A self-reported questionnaire gathered demographic information and other background information prior to the interview date. This questionnaire was completed electronically using Qualtrics.

In-depth semi-structured interviews were conducted over the phone. Over the phone interviews were chosen because of the geographic range between the two universities and the research team. A standardized interview guide was created for this study with nine main questions modeled after Cooke, Ash, Goodell, and Wilson's (2015) interview guide for pre-healthcare undergraduate students. An expert from another university reviewed the interview guide after its development. The semi-structured format gave the trained interviewer the flexibility to veer from the interview guide when appropriate to fully explore the topic without restriction (Hall et al., 2016). Interviews were conducted by one graduate student interviewer and were also audio-recorded. The interviewer took notes during each interview. Additionally, prior to data collection, the interviewer wrote and described their own experience with nutrition education in order to bracket personal feelings towards the phenomenon. This description aided

in keeping the study's focus on the participants' unique experience with the phenomenon and not that of the researcher (Creswell, 2007).

Procedure for Data Analysis

Following data collection, analysis included transcription, coding, and an overall essence write up. Transcription began while the remaining interviews were still being completed in order to ensure that saturation was being reached. Transcriptions were created using the audio-recordings verbatim and a basic word processor and were checked for accuracy.

After transcription was complete, the process of coding began. Two coders were trained and began reading through the transcripts individually in order to familiarize themselves with the data. In preliminary coding, the coders wrote memos, which are ideas, phrases, or concepts that come to the coder while reading, and formed initial codes with descriptions. The two coders then came together to reach a consensus on the codes and their definitions line by line in each interview, resulting in the creation of the codebook. Themes were developed by grouping like codes into larger concepts that describe the experiences of the participants. Identified themes were reported with supporting quotations from the participants' interviews. The themes were incorporated into an in-depth written description of the experiences, called an essence, and depicted in a theoretical model.

Approach and Trustworthiness

Our approach to this qualitative study was through the use of phenomenology. Phenomenology provided a structured and streamlined approach to conducting research. Trustworthiness in qualitative work is similar to the concepts of validity and reliability in quantitative studies (Shenton, 2004). There are several methods available to ensure trustworthiness is achieved. The use of standardized training, expert review, debriefing sessions,

bracketing, memoing, and triangulation were used to increase the rigor and trustworthiness of this study.

The use of standardized training developed by Goodell, Stage, and Cooke (2016) was essential to preparing the interviewer and coders in a consistent, calibrated way. This process of interviewing training involved five steps, which included three mock interviews. To begin, the interviewer in training listened to pre-recorded interviews in order to become familiar with the flow of an interview and practiced note-taking (Goodell, Stage, & Cooke, 2016). When comfortable with this step, the interviewer moved from the recordings to conducting a mock interview with a member of the research team. The member of the research team utilized their familiarity with the phenomenon and target population to act as a realistic potential participant (Goodell et al., 2016). In this case, the research team member posed as a pre-service teacher discussing nutrition education. During the mock interview, the research team member acted as a true participant and may stray away from the subject matter. The interviewer in training must utilize the interview guide appropriately to remain on track (Goodell et al., 2016). The rest of the research team observed these mock interview runs and provided feedback. Lastly, the interviewer conducted a final mock interview with an individual within the target population who will not be included in the sample. This final mock interview provided very realistic insight into what an actual interview with the sample audience will look like. These steps can be repeated until the interviewer's skills are sufficient (Goodell et al., 2016). Similar to the training for the interviewer, coder training is five phases including reviewing the codebook, team coding, and independent coding.

Expert review and debriefing sessions provided trustworthiness by incorporating feedback from others familiar with the subject. An expert in nutrition who specializes in

qualitative research reviewed this study, particularly focusing on the interview guide. Feedback from this expert was appropriately incorporated into the interview guide. Debriefing sessions throughout the research study provided the opportunity to consult with the research team to review the study's progress and findings. This feedback added credibility as the research team addressed errors or assumptions, discussed, and reviewed notes, transcripts, and descriptions.

Bracketing, which has its roots in phenomenology, is essential to separate researchers' personal views in order to focus on the participants' experience (Tufford & Newman, 2012). While it can be challenging to do, bracketing increases the rigor of the research. A common method of bracketing, which was used in this study, is to have the researcher/interviewer reflect and write about their experience and thoughts with the subject (Tufford & Newman, 2012). Memoing, separate from bracketing, throughout the data collection and analysis process was useful in keeping note of the researcher's thought process and potential ideas. These memos later became significant concepts for discussion. Bracketing and writing memos were done for these reasons in the current study.

In order to provide context to the findings, triangulation occurred through a meeting with the program director of the universities to report back the findings (themes and overall essence) from the interviews. Triangulation is the use of two or more approaches to studying the same research question (Heale & Forbes, 2013). It is commonly done in research to eliminate biases from utilizing a single approach. Triangulation can show if your results converge, complement each other, or contradict each other (Heale & Forbes, 2013). The program directors triangulated the findings by providing information about their program's curriculum and whether or not nutrition education is incorporated to the degree. This process was useful in providing rigor and context to the study by validating and verifying the study's findings.

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CHAPTER 6: STANDING UP FOR BROCCOLI: EXPLORING PRE-SERVICE EARLY CHILDHOOD EDUCATORS' EXPERIENCE WITH NUTRITION EDUCATION

Introduction

Nutrition knowledge is not intuitive. Most humans, at one point, learn about food groups and healthy eating behaviors. Knowing these concepts is not inherent to being human and must be learned (Unusan, 2007; Unusan & Sanlier, 2007). Young children are taught many aspects of eating: what to eat, when to eat, how much, and even how to eat it (Cotugna & Vickeryn, 2007). Teaching children about healthy eating from an early age can protect them from childhood obesity and future increased risk of cardiovascular disease, diabetes, high blood pressure, and high cholesterol (Derscheid, Umoren, Kim, Henry, and Zittel, 2010). Alarming, the prevalence of obesity amongst three- to five-year olds in America is over 20% (Ogden, Carroll, Kit & Flegal, 2014). Often referred to as the Stroke Belt, the southeastern region of the United States experiences an increased risk in health problems due to factors including diet and lifestyle according to the National Heart, Lung, and Blood Institute (1996). For example, recently, the Centers for Disease Control and Prevention (2016) reported that 42.7% of North Carolina's youth consumed fruit less than one time daily and 38.7% for the consumption of vegetables daily.

Children's attitudes and preferences towards the taste of different foods are also formed at a young age, making early exposure critical (Sepp & Höijer, 2016). Nutrition education is successful in the early years of life as children are captive listeners, sensitive, and are working on forming habits (Unusan & Sanlier, 2007). In toddlerhood and early childhood, children are most influenced by those they spend the most time with – their parents and teachers. According to the U.S. Department of Education's National Center for Education Statistics (2016), 58% of children

attended center-based care as their primary early care and education source. This occurrence makes childcare centers an ideal setting for the exploration of children's health behavior (Froehlich Chow & Humbert, 2013). Shor and Friedman (2009) state that, other than the home environment, childcare facilities and educational institutions have more continuous contact with children for nearly the first twenty years of their lives than any other setting. As a result, there is a valuable avenue for teachers to reach and impact children's nutritional habits where they are and from a young age (Shor & Friedman, 2009). Educators have a unique opportunity to incorporate and deliver nutrition education into the classroom, positively impacting children's foundational knowledge for healthy eating behaviors (Derscheid et al., 2010).

Still many studies focus on interventions for educating preschoolers instead of reviewing teacher perceptions and behaviors related to the topic of nutrition education (Sepp & Höijer, 2016; Başkale & Bahar, 2011; McBride & Dev, 2014). Shor and Friedman (2009) affirm that the current literature emphasizes nutrition education at the program level versus the actual integration of content by early childhood educators. For early childhood teachers to feel confident in their abilities to deliver nutrition education in the classroom, teachers must review their own beliefs and practice as well as their nutrition knowledge. Early childhood educators themselves may lack the knowledge and training to intervene successfully (Shor & Friedman, 2009). Meanwhile, many studies call for healthy eating practices to be implemented in preschool classrooms (Derscheid et al., 2010; Unusan & Sanlier, 2007; Cotugna & Vickery, 2007).

The current study sought to answer this fundamental research question: What experiences do early childhood education students have with nutrition education and how does this play into their future perceptions as a teacher? Thus, the main purpose of this study is to explore pre-service early childhood teachers' experience and thoughts regarding nutrition education while

completing their undergraduate teacher education program. In this study, pre-service teachers were early childhood students in their senior year (Senior IIs) who began their full-time internship in a classroom setting during the spring semester. In the state of North Carolina, these students will receive a licensure in Birth through Kindergarten (BK) Education upon graduation. For simplicity, participants were referred to just as early childhood education students or pre-service teachers in this study. All BK students are required to complete a final internship within the classroom setting that is one semester long. During this time, they experience how to co-teach and lead a classroom as a teacher. Thus, these students get to experience the field before becoming lead teachers within their own respective public school Pre-K or Kindergarten setting. In order to understand and explore BK students' thoughts on nutrition education in their early childhood programs, a phenomenological methodology informed by social learning was used. Understanding pre-service early childhood teachers' experiences with nutrition education has a number of implications for teacher education programs and the early childhood field as a whole.

Understanding BK Licensing Requirements in North Carolina

In North Carolina, teachers must hold a BK license in order to teach in public preschools/kindergartens or in the private child care system (Hegde, Averett, White, & Deese, 2014). Teachers with this license are qualified to work with children from birth up to the age of five years regardless of at-risk classification or diagnosed disabilities (Hegde et al., 2014). Further, they are expected to follow the NC Education Standards in place for the Birth through Kindergarten candidates by the NC Board of Education as they fulfill their teaching requirement. The *Standard Five* of the NC Education Standards for BK clearly states that, "B-K teacher candidates create and adapt environments and intentionally plan and implement an integrated curriculum that facilitates every child's construction of knowledge and provides a strong

foundation for lifelong learning” (“Standards,” 2009). Falling under that standard, BK teachers’ integrate curriculum that promotes health, nutrition, and safety. This promotion includes modeling and discussing healthy eating habits and exercise with the children (“Standards,” 2009). Teachers are allowed to use discretion on how in depth to go when incorporating healthy eating and exercise.

Literature Review

Teachers’ Own Knowledge & Educational Background with Nutrition

Educators’ own knowledge and practice of healthy nutrition is vital to helping children learn these concepts. Derscheid et al. (2010) reaffirm that teachers who realize the importance of their own health and nutrition behaviors may likely model and promote these in practice when they are teaching their young students. While many states have developed policy for early childhood agencies to promote healthy eating habits and curb childhood obesity, little push has been made to change the practices and beliefs about nutrition of educators before they graduate their undergraduate institution and begin teaching (Derscheid et al., 2010). Many efforts can be seen to encourage and educate teachers in-service on the topic. Training teachers in nutrition is a factor in successful early childhood nutrition education (Unusan & Sanlier, 2007). Much of previous research seeking to understand the experience of pre-service student teachers with nutrition has not been conducted in the United States.

Unusan (2007) was one of the first studies to examine the impact of a nutrition course on preschool teacher candidates’ own nutrition practices. Based in Turkey, Unusan (2007) found that undergraduate preschool teacher candidates significantly improved and maintained their own nutrition knowledge and behaviors by taking a 3-credit hour nutrition course. The course focused on applicable knowledge for changes to lifestyle and health as well as basic information on

nutrients and energy balance (Unusan, 2007). Within the 140 undergraduate preschool teacher candidates surveyed, there was a significant improvement for 13 of the 18 nutrition practices that were assessed as well as their attitudes towards nutrition (Unusan, 2007). The participants indicated that they would suggest the course to other departments in order to improve the healthy eating practices of the participants themselves as well as the children with whom they may work in the future. This study demonstrates preliminary support for the positive impact of nutrition coursework in pre-service early childhood educators (Unusan, 2007).

While there is support of the benefits of nutrition coursework, little explicit effort has been made to formally include nutrition in these early childhood education degrees. Similar to Unusan (2007), an Israeli study of 60 first-year Master's graduate students in Early Childhood Education surveyed graduate students about their integration of nutrition education in the classroom (Shor & Friedman, 2009). Shor & Friedman (2009) examined the frequency of the inclusion of nutrition-related components in the classroom, barriers to inclusion, and the importance that the educators put on the nutrition integration. All participants were working in early childhood education at the time of the study. The average length of work experience in early childhood education amongst them was 8.6 years ($SD = 6.33$) (Shor & Friedman, 2009). Participants were asked if nutrition had been addressed in their academic coursework. Most participants (94%) reported that nutrition was never covered during their academic programs (Shor & Friedman, 2009). The absence of nutrition lessons in early childhood education curriculum for college students would help to explain lack of or gaps in nutrition knowledge in pre-service teachers.

While nutrition can be addressed as a whole, large subject, many subtopics exist such as food preparation/cooking. The depth of content makes it hard to tackle as an early childhood

educator because there is not a consensus on what subtopics should be focused. Øvrebø (2017) presented a qualitative study in Norway, which explored what undergraduate seniors in pre-school teacher education learned about nutrition during their formal education. Interviews with 15 seniors revealed that the students were not taught basic nutrition concepts that they will need to teach children (Øvrebø, 2017). All students reported receiving no training on nutrients. Only one student reported having one training session about practical cooking. All students reported learning something about food and meals, but it was limited in its practicality and theory (Øvrebø, 2017). Amongst the group, there was not a common understanding of how to fully incorporate nutrition in the classroom (Øvrebø, 2017). This study identifies a range of areas that could be covered more significantly in early childhood education programs. Without a complete foundational knowledge base of their own, it becomes more difficult for teachers to deliver appropriate content and activities to their preschoolers regarding nutrition habits and practices. As evidenced by these studies, foreign institutions have already begun reviewing nutrition education within formal education programs for educators. There is a need for an investigation of nutrition education perceptions in American pre-service early childhood education programs.

Teachers' Role and Interdisciplinary Integration

Education and creativity are crucial components to successful nutrition education in the classroom. Teachers must have knowledge that they are confident about leading their students in and must be open minded to add nutrition subject matter throughout class. Derscheid et al. (2010), a study with a fairly large sample size ($n = 360$) of in-service preschool teachers, found that childcare educators with higher education levels believed children could be persuaded to eat healthy foods – suggesting the promotion of healthy eating within the classroom. The authors suggest that an ideal intervention to nutrition education in the classroom must first stem from the

teachers' opportunities to explore their own knowledge of nutrition (Derscheid et al., 2010). Several years later, after the development of an instrument to understand teachers' self-efficacy and knowledge of nutrition, Derscheid, Kim, Zittel, Umoren, and Henry (2014) found that it was the age of the educator and the knowledge of health practices that was the overall predictor of self-efficacy. Teachers can take advantage of students' previous experience with eating to utilize food and nutrition as a method to teach more difficult subjects. Children's daily experiences with food provide a foundation from which they can learn new subjects (Carraway-Stage et al, 2015).

Taking an interdisciplinary approach to nutrition education aids integration because it includes nutrition experts although early childhood educators already feel responsible for their students' eating habits. It goes beyond snack time and meal times into other subjects in order to include other disciplines (Carraway-Stage et al., 2015). Because poor nutrition habits are a complex issue that does not come with simple solutions, the need for interdisciplinary collaboration with other professionals, like nutritionists, is present (Shor & Friedman, 2009). Shor and Friedman (2009) found that most participants integrate nutrition in the classroom, yet few collaborate or refer to nutrition specialists. A potential reason for this discrepancy is related to the role of early childhood workers. As early childhood educators, there is an expectation of tending to nutritional needs of students through meal supervision or other activities. However, it is not an explicit part of the educator's role to collaborate with nutrition professionals (Shor & Friedman, 2009). Kenney, Henderson, Humphries, and Schwartz (2011) assessed teachers' perceptions on preschool nutrition through focus groups. Teachers revealed that they felt already committed to the promotion of healthy feeding practices because they saw it as a part of their job. The teachers in this study felt a responsibility to both model healthy eating and expose children to various types of food (Kenney et al., 2011). After attending nutrition workshops,

100% of a 72 Head Start staff member sample reported that the information would be useful in their career (Cotugna & Vickeryn, 2007). Over 95% of the sample revealed the content was interesting and new, and they felt compelled to bring what they learned back into the classroom (Cotugna & Vickeryn, 2007). Outside of using collaboration, early childhood educators can be creative to incorporate food related lessons throughout their curriculum.

Integration of nutrition education in the classroom can take many different forms. A 2016 exploratory study in Sweden explored food as a teaching method in everyday preschool activities (Sepp & Höijer, 2016). Interviews with 45 preschool staff members demonstrated the range of possibilities when integrating nutrition into the class along with advantages and barriers.

Cooking with children is an interactive way to teach them about measuring and math (Sepp & H, 2016). These lessons can become a base for more complex math problems as children advance in school. The White House Task Force on Childhood Obesity suggests that older children can do math problems focused around caloric or energy needs (as cited in Carraway-Stage, Hovland, Showers, Díaz, & Duffrin, 2015). In addition to math, health and science are subjects that allow for easy integration of nutrition (Unusan & Sanlier, 2007). Allowing preschool children to read a recipe allows them the autonomy to carry out the steps on their own (Sepp & Höijer, 2016).

Teachers report that children begin to verbalize and discuss the topic of food more with their classmates, reflecting a higher level of conscious effort and interest. It makes children more open to tasting new foods (Sepp & Höijer, 2016). Despite attempts at the interdisciplinary approach and integration, teachers may still be faced with a number of barriers that deter them from including the subject in the classroom.

Social Learning Theory

It is important to consider the way in which we all come to acquire nutrition information. These educators have experiences of learning nutrition in formal and/or informal manners throughout their childhood, which, in turn, shapes how they will teach and foster nutrition education in their classroom. Concepts such as role modeling and self-efficacy are important in both learning and teaching nutrition education. Social learning theory provides support for the idea that educators can influence nutrition knowledge and behaviors. As children, we all learn about nutrition from key sources. Understanding these key sources is helpful in knowing the impact that educators can have on nutrition knowledge and behaviors. It is appropriate to consider the context in which children in preschool and childcare operate. Unusan and Sanlier (2007) identifies that nutrition education is most effective when it utilizes social learning strategies. Utilizing Albert Bandura's Social Learning to understand children's experience with learning nutrition provides context and reasoning for how early childhood educators act as agents of change for children's nutrition habits.

Early childhood educational settings are an ideal place for children to observe and learn from both their teacher and other classmates. In Bandura's Social Learning theory (1977), this observational learning is critical. Observation is a powerful tool as humans can pick up many behaviors simply by observing. Observation shows us the consequences or rewards of a behavior vicariously as we see what outcomes others receive (Crain, 2005). In order to imitate a behavior with success, one must pay attention, remember it in a symbolic way, have the needed motor skills, and find positive consequences in the behavior (Crain, 2005). Socialization of children aids this behavioral learning process. Parents and teachers often underestimate how influential they can be as models. Children are constantly watching adults' actions and listening to their commands (Crain, 2005). Other children and media can serve as models too. Early childhood

educators can influence children by modeling and encouraging healthy eating within the classroom. Teachers can demonstrate positive messages about foods through their own actions if they have high self-efficacy. Observational learning contributes to self-efficacy, our own belief in our abilities (Crain, 2005). Bandura believed that efficacy guides individuals' actions. Self-efficacy plays a role in how much effort a person will put into an endeavor and the duration of his/her efforts (Bandura, 1997). Fortunately, self-efficacy is not set in stone and can be strengthened in teachers who believe less in their ability to change their own lives and those of their students (Elliott, Isaacs, & Chugani, 2010). The current study was informed by social learning theory.

Methods

Phenomenological methodology was used in this study. Phenomenology seeks to understand a common experience, or phenomenon, of a particular group (Creswell, Hanson, Clark Plano, & Morales, 2007). Phenomenology's purpose in qualitative research is to portray participants' commonalities with a certain lived experience (Creswell, 2007). In accordance with phenomenology and to increase trustworthiness, several other steps were taken to conduct this study. Expert review was used in the development of the study's questionnaire and interview guide. An expert in nutrition who specializes in qualitative research at another institution reviewed the proposed study and provided critical feedback, focusing on the questionnaire and interview questions. Prior to data collection, bracketing and standardized training also occurred to prepare the interviewer and coders. Bracketing, which has its roots in phenomenology, is essential to separate researchers' personal views in order to focus on the participants' experience (Tufford & Newman, 2012). The interviewer bracketed their own views on the subject by reflecting and writing about their own experiences with nutrition education. Memoing

throughout the data collection and analysis process was useful in keeping note of the researcher's thought process and potential ideas. These memos later became significant concepts for discussion. The five-phase training for conducting qualitative interviews as outlined by Goodell, Stage, and Cooke (2016) was followed. This process involved practicing with pre-recording interviews, one's own interview guide, and eventually a full mock interview with a participant from the population who will not be included in the sample. Throughout data collection and analysis, debriefing sessions occurred and provided an opportunity to consult with the research team to review the study's progress and findings. This feedback added credibility as the research team addressed any errors or assumptions and reviewed notes and transcripts.

Recruitment and Sample

Purposive sampling was used to recruit participants from two public universities in the state of North Carolina. To make the sample more representative of the state, one university was located in the east and the other was located in the western region of the state. Only Senior II students who were completing their internship in a classroom setting in the spring semester were invited to participate. Roughly an equal number of participants were recruited from each university through email and through in-person recruitment. Participants received a \$10 Target electronic-gift card for their time. Institutional Review Board approval was granted through the researchers' university.

Because of the detailed nature of phenomenology, experts recommend a sample size of at least ten participants (Creswell, 2007). The final sample ($n = 11$) consisted of seven participants from University A and four from University B. All participants were females. Eight participants were White/Caucasian and the remaining three participants were Black/African American. The participants' ages ranged between 21-46 years (mean age 29 years). Six participants were

enrolled in a face-to-face licensure degree-seeking program, while five participants completed their licensure degree program through online education. Only two participants were Licensure Only/Licensure Add-On students, who already had a bachelor's degree in a different or related field to education, and were seeking a Birth through Kindergarten license. Six participants planned to include nutrition related activities during student-teaching.

Data Collection and Analysis

Data collection consisted of a demographic questionnaire and in-depth semi-structured interviews. The demographic questionnaire was self-reported through Qualtrics prior to the interview date. Interviews were 30-45 minutes long and conducted over the phone. Telephonic interviews were chosen because of the geographic distance between the research team and the universities. A standardized interview guide was created for this study with nine main questions modeled after Cooke, Ash, Goodell, and Wilson's (2015) interview guide for pre-healthcare undergraduate students and was used to guide the conversation. A list of major interview questions is presented in Table 1. Interviews were audio-recorded and transcribed verbatim. In total, 11 in-depth telephonic interviews were conducted. The saturation point was found at six interviews. To assure that saturation reached, data collection continued to eleven interviews and in accordance with minimum phenomenological sample size (Creswell, 2007).

Following transcription, data analysis began with two trained coders independently reading the transcripts to familiarize themselves with the data. In preliminary coding, the coders wrote memos, which are ideas, phrases, or concepts that come to the coder while reading, and formed initial codes with descriptions (Creswell, 2007). The two coders then came together to reach a consensus on the codes and their definitions line by line in each interview, resulting in the creation of the codebook. Themes were developed from the codebook by grouping like codes

into larger concepts that describe the experiences of the participants. Identified themes were reported with supporting quotations from the participants' interviews. The themes were incorporated into an in-depth written description of the experiences, called an essence, and depicted in a theoretical model. Lastly, triangulation occurred with the program coordinators at each university through a conversation over the phone in order to provide context to the results.

Table 1

Major interview questions in semi-structured interviews with pre-service ECE teachers (n = 11)

Major Interview Questions	Major Probes
Can you tell a story about a learning experience you had with food and/or nutrition as a young child?	Who was a major influence in your nutrition habits? Where else did you learn about nutrition growing up? How might this experience have influenced your thoughts on nutrition education's role in the PreK-K setting?
Can you describe your interpretation of the role nutrition education plays in the preschool classroom?	What has influenced your perception of nutrition education's role the most?
When and how do you think children learn about nutrition?	Who is responsible for teaching children about nutrition?
Can you describe what nutrition education typically looks like in a Pre-K or Kindergarten classroom?	Can you tell a story about that?
Would you have wanted more courses that covered nutrition?	Why/why not?
If participant has taken a course that covered nutrition... What was the most impactful part of those lessons?	

<p>Why do/don't you plan on including a nutrition related topic during student teaching?</p>	<p>How prepared do you feel to teach nutrition lessons to your students?</p> <p>Where would you rank nutrition education in terms of importance compared to other standards/topics?</p> <p>What barriers do you think you'll face with nutrition in the classroom?</p> <p>What supports do you think you'll face with nutrition in the classroom?</p>
<p>Can you describe what role you would like nutrition education to play when you are the lead teacher in your own future PreK-K classroom?</p>	
<p>How well do you think your BK education program incorporates nutrition education into the degree program/curriculum?</p>	<p>What are they doing well?</p> <p>What could be improved upon?</p>
<p>How well do you think the early childhood education field promotes including nutrition content in PreK-K classrooms?</p>	<p>What are they doing well?</p> <p>What could be improved upon?</p>

Results

Analysis revealed four emergent themes in regards to the pre-service teachers' experiences with and thoughts on nutrition education for early childhood, including (1) familial and life experiences, (2) academic experiences, (3) food and mealtime policies, and (4) strategies. The four major themes and their subthemes are presented in Table 2.

Table 2

Four major themes of qualitative interviews (n = 11) with pre-service ECE teachers' nutrition education thoughts and experiences

Themes	Examples
<p>Familial and Life Experiences</p> <p>Subthemes: Parental Influence Health Generational Difference</p>	<p>"It (my habits) came more from my family and sitting down. We would sit down at the table every night to eat and always have, you know, fruits and vegetables..."</p> <p>"It (nutrition in the classroom) reminds me of how I want my child to eat...I have a one year old"</p>
<p>Academic Experiences</p> <p>Subthemes: Diverse Sites Responsibility Self-Efficacy</p>	<p>"It's also a private school so we give them their food so it ends up being healthy like nutritious food."</p> <p>"Not only does the teacher take on the education but like a parent role"</p> <p>"My teacher is always stressing how obesity is such a growing problem in America. This is a growing problem that we really need to change."</p>
<p>Food Choices and Mealtime Policies</p> <p>Subthemes: Mealtime Policies Child Autonomy</p>	<p>"They're going to get to a stage in life where they're able to choose for themselves, and I want them to have some idea of what a good choice looks likes."</p> <p>"We have a kind of strict, you know, food program that you have to go by."</p>
<p>Strategies</p> <p>Subthemes: Ideal Nutrition Education Modeling Positive Eating Behaviors Mealtime Conversations</p>	<p>"I feel like, as educators in the preschool classrooms, that we're supposed to model good eating habits at all time not matter what. I actually practice this myself."</p> <p>"Adding those (lessons) into curriculum and daily routine is a really important part and needs to be stressed and modeling of course."</p>

Theme 1: Familial and Life Experiences

The familial and life experiences that pre-service teachers described prior to and outside of their teacher education program were influential in their own thoughts and practices of healthy eating, including Parental Influence, Personal Health, and Generational Differences. It was evident that pre-service teachers came from a variety of backgrounds and brought a number of other experiences into their teacher education program and the early childhood classroom.

Within their families of origin, all pre-service teachers named Parental Influence as a major factor in their current nutrition habits. One student said, “she (mom) was usually the one that prepared our meals and encouraged us to pack healthy lunches.” Other familial experiences shaped their habits growing up: “a lot of the time that’s where we (the family) spent our evenings and the weekends was in the kitchen all cooking together.” Further, for those who were now parents themselves, it changed how they viewed nutrition education for their students. One mother said, “When I became a parent, then it became important to me to feed my children healthy food.” Another mother indicated, “I didn’t know much about it (nutrition) at all until I had children and, you know, the doctors started telling me... how important nutrition was and to make sure my children were getting a balanced diet.”

Many participants discussed the importance of Personal Health in their lives, especially for weight management and/or chronic illnesses. When asked what has influenced their thoughts on nutrition in the classroom, pre-service teachers responded with: “(my) personal diet. I have essentially a nutritionist who plans what I eat” and “I’m a diabetic, so nutrition for me is important in helping my children maybe avoid type two diabetes.” Teachers described placing more value on their health in the present: “I’m more health conscious right now than I was even a few years ago.” One pre-service teacher summarized it well by saying, “It made it more

important to me especially as an early childhood education teacher now than it did. I didn't realize how important it was and how it did affect my health growing up."

Generational Differences were also at work. Older pre-service teachers pointed out their generation's lack of emphasis on nutrition education. One pre-service teacher said, "We didn't learn about (the food) pyramids or anything in school...but I grew up in the seventies so it was a little different than it is now." Another pre-service teacher mentioned how her life experience and age differs from the more traditional, younger college students, "If I were twenty-two and coming out of school, I may not know how to do that and not know how to incorporate (nutrition education in the classroom)." On the other hands, the younger pre-service teachers desired to teach children differently from the ways they were brought up: "Basically, it doesn't have to be the way that it was modeled for us as kids." Another pre-service teacher said, "I definitely think they (other teachers) could use probably some reminders, even though that's how we were brought up, it's probably not best practice."

Theme 2: Academic Experiences

The professional and academic experiences embedded in their teacher education program gave pre-service teachers the opportunity to observe in a number of sites. These helped develop their personal responsibility and self-efficacy as teachers. Subthemes included Diverse Sites, Responsibility, and Self-Efficacy.

During their teacher education programs, pre-service teachers observed and were placed in Diverse Sites. They worked in a variety of centers or classrooms through their placements of practicum and internship. This variation gave them the opportunity to see how different sites address nutrition education, making them better versed on the topic. Collectively, the group had seen excellent, average, and minimal effort examples of nutrition education at certain sites. One

pre-service teacher said, “I’ve had three schools that have done it in all three ways...they were varied in what they did.” One pre-service teacher described this variation well by saying, “It depends...it’s not so black and white.” Another pre-service teacher summarized these variety of work sites and experiences by saying, “It really depends on which county you’re going to and which type of program you’re going to.”

Pre-service teachers repeatedly indicated a great sense of Responsibility for their students and for their healthy development. This responsibility that they felt during their teacher education program may have acted as a motivator for them to familiarize themselves with nutrition education. One pre-service teacher said, “I also feel a responsibility as someone who spends so much time with them to set an example and make sure they see me eating and drinking things that are healthy choices.” Another student said, “These children are not going to learn it (healthy nutrition habits) if I don’t teach it.” Realizing the long-term impacts of nutrition on child development, pre-service teachers recognized that their role is second in line to teach children about nutrition and food, right after parents. When asked about who teaches children about nutrition, a pre-service teacher said, “Parents. However, with that being said, educators are supposed to be there just in case it falls through.... There’s a balance between parents and the people who come into contact with kids in their first five years.” What’s more, pre-service teachers felt responsible for fighting the negative stigma against healthy eating. For example, one student highlighted wanting to change this perception and stand up for vegetables, “That makes me want to...present healthy options in a positive light before maybe they get negative connotations on vegetables...They don’t like broccoli just because they hear people talk about vegetables and things not very positively.”

As pre-service teachers developed Self-Efficacy to teach throughout their teacher education, their self-efficacy would be applied to addressing nutrition education in the future. Even when pre-service teachers did not feel prepared to teach nutrition lessons on their own, they felt confident in their ability to prepare themselves. “I don’t feel that prepared (to teach nutrition lessons), but I feel prepared in my ability to prepare myself,” and “I feel like I have what I need to operate our classroom successfully,” said two pre-service teachers, reflecting their self-efficacy and confidence. To prepare, pre-service teachers would draw off of their supports/resources, knowledge, and teaching confidence. One student said, “I can also do my own research,” and another said, “There are still things that I have to be like, ‘to be honest, I’m not sure’ and we’ll have to look it up...we’ll do some research and figure it out (together).” These pre-service teachers maintained a positive outlook on being able to familiarize themselves with nutrition education in the future: “We can definitely educate ourselves on anything and everything. I’ve always been a strong believer in that.”

Theme 3: Food Choices and Mealtime Policies

In an effort to describe nutrition education, pre-service teachers oriented towards food and mealtime policies, focusing on Mealtime Policies and Child Autonomy, rather than actual nutrition education lessons.

Pre-service teachers referenced specific government regulations related to food and Mealtime Policies in early childhood classrooms and current nutrition recommendations such as MyPlate in their depiction of nutrition education. One student explained the specific guidelines at the preschool where she worked, “We’re not allowed to purchase any snack that has more than nine grams of sugar.” Another pre-service teacher has seen policy and initiatives make a difference over the years, “the shift (with) Michelle Obama in the lunch room...now we have

wheat (products) and salad (in the cafeteria).” In addition, food and mealtime looked differently based on if the site was public or private. For example, one pre-service teacher explained, “a lot of the programs, like my program, they (the students) bring their own lunches. They bring them so we don’t have a lot of control over what there is.” Contrasted with a different site, another pre-service teacher revealed that, “we’re a private school so we give them their food.” While vaguely familiar, most participants described the MyPlate, “Well now it’s a plate” and “the MyPlate where it shows the portions of the different types of food that we should eat.” Additionally, they made mention of obesity statistics and other health issues. One student described, “We are having a problem with childhood obesity...trying to encourage and help teach, model, and prove examples...can help decrease that issue,” and another said “childhood diabetes...is becoming a prominent issue and I think it’s raising awareness. It’s (nutrition) becoming a more important topic to teach.”

Beyond these policies, pre-service teachers recognized and respected the Autonomy that children have in making choices about their eating habits. Children, especially in Kindergarten, know what they like and do not like and exercise their choice. For example, one pre-service teacher revealed, “(they) have to get an entrée, one vegetable, one fruit, your milk, but (they) don’t have to eat it...being in Kindergarten, there’s an element of choice.” This autonomy and peer influence impacted children’s choices and behaviors related to food. One pre-service teacher said, “Even though they’re young, they can still compare what they have for lunch.” After reading the book, *How Do Dinosaurs Eat Their Food?*, as a class that teaches children to try all of their food, the teacher noted that “anytime they say they don’t want to try anything, all the other kids chime in and say ‘dinosaurs of course try their food at least one bite.’”

Understanding the choices that children have in early childhood impacted the ways pre-service teachers approach nutrition related changes in their students.

Theme 4: Strategies

Pre-service teachers identified the strategies in which they most commonly use or would like to use to approach nutrition education in the classroom. Strategies to nutrition education included Ideal Nutrition Education, Modeling Positive Eating Behaviors, and Mealtime Conversations.

Pre-service teachers described what they feel Ideal Nutrition Education is for young children. They identified that children learn and form eating habits early: “Habits are set, established so early. Sometimes I feel even before the kids turned three and before they go into the public school preschool, those habits are already forming.” Pre-service teachers described that the ideal appropriate to nutrition education for young children is through hands on activities, integration with other subjects, and intentional efforts and exposure. These pre-service teachers wanted to see nutrition be “fun and creative because that’s going to help it stick in their (children’s) heads” and “offering it...making it available.” Furthermore, one student suggested, “incorporate it really into anything (other subjects) that just helps give them more hands on (experiences).” They described healthy eating as a learned skill: “It is an acquired taste...you know, what you’re used to eating is what you become accustomed to.” In general, these pre-service teachers articulated the forms in which they believe nutrition education should take for early childhood education.

Modeling Positive Eating Behaviors was teachers’ main approach to nutrition education in early childhood. Pre-service teachers articulated a range of ways in which they are role models for their students by eating and trying healthy foods in front of the class. One pre-service teacher

explained, “if I bring cake, kids are going to want that... I have to be an example of good nutritional habits so I can help teach them about it.” In a story where children were extremely hesitant to try raw squash, the pre-service teacher took action: “I asked the educator, so do you mind if I eat a piece (of raw squash)?... I just think it’s important if they see me eating it, maybe they will be more willing to try it.” Pre-service teachers also recalled instances of negative modeling saying, “don’t sit down with a McDonalds cup” or “(another individual) was just talking about ‘oh, I can’t believe they had broccoli. I hate broccoli...’ and I was just like ‘positive thoughts...remember positive comments.’” From their time in the early childhood classroom, pre-service teachers had seen modeling and were trying to practice it themselves.

Mealtime Conversations were another approach to address nutrition education in the classroom. The power of frequent, informal conversation with the children was important to their learning of nutrition. Key conversations happened related to lunchtime. One pre-service teacher described just “introducing a topic and starting a conversation. They (the children) say real quick like, ‘what’s for lunch?’” and an opportunity is opened up to discuss healthy eating. Beyond meals and snack time, celebrations were a time to talk about healthy eating. One teacher described a birthday celebration with desserts, “When someone brings in something, we say ‘we’re getting a special treat. You know, this is something we don’t eat all the time...it becomes important to talk about it.” Pre-service teachers tried to take advantage of these conversations when they presented themselves: “so we try and use those as teachable moments.”

Theoretical Model and Essence

To depict the phenomenon visually, a theoretical model was created to show how the themes work together and to demonstrate how these pre-service teachers advance throughout their teacher education program (see Figure 1). On an individual level, incoming early childhood

education majors bring a variety of familial and life experiences to their program. These are all of the personal experiences they have prior to and outside of their teacher education program. Within their academic experiences, pre-service teachers see nutrition education in action through observing at various practicum and internship sites. They begin to form their identity as a teacher at the “individual as teacher” level. Responsibility and self-efficacy play into this identity. From the two lower levels, pre-service teachers develop an understanding of food choice and mealtime policies. The strategies that they will use to address nutrition education in the classroom are affected by this understanding. Teachers model healthy eating habits, have conversations about food, and know what they would ideally like nutrition education to look like in their classrooms. In combination, each level works in combination to achieve the desired outcome – influencing children’s healthy eating habits. This model is a basic visual representation of the phenomenon described in this study. There may be other factors and influences impacting pre-service teachers’ nutrition education thoughts and experiences during their teacher education program.

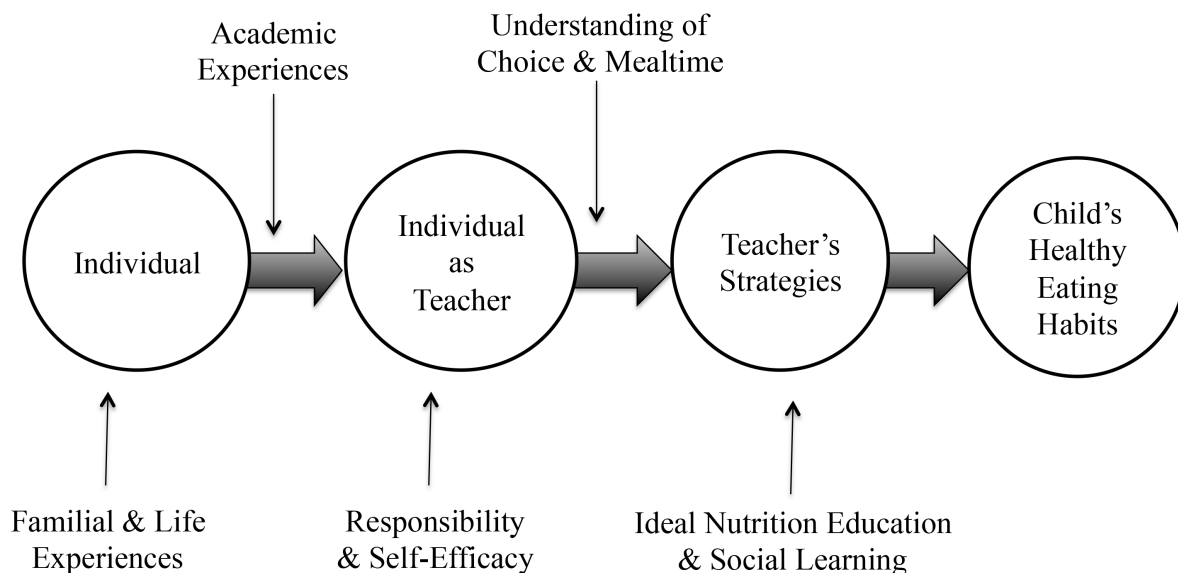


Figure 1. Theoretical Model of Pre-Service ECE Teachers’ Thoughts and Experiences with Nutrition Education during their Teacher Education Program

Triangulation with Program Coordinators

Triangulation with the Birth through Kindergarten education program coordinators at both universities confirmed and expanded upon what the pre-service teachers revealed about their nutrition education experiences during their teacher education program. Program coordinators were asked to describe how nutrition education was addressed in their respective programs. Both program coordinators recognized that nutrition education is not addressed enough formally within their programs but reported that their early childhood education students do have exposure to it through Teaching Methods courses or other lessons. The coordinators echoed that it varies by student cohorts and individual preference. More non-traditional students with work experience or their own children are typically more familiar with nutrition education. Additionally, those students with an individual interest in nutrition may incorporate it more into their assignments and activities than others. The coordinators described the ebb and flow of nutrition education in their programs. Over the years, more nutrition content or classes have been added but also taken away as nutrition fades in and out of popularity. Because nutrition can seem trendy, this may explain why there is not an emphasis on the topic in the programs at the moment.

Discussion

Lack of Emphasis on Nutrition Education

It was evident through these interviews that there is a lack of emphasis on nutrition education in both the teacher education programs and the early childhood classroom. Pre-service teachers had an orientation towards food and mealtime policies instead of actual nutrition education lessons. This orientation may be because teacher education programs cover nutrition and food as it relates to developing meal plans for childcare centers/schools. Teacher education

programs may assume that pre-service teachers already know about nutrition education and, therefore, spend their efforts on other areas more related to teaching such as IEPs (individualized education plans). Many of the pre-service teachers mentioned taking nutrition classes at community college prior to entering their university teacher education program, supporting the assumption that Birth through Kindergarten programs are making about prior nutrition experience. When pre-service teachers described nutrition education, they recalled buzzwords around nutrition education such as hands-on, exposure, and incorporation. However, they neglected to go further and describe actual nutrition education lesson plans. They reflected only a surface level understanding of nutrition education, which is not abnormal at this point in their career.

Overwhelming, pre-service teachers largely described their personal and other academic experiences to be influences rather than specific nutrition coursework. Having early childhood pre-service teachers with a variety of backgrounds and life experiences is a strength from which teacher education programs should draw. Adequately understanding where the teachers are coming from will not only be beneficial in serving their learning needs but also allow them to play up their own abilities. For example, in regards to the pre-service teachers that received nutrition courses through their community college, it becomes of increasing importance to understand that not all students come straight from high school to four-year institutions. This finding regarding backgrounds and life experiences has implications for teacher education programs and the centers/school where they complete their student-teaching. Teacher education programs should find a way to allow those students with more nutrition experience or more personal interest in nutrition to share that with the group or utilize the subject as a focus in their assignments. Additionally, it is essential that teacher education programs find a way to give

nutrition education knowledge and skills to the more traditional, younger college students in their programs. Many of those students may be formulating their own habits and opinions on nutrition education and the program can influence them. Many teacher education programs may already be doing so, but an appropriate placement process is critical to give students a variety of experiences as well as place them in a site in which they fit well and will be challenged to grow appropriately. In a study of 32 early childhood pre-service teachers in their practicum course, higher satisfaction levels with their practicum site was related to higher levels of teacher efficacy (Van Schagen Johnson, La Paro, & Crosby, 2017). In the current study, students explained benefiting from seeing a variety of sites through shadowing, practicum, and later their student teaching internship.

While this study did not explicitly address differences in curriculums between the two universities, it was clear through the interviews that students within and across the universities have had different experiences that prepared them to teach nutrition education. This study may point to the need for a standardized curriculum across early childhood teacher education programs. Different states address Birth through Kindergarten education and, more generally, early childhood education differently. The requirements for licensing vary, and they are not always compatible between states. Having a standard set of core curriculum will benefit the early childhood teachers by allowing them to be prepared and ready to teach across the country.

Sense of Responsibility and Self-Efficacy

As passionate future teachers, it was no surprise that teachers felt a great sense of responsibility for their future students' health and development. This sense of responsibility was most likely related to the reasons that these students wanted to become early childhood educators in the first place. Massari (2014) revealed the motivations of 173 early childhood pre-service

teachers to go into teaching as a career. Naturally, pre-service teachers were attracted to the teaching field for intrinsic reasons, including their love for children and respect for knowledge. One of the highest motivators was the ability to be a positive role model for student (Massari, 2014). The pre-service teachers in the current study felt confident in their teaching abilities even when their nutrition education knowledge or skills were not independently strong. This self-efficacy could be related to their teacher education or to the fact that they are pre-service teachers. As teachers who have not yet entered the workforce, they are still green and eager to tackle these issues. Still, it is promising for the early childhood education field to know that universities are turning out these dedicated new professionals who are committed to educating their students about life skills beyond academics.

This responsibility ranks high in priority for teachers but adds to the their already full plate of tasks and worries. Having too much on their plates and having to navigate a fine line regarding sensitive issues and state/program regulations can lead to high teacher burn out rates and turn over for the childcare centers and school systems. DiGirolarno, Stansbery, and Lung'aho (2014) identified overburden on teachers as a significant challenge to nutrition education in the classroom. Early childhood programs with higher teacher retentions rates are of high quality because there is less disruption in the teacher-student relationship, leading to better student outcomes for the children (Helburn & Culkin, 1995; Hale-Jinks, Knopf, & Knopf, 2006). Goelman and Guo (1998) identified highly demanding roles and responsibilities as a major contributor to teacher burnout. Burnout can vary by educational level, perception of the early childhood field, and even the organizational culture of the childcare site (Goelman & Guo, 1998). In a study of 65 Head Start teachers in Midwest, teachers who had higher education, liked their work environment, and had a strong relationship with the director of the center remained in

the teaching field (Wells, 2015). Because teacher burnout can impact the quality of the education that children receive, it becomes increasingly important to provide teachers with adequate resources and supports in their efforts to deliver nutrition education and to remain in the field.

Using Social Learning Theory

While teachers did not explicitly reference social learning theories, teachers were clearly employing social learning strategies to impart nutrition knowledge to their students. This strategy has been deemed successful by Unusan and Sanlier (2007). Teachers in the current study were aware of how children learn best and in tune with serving these needs. Social learning theory describes how parents and teachers are influential models for children because children are keenly watching the adults they are surrounded by (Crain, 2005). The results of this study echo this power of modeling in the classroom setting. Beyond teachers, other sources of influence can be other children and the media (Crain, 2005). Teachers were referencing this tenant of the theory when describing the children's peer interactions and the posters around the school that demonstrated healthy eating. There are theoretical implications here for the early childhood education field. Social learning theory should be incorporated more explicitly into teacher education programs or future in-service trainings to educate teachers on how to properly engage these strategies.

Conclusion

Through qualitative interviews of eleven pre-service teachers in their student teaching internship, this study described their thoughts and experiences with nutrition education during their teacher education program. Pre-service teachers reflected on their own upbringing, academic, and life experiences to explain their understanding of and their strategic approaches to nutrition education for their future preschool or Kindergarten classrooms. Having early

childhood educators who are dedicated and prepared to teach nutrition education has implications for the early childhood field, teacher education programs, and the quality of education that children receive.

Implications and Future Research

Fully understanding pre-service early childhood educators' experiences and knowledge of nutrition is essential to preparing teachers to address nutrition in the classroom. Teachers' own experiences impacted how they will address nutrition education needs in the classroom, which ultimately impacts the young children's development of healthy habits and knowledge. These findings are important to provide the appropriate supports, classes, and experiences to future early childhood educators. Furthermore, it is important to encourage future teachers to reflect on their nutrition habits before entering the classroom. Because pre-service teachers identified the influence their own parents and school had on their nutrition habits growing up, it is important for teachers to realize the impact that the same influences will have on their students. For teacher education programs, they may review their own degree program to assess how they prepare pre-service teachers to address nutrition education in the early childhood education setting. This review may call for updates or adaptations to existing curricula or degree plans. Additionally, programs should be prepared to acknowledge and adapt to the range of backgrounds that early childhood undergraduate students have.

As this area of literature continues to grow, more research on pre-service teachers is needed to understand their thoughts and experiences with nutrition education. Beyond qualitative methodology, mixed-methods studies that account for both the pre-service teachers' subjective experiences as well as their objective knowledge and practice of nutrition education may provide

a more complete story about nutrition education in early childhood. Future longitudinal studies that follow early childhood education majors from their first year to their senior year at their respective universities would detail how their thoughts, perceptions, and knowledge of nutrition education changes through their personal growth, coursework, and on-site work experiences through practicum and internship.

Strengths and Limitations

With its exploratory nature, this study contributes to the field by exploring pre-service early childhood teachers' thoughts and experiences as it relates to nutrition education in their teacher education program, an area that has received little attention in the literature. Additionally efforts to increase trustworthiness strengthened the current study. Through phenomenological methodology, bracketing to separate the researcher's personal views and the use of expert review added rigor to the study. Furthermore, debriefing sessions amongst the research team and triangulating the data with the universities' program coordinators increased credibility by ensuring that there were no discrepancies in the process and findings. Triangulation is commonly done in research to eliminate biases from utilizing a single approach (Heale & Forbes, 2013). Reaching saturation and, ultimately, going beyond it was a strength of this study in order to fully understand the population's experiences. However, despite these strengths, it is not without limitations.

As a result of the voluntary nature of the sample, students who chose to participate may have had an already natural interest in nutrition opposed to those students who did not participate or the larger population of early childhood pre-service teachers. The gift card incentive offered may have minimized this effect. Throughout the interviews, it was evident that some students

were more passionate and interested in the subject than others, typically seen by length of interview and how talkative or descriptive certain participants were.

This study sampled two early childhood teacher education programs, called Birth through Kindergarten education, in two public universities in the state of North Carolina. These two sites were purposefully chosen for their geographic locations on opposite sides of the state. However, because of the in-depth focus on these students' experiences, these themes may not be applicable to other early childhood teacher education programs at other universities. Future research on this topic should aim to sample a larger number of universities that offer early childhood teacher education programs.

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APPENDIX A: IRB APPROVAL

	<p>EAST CAROLINA UNIVERSITY University & Medical Center Institutional Review Board 4N-64 Brody Medical Sciences Building · Mail Stop 682 600 Moye Boulevard · Greenville, NC 27834 Office 252-744-2914 · Fax 252-744-2284 · www.ecu.edu/ORIC/irb</p>
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Notification of Initial Approval: Expedited

From:	Social/Behavioral IRB
To:	Jessica Resor
CC:	Archana Hegde
Date:	10/2/2017
Re:	UMCIRB 17-001787 Exploring Pre-Service Early Childhood Education Teachers' Experience With Nutrition Education

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 10/1/2017 to 9/30/2018. The research study is eligible for review under expedited category #6, 7. The Chairperson (or designee) deemed this study no more than minimal risk.

Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The Investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Name	Description
Consent Form	Consent Forms
Consent Letter with Information Recruitment	Recruitment Documents/Scripts
Demographic Questionnaire	Surveys and Questionnaires

Interview Guide	Interview/Focus Group Scripts/Questions
Proposal	Study Protocol or Grant Application
The Chairperson (or designee) does not have a potential for conflict of interest on this study.	
IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418	
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418	



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 600 Moyer Boulevard · Greenville, NC 27834
 Office 252-744-2914 · Fax 252-744-2284 · www.ecu.edu/ORIC/irb

Notification of Amendment Approval

From:	Social/Behavioral IRB
To:	Jessica Resor
CC:	Archana Hegde
Date:	11/20/2017
Re:	Ame1_UMCIRB 17-001787 UMCIRB 17-001787 Exploring Pre-Service Early Childhood Education Teachers' Experience With Nutrition Education

Your Amendment has been reviewed and approved using expedited review for the period of 11/20/2017 to 9/30/2018. It was the determination of the UMCIRB Chairperson (or designee) that this revision does not impact the overall risk/benefit ratio of the study and is appropriate for the population and procedures proposed.

Please note that any further changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. A continuing or final review must be submitted to the UMCIRB prior to the date of study expiration. The investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

Document	Description
Consent Form Incentive Added(0.01)	Consent Forms
Consent Form Incentive Added(0.01)	Additional Items
Demographic Questionnaire(0.01)	Surveys and Questionnaires
Demographic Questionnaire Incentive	Additional Items

Added(0.01)	
Demographic Questionnaire Incentive Added(0.01)	Surveys and Questionnaires
The Chairperson (or designee) does not have a potential for conflict of interest on this study.	
IRB00000705 East Carolina U IRB #1 (Biomedical) IORG0000418	
IRB00003781 East Carolina U IRB #2 (Behavioral/SS) IORG0000418	



Office of Research Integrity

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October 3, 2017

Jessica Resor
East Carolina University
(704) 340-6092 / resorj16@students.ecu.edu

Dear Ms. Resor,

The IRB for the Protection of Human Participants in Research at The University of North Carolina at Greensboro (UNCG) is willing to accept the approval of the project entitled, "Exploring Pre-Service Early Childhood Education Teachers' Experience With Nutrition Education", through East Carolina University.

Access to participants on this campus must be cleared through the appropriate department prior to you collecting data on the UNCG campus.

If you have any questions, please contact me at lagoble@uncg.edu or (336) 256-

1173. Sincerely,

A handwritten signature in black ink that reads "Lisa A. Goble".

Lisa A. Goble, PhD

Interim Director, Office of Research Integrity
Office of Research and Economic Development
UNC Greensboro
lagoble@uncg.edu

APPENDIX B: DEMOGRAPHIC QUESTIONNAIRE

1. Are you a senior in the Birth through Kindergarten Education program and about to begin student teaching/interning in the spring semester?
 - Yes (include in study/continue with questionnaire)
 - No (exclude from study/directed to end of survey)
2. What is your name? _____
3. What is the name of your undergraduate institution?
 - East Carolina University
 - University of North Carolina at Greensboro
4. Are you a **regular 4-year degree seeking** undergraduate BK student?
 - Yes
 - No
5. Are you an **exclusively online** 4-year degree seeking undergraduate BK student?
 - Yes
 - No
6. Are you a Licensure Only/Add-On Licensure student?
 - Yes
 - No
7. Are you an **exclusively online** Licensure Only/Add-On Licensure student?
 - Yes
 - No
8. When did you start with the BK program at your institution? Specify the year (e.g. 2015).
9. What is your age? Respond in years.

10. What is your gender? Select one.

- Male
- Female
- Other

11. What is your ethnicity/race? Select all that apply.

- White/Caucasian
- Black/African American
- Hispanic/Latino
- Asian/Pacific Islander
- American Indian/Native American
- Other _____

12. Do you have prior work experience in the early childhood education field?

13. Do you hold any other relevant licenses or prior degrees?

14. What are your future plans after obtaining your BK licensure?

15. What courses have you taken that related to or covered nutrition? Please provide the course number and name and an example of how it related to nutrition. *For example: BIO 100, Introduction to Biology, Covered the different macronutrients that humans need.*

16. Do you plan to include any nutrition related activities in your classroom as a student intern next semester?

- Yes
- No

17. In order to contact you to set up and conduct an interview, we will need some contact information. What is the best email address to contact you?

18. What is the best phone number (10-digit number) to reach you for the telephone interview?

APPENDIX C: INTERVIEW GUIDE

OPENING

Hello, [participant's name]. My name is Jessica Resor. I am a student at East Carolina University. We've been in contact over email about the study, but it is nice to get to talk to you over the phone.

I want to remind you a little bit about this study and why we are interviewing you. I hope to learn what experiences early childhood education students have with nutrition education and how those experiences may influence their actions when they become a teacher in the near future. As a Birth through Kindergarten education senior, you are a perfect fit for this study.

You've previously consented to participate in this study on the online form. As a reminder, your participation in this study is voluntary. You have the right to stop participating at any time without penalty. Today's interview will last about 30-45 minutes and will be audio-recorded so that I can refer back to our conversation when I complete my research report. Do you mind if I record this interview session?

- a. (NO, I DO NOT MIND.) Thank you.
- b. (YES, I MIND.) Okay. However, I am afraid we have to audio record this interview for research purposes. Because of that, you will not be able to participate in the interview today. Thank you for your time.

Before we begin, I would like to ask you to provide a pseudonym for yourself. That is, I would like you to make up a name for me to call you. That way, your actual name is never recorded. What name would you like me to call you? _____.

Great, I will now begin the recording.

(Begin audio recording.)

It is on. You are now being recorded.

GENERAL INFO/DIRECTIONS

To begin, I am interested in hearing your thoughts and opinions about your experience with nutrition education during your undergraduate experience as a Birth through Kindergarten education major. I would also like to hear about your own personal food and nutrition experiences, as well as, your thoughts on the early childhood education field. Questions will ask you to reflect on your personal and academic experiences with nutrition as well as how they have influenced you as a future Pre-K or Kindergarten teacher (PreK-K).

Please provide descriptive examples and tell stories when possible. However, when telling a story, please do not refer to the individuals by their real names. You can make up a pseudonym or refer to them by their relationship to you.

Remember this is all about what you think and your experience. It is okay if you are unsure or do not know how to answer some questions. At the end of our talk, I will recap our conversation and give you a chance to add to or correct anything that is said during our talk today. I will be taking notes throughout the conversation, so I may pause from time to time to finish writing.

Since we are on the phone, please be sure to stop me and ask me to repeat anything you did not hear.

Do you have any questions before we begin? (*Answer any questions.*) Great, let's get started.

SECTION ONE: ICEBREAKER & PERSONAL EXPERIENCE

QUESTION 1

This interview is all about nutrition education for young children. As I stated before, I am interested in learning about any of your personal and academic experiences that have shaped your perceptions about nutrition education as a future PreK-K teacher.

To start our conversation, can you tell me a story about a learning experience you had with food and/or nutrition as a young child?

REQUIRED PROBES	GENERAL PROBES
<i>Who was a major influence in your nutrition habits?</i>	<i>Can you explain this more?</i>
	<i>Can you give an example?</i>
<i>Where else did you learn about nutrition growing up? Think of all possible settings.</i>	<i>Can you think of anything else?</i>
<i>How might this experience have influenced your thoughts on the role of nutrition education should have in the PreK-K setting?</i>	<i>Why or why not?</i>

QUESTION 2

Can you describe your interpretation of the role nutrition education plays in the preschool classroom?

REQUIRED PROBES	GENERAL PROBES
<i>What has influenced your perception of nutrition education's role in the preschool classroom the MOST?</i>	<i>Can you explain this more?</i>
	<i>Can you give an example?</i>
	<i>Can you think of anything else?</i>
	<i>Why or why not?</i>

SECTION TWO: ACADEMIC EXPERIENCE WITH NUTRITION

Next, let's talk about academic experiences with nutrition. I would love to hear your thoughts on both children's learning experiences with nutrition as well as your our academic encounters with the subject. Remember to give detailed examples and stories when possible.

QUESTION 3

When and how do you think children learn about nutrition?

REQUIRED PROBES	GENERAL PROBES
<i>Any other times outside of the ones you just named? Any other sources/ways outside of the ones you just named?</i>	<i>Can you explain this more?</i>
	<i>Can you give an example?</i>
	<i>Can you think of anything else?</i>
	<i>Why or why not?</i>
<i>In general, who is responsible for teaching children about nutrition?</i>	

QUESTION 4

From your experience so far, can you describe what nutrition education typically looks like in a Pre-K or Kindergarten classroom?

REQUIRED PROBES	GENERAL PROBES
<i>Can you tell me a story about that?</i>	<i>Can you explain this more?</i>
	<i>Can you give an example?</i>
	<i>Can you think of anything else?</i>
	<i>Why do you think it looks like this?</i>

QUESTION 5

In the online survey, you reported that... (*blurb about their response*)

- None of your courses covered nutrition.
- A few of your courses covered nutrition.
- You took (a) nutrition (/food science) class(es).
- Many of your previous courses addressed nutrition.

REQUIRED PROBES	GENERAL PROBES
<i>Would you have wanted more courses that covered nutrition? Why/why not?</i> <i>b,c,d: What was the most impactful part of those lessons? Please be specific.</i>	<i>Can you explain this more?</i>
	<i>Can you give an example?</i>
	<i>Can you think of anything else?</i>
	<i>Why or why not?</i>

SECTION THREE: CAREER PATH & THOUGHTS ON BEING A FUTURE TEACHER

Now, let's talk about your career path as a future teacher.

QUESTION 6

In the online survey, you indicated that you *do* / *do not* plan to include any nutrition related activities in your classroom as a student intern next semester. I'd like to understand more

about why you decided that. Please think of any and all influences or barriers that helped you reach your answer.

It is okay if you haven't given much thought to the topics you plan to incorporate next semester. I encourage you to think on it more deeply during these next few follow up questions. To start, *why do or why don't* you plan on including a nutrition related topic next semester?

REQUIRED PROBES	GENERAL PROBES
<i>How prepared do you feel to teach nutrition lessons to your students?</i>	<i>Can you explain this more?</i>
	<i>Can you give an example?</i>
<i>Where would you rank nutrition education in terms of importance compared to other standards/topics? Clarifying: Is it a priority?</i>	<i>Can you think of anything else?</i>
<i>What topics may compete with nutrition?</i>	<i>Why or why not?</i>
<i>What barriers do you think you'll face with nutrition in the classroom?</i>	
<i>What supports do you think you'll encounter with nutrition in the classroom?</i>	

QUESTION 7

I understand that as a student intern you may not have complete say over what lessons you will conduct next semester. Can you describe what role you would like nutrition education to play when you are the lead teacher in your own future PreK-K classroom?

REQUIRED PROBES	GENERAL PROBES
	<i>Can you explain this more?</i>
	<i>Can you give an example?</i>
	<i>Can you think of anything else?</i>
	<i>Why or why not?</i>

QUESTION 8

How well do you think your Birth through Kindergarten education program incorporates nutrition education into the degree program/curriculum?

REQUIRED PROBES	GENERAL PROBES
<i>How well do you think the early childhood education field promotes including nutrition content in PreK-K classrooms?</i>	<i>Can you explain this more?</i>
	<i>Can you give an example?</i>
	<i>Can you think of anything else?</i>
	<i>Why or why not?</i>
	<i>What are they doing well?</i>
	<i>What could be improved upon?</i>

QUESTION 9

Do you have any final remarks on the topic before we review and close the interview?

SECTION FIVE: REVIEW

Now, I would like to take a few minutes to review what you have said. After each question, I'm going to ask you if I got that right and if there is anything else you'd like to add. This is a very important step in the process to make sure we have the right information. Feel free to stop me at anytime and add anything that I may have missed.

(Review each question with participant.)

REVIEW PROBES
<i>Did I get that right?</i>
<i>Do you have anything else to add?</i>

SECTION 6: CLOSING & THANK YOU

This concludes our interview. I want to thank you for taking the time to talk with me today. I have learned a lot from you and enjoyed our conversation. This research would not be possible without you. I do ask that you do not share any information about the interview with your other classmates who are participating, as we want everyone to have the same interview experience. Thank you, and have a good rest of the day.

APPENDIX D: ADDITIONAL THEMATIC ANALYSIS

Additional thematic analysis that was not included in the manuscript is presented in the table below. The qualitative interviews yielded ample data and themes, which could be clearly divided into two manuscripts. These themes will be used in a manuscript more specifically for addressing the status of nutrition education in early childhood teacher education programs.

Themes	Examples
Barriers	<p>"Having to meet so many standards..."</p> <p>"That (nutrition education) is really abstract to have to think about. It's really time consuming to have to think about and it's really time consuming to have to take time and actually implement it."</p> <p>"Difference of opinion with the teacher assistant..."</p>
Supports	<p>"I just plan to have support from my school, my team, and my parents and hopefully enough money support from the state."</p> <p>"Community supports are out there and what agencies are available."</p> <p>"We have a really awesome health and nutrition specialist, and she's been a really big asset."</p>
Nutrition Education's Place	<p>"My heart says...I would rank it a little bit higher just because I know the importance of healthy eating and how it can impact your life later as an adult."</p> <p>"In general, it's pretty low."</p> <p>"I don't think it ranks as high as learning to read and write. And so more time will be</p>

	spent on academics.”
Lack of Emphasis on Nutrition Education	<p>“They gave us the information like ‘yes eating, serving healthy food if you have a program,’ but it doesn't really tell you how to go about doing that.”</p> <p>"I have certain instructors that, definitely, they draw on it more than others."</p> <p>“I don't think it’s a priority (in the BK program).”</p>
Desired Changes	<p>"I'm interested in that for myself...but I don't think I would have gone out of my way to take another class on it (nutrition)."</p> <p>"I wish that it could be incorporated every day in our daily education.”</p>

