EXPLORING NORTH CAROLINA HEAD START TEACHERS' PERCEPTIONS OF THE PROFESSIONAL LEARNING COMMUNITY COLLABORATIVE FRAMEWORK

by

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Professional learning communities, or PLCs, comprise of a group of educators, and sometimes other professionals, that meet, share their ideas, and work together to problem solve and share strategies related to teaching and working with students. This framework is widely utilized in primary and secondary educational settings, but much less is known about their effectiveness and desire to be used in the early childhood context. In this mixed-methods study, we examined the perceived helpfulness and expectations NC Head Start teachers have, regarding PLCs, through the collection of survey data (n=168). In addition to this, we examined the lived experiences of 11 NC Head Start teachers and their perceptions, beliefs, and thoughts about PLCs, specifically, as a professional development tool. The quantitative findings suggest NC Head Start teachers' perceptions of PLCs are positive. They generally agreed that participating in a PLC would be a meaningful experience that is worth their time. In addition to this, we discovered these teachers view PLCs to be helpful for identifying student needs and creating strategies to help meet these needs. Various themes emerged from the qualitative data analysis: PLCs as a tool for receiving and providing support through collaboration; mutual trust, respect, structure, organization, and supervisor involvement as key components to professional collaboration within a PLC; PLCs as a helpful tool to enhance science and food-related

education; and teacher perceived limiting factors to utilizing PLCs. In conclusion, limitations of the study and implications for the field of early childhood education are shared, and suggestions for future research are stated.

Keywords: professional learning community, head start, teachers, preschool, early childhood education, professional collaboration

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CHAPTER 1: INTRODUCTION

The field of education is confronted with growing pressure toward professional collaboration. Teachers need to be skilled collaborators to effectively perform their job (Vangrieken et al., 2015). One of the contributing factors to this trend is likely the rising significance of teamwork in society overall. Nearly all professional organizations are utilizing and prioritizing collaborative work environments (Vangrieken et al., 2015). Existing literature references many positive outcomes of teacher collaboration. Students, teachers, as well as the school at large benefit from the collaborative practice. Despite the evidence revealing the benefits of educator collaboration, there are still many schools and teachers working in isolation (Rigelman & Ruben, 2012). Vangrieken et al. (2015) argue that to successfully implement innovative, student-centered, and collaborative learning methods, proficient collaboration among teachers is essential.

A professional learning community, or PLC, is a group of educators, and sometimes other professionals, that meet, share their ideas and work together to problem solve and share strategies related to teaching and working with students. Professional learning communities (PLCs) are acknowledged within the field of education as a tool to foster professional collaboration, but empirical research into their development and use within early childhood education contexts is uncommon. While there is a large body of research that reports the benefits of PLCs on student achievement and the professional development of teachers at the K-12 level, empirical research suggests the characteristics of effective school-based PLCs are also applicable to early childhood settings (Cherrington & Thornton, 2015).

The current review of literature will address the use of professional collaborative practices in various educational settings along with the use and implementation of professional

learning communities, specifically. This review will address how PLCs are being utilized as a tool for professional development and report various supportive conditions that foster cooperation and trust among PLC members. Lastly, this review will briefly address empirical research focused on teacher perceptions of PLCs.

The existing research guides this study on teacher perceptions of collaboration and PLCs in North Carolina Head Start programs. The research conducted in K-12 settings suggests there are various critical areas that must be considered to successfully implement the PLC framework. These critical areas include, but are not limited to, administrative support, positive teacher attitudes, and accessibility to a space and time to meet (Lomos et al., 2011; McLaughlin &Talbert, 2001; Vangrieken et al., 2015). While these critical areas have been identified in the K-12 context, we do not know the relevance of these considerations to North Carolina Head Start teachers. The goal of the current study is to identify which, if any, of these considerations apply in the North Carolina Head Start context. We will address this gap in the current literature by investigating the following research question: What are the common lived experiences of North Carolina Head Start teachers with professional collaboration? We will further examine their perceptions, beliefs, and thoughts about PLCs, specifically, as a professional development tool. Teachers are the key members of a PLC in any educational setting, so it is important to know their perceptions to foster long-term success and buy-in.

CHAPTER 2: THEORY

The goal of the current study is to better understand North Carolina Head Start teachers' perceptions of professional collaboration and professional learning communities (PLCs). When analyzing an individual's or group's perception it is important to consider the context in which their thoughts or ideas were formed or currently exist. Bronfenbrenner's human ecology theory provides a contextual approach to understanding the human experience (Smith & Hamon, 2017). The overall focus of the human ecology theory is on the interrelatedness among components of human systems. Human ecology theory concentrates on the interaction and interdependence of humans, as biological and social entities, within the environment (Smith & Hamon, 2017).

Human ecology theory describes four basic systems that make up the ecological environment: the microsystem, mesosystem, exosystem, and macrosystem (Smith & Hamon, 2017). Bronfenbrenner defines the microsystem as "a pattern of activities, roles, and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics" (Thomas, 2005, p. 350). The system that goes just beyond the immediate microsystems is the mesosystem. The mesosystem encompasses all the microsystems (Thomas, 2005). This represents the linkages and processes taking place between two or more settings of the developing person. Beyond the mesosystem is the exosystem. The exosystem consists of settings or institutions not experienced directly by the person, but that affects the person's development (Smith & Hamon, 2017). Lastly, the macrosystem consists of the customs, attitudes, ideologies, values, and laws of the culture in which the developing person lives (Smith & Hamon, 2017). Bronfenbrenner's model suggests that the systems in which a person lives and develops are a set of nested systems. This means that systems cannot exist or be considered without acknowledging their placement within others or the interconnected nature of

their existence (Thomas, 2005). This theory guides the current study by providing a framework to acknowledge the participants' differences based on their complex lived experiences. Bronfenbrenner's idea of nested systems is one that is vital to keep in mind while gaining an understanding of and reporting on preschool teachers' perceptions of collaboration and PLCs. The various contexts each teacher has developed within, as well as the belief systems they are accustomed to, have a large impact on their current values and ideals. Each teacher's unique lived experiences will impact their thoughts and beliefs about professional collaboration using PLCs. For example, educational background, previous experience collaborating with others, quality of professional leadership, and one's personality or temperament, are some, but certainly not all the contextual factors that may impact a teacher's thoughts and beliefs about professional collaboration (Fairfield, 2011; Ho et al., 2016; McLaughlin & Talbert, 2001).

Just as it is important to recognize the context of human development, this study acknowledges the importance of recognizing the context of PLC development. Research suggests that many steps must be taken to support the collaborative process present in PLCs (Vangrieken et al., 2015). Each PLC consists of its unique members but is also influenced by a larger cultural context. The culture of teacher collaboration through the use of PLCs is widely practiced and accepted in the K-12 educational context (Darling-Hammond et al., 2009). While there are instances of early childhood educators utilizing this framework, it is less prevalent (Cherrington & Thornton, 2015). This review of literature aims to reveal some of the cultural differences in the field of early childhood education, specifically in Head Start programs, compared to K-12 settings that may influence this variance.

Not only will each individuals' strengths and challenges need to be considered, but the relational and structural supports present will play a large role in the success of their

collaborative efforts. For example, access to time and space, setting clear protocols, teacher buy-in, and attitudes of administration are some, but certainly not all the supports that may impact the effectiveness of PLCs in Head Start settings. The relational and structural supports required for successful implementation of PLCs are part of the PLCs nested systems of support. To better understand the various contexts and systems that may influence the implementation of PLCs among Head Start teachers, we must consider the current and historical culture of professional development in this setting.

CHAPTER 3: LITERATURE REVIEW

Professional Learning Communities

Educators and administrators are feeling the push to engage in collaboration, and many are choosing the professional learning community (PLC) framework (Damjanovic & Blank, 2018; Thornton & Cherrington, 2019; Vescio et al., 2008). Rone (2009) defined a PLC as consisting of "groups of teachers who share and critically question their practice in an on-going, reflecting, collaborative, learning-oriented way to promote their growth and skill" (p. 4). Cherrington and Thornton (2015) share a definition of PLCs with an emphasis on student learning: "[PLCs consist of] professional educators working collectively and purposefully to create and sustain a culture of learning for students and adults" (p. 312). It has become a common belief in the field of education that successful PLCs at the school level have a shared vision, shared and supportive leadership, the application of collective learning, shared personal practices, and supportive structural and relational conditions (Cherrington & Thornton, 2015; Lomos et al., 2011). According to Vengrieken et al. (2015), PLCs are sometimes perceived as a school-level construct, capturing the whole school as a PLC instead of a subgroup of teachers. Even when perceived in this way, PLCs are still characterized by shared values and are learning-oriented.

Cherrington and Thornton (2015) conducted an exploratory study into the development of PLCs in New Zealand's early childhood system. The study found that the characteristics of effective primary and secondary school-based PLCs are also applicable to early childhood settings. Cherrington and Thornton (2015) reveal that similarly to school-based PLCs, PLCs in early childhood settings function most effectively if supportive, relational, and structural conditions are present.

Collaboration in the Educational Setting

Vangrieken et al. (2015) collected themes about teacher collaboration to provide an overview of the focus and depth of teacher collaboration as well as the benefits of this type of collaborative professional practice. The authors defined collaboration as joint interaction in activities that are needed to perform a shared task. An imperative characteristic of collaboration that emerged was its task-related focus. This includes working and reflecting together for job-related purposes. They viewed the concept of collaboration as unfixed and flexible, noting that different types of collaboration can occur with varying depths.

Vangrieken et al. (2015) reported various benefits and challenges teachers encountered amid collaboration. Teachers were reported to be more motivated, experience decreased workload, greater efficiency, increased communication, improved technological skills, and reduced personal isolation. Vangrieken et al. (2015) also reported that instructional strategies became more student-centered and better aligned with the curriculum. In addition to these teacher and student-related benefits, schools as a whole experienced positive influence. For example, the perception that the school climate was supportive of innovation increased. Data also suggested that staff perceived that their school community was better at adapting to change, exhibited a cultural shift to more equity, and exhibited an increase in school-wide attention for the needs of students (Vangrieken et al., 2015). While these benefits are significant, it is important to acknowledge the challenges teachers faced in collaborative work environments. Some teachers experienced competitiveness, tensions that escalated into conflicts, a loss of autonomy, an increased workload, and a push towards conformity with the majority (Vangrieken et al., 2015).

To make teacher collaboration successful, steps must be taken to support the collaborative process and the individuals involved (Vangrieken et al., 2015). Like human ecology theory, these supports are vital parts of the nested systems surrounding the PLC. For example, the group must develop clear roles for its members, and they must have a defined focus for collaboration. In addition to determining member and group expectations, various structural supports must also be in place. For example, the group will need a time and space for meeting and support through external facilitators such as administrators, district offices and networks (Cherrington & Thornton, 2015; Vangrieken et al., 2015).

PLCs in the K-12 Context

The demands to learn new skills and obtain the necessary knowledge to enhance student learning in the K-12 education setting are often met in the form of professional development (Darling-Hammond et al., 2009). Historically, the most used method of professional development in this setting has been one-day professional development workshops or training sessions. These types of professional development opportunities have more recently been shown to be ineffective (Darling-Hammond & Adamson, 2010). Because of this, PLCs have become a popular framework within primary and secondary school settings as a means of fostering teacher learning.

A review of K-12 education literature suggests that elements associated with the PLC model have been shown to have positive effects within the school setting on teacher and student outcomes (Hord, 1997; Lujan & Day, 2010; Vescio et al., 2008). Both collaboration among educators and teacher morale have been shown to impact the successful implementation of PLCs (Lujan & Day, 2010). Successful PLCs also allowed for reflective dialogue and deprivatization of practice (Lomos et al., 2011). PLCs are more successful at stimulating new ideas when each

individual feels comfortable and is willing to share his or her ideas with the group. McLaughlin and Talbert (2001) mentioned that principals in the K-12 context can facilitate PLC development through how "they manage school resources, related to teachers and students, support or inhibit social interaction and leadership in the faculty, respond to the broader policy context and bring resources into the school" (p. 98). For this reason, principal leadership is thought to strongly affect the development of PLCs in schools.

Many scholars who have studied PLCs in the K-12 context indicate that teachers tend to respond positively to the integration of the PLC model within their professional environments (Vescio et al., 2008). Some of these findings may be replicated in the early childhood and Head Start settings, however, each will have its unique differences. Among others, some factors that may impact the successful implementation of PLCs in Head Start settings include: access to adequate mentorship or leadership, willingness to collaborate or share ideas, quality of PLC training materials, implementation of protocols, and access to time and space.

Impact of PLCs on Teaching and Learning in the K-12 Context

It is imperative to consider the impact PLCs have on student achievement considering many of the commonly used definitions of PLCs emphasize student learning: "[PLCs consist of] professional educators working collectively and purposefully to create and sustain a culture of learning for students and adults" (Cherrington & Thornton, 2015, p. 312). Lomos et al. (2011) conducted a study that investigated the relationship between PLCs and student achievement in Dutch secondary schools. Data collected through mathematics department PLCs and student test scores suggested that when PLCs focused on reflective dialogue, collaborative activity, shared vision, and student achievement the schools were more successful and students demonstrated higher achievement.

While Lomos et al. (2011) focused on department-specific impacts that PLCs had on mathematical achievement, Rigelman and Ruben (2012) address the impacts of PLC participation on new educators. Since collaborative planning and problem-solving are desirable skills for licensed educators, professionals have suggested that teacher candidates need opportunities for collaborative professional learning. Rigelman and Ruben (2012) reported that beginning teachers who inquire about their practice, positively influence student learning by developing their skills and improving their instruction. These scholars examined the impact of professional collaboration that was intentionally integrated into a one-year preservice teacher education program in two elementary schools. Analysis of the data indicated when teacher candidates were supported by collaboration with colleagues, they developed the skills and commitment to teaching effectively.

PLCs as a Professional Development Tool in Early Childhood Settings

Cherrington and Thornton (2015) share that, within the early childhood context, professional development is most effective when individuals are provided opportunities to actively investigate their own practices through data analysis that is relevant to their educational setting (Cherrington & Thornton, 2015). Other effective professional development activities are focused on critical reflection on one's own practices. While large professional development workshops and conferences have their benefits, these types of experiences do not always allow teachers to focus on classroom and center-specific data and topics. These workshop-based experiences often consist of teachers from several educational entities coming together to learn a new skill or engage in a targeted learning activity, while PLCs provide relevant, on-going professional development focused on specific student-learning (Rone, 2009; Thornton & Cherrington, 2019).

Fairfield (2011) explored how PLCs could be utilized to provide professional support to California Head Start teachers and other preschool program educators. The authors aimed to gain an understanding of teaching and learning opportunities that produce positive child outcomes in an early childhood setting and found that teachers often referenced teacher meetings, collaborative projects, classroom observations, and coaching (Fairfield, 2011). When asked questions about professional development as it related to student learning, teachers often referenced teaching strategies, classroom activities, individualizing instruction, and assessment. These insights were used to support and create PLCs at the preschool level and can be utilized in future research and PLC development (Fairfield, 2011).

Supportive Conditions for PLCs in Early Childhood Settings

As addressed earlier, for professional collaborative practice to be successful, steps must be taken to support the collaborative process and the individuals involved (Vangrieken et al., 2015). Just as context is important to human ecology theory, the nested systems of relational and structural support are essential for the function of an effective PLC. PLCs are a framework used to organize collaborative efforts, and Thornton and Cherrington (2019) investigated various relational support factors that enabled the establishment of successful PLCs in early childhood settings. They found that PLCs were most successful when new members were introduced to and properly acquainted with the PLC construct, resulting in them feeling like a member of the PLC. Additionally, PLCs functioned most successfully when each member's roles were clearly outlined and communicated to the group. This included leadership roles within the group and roles for individual tasks (Thornton & Cherrington, 2019). Secondly, successful PLCs demonstrated a shared focus and commitment among members. The members regularly focused their communication on what was required to accomplish set goals (Thornton & Cherrington,

2019). Kuh (2012) also found that the use of protocols to guide conversations was a parallel process that enhanced collaborative efforts and effective communication within PLCs in an early childhood setting. While these suggestions are useful guidelines when implementing PLCs in education environments, a large body of literature reminds us that professional learning communities are culturally characteristic of the people involved (Fairfield, 2011). Aligned with human ecology theory, each teacher's unique lived experiences will impact their thoughts and beliefs about professional collaboration through the use of PLCs. It is important to keep this at the forefront of one's mind when determining what is best for each individual and each PLC.

Throughout the literature, human connection and the foundations of trust are known to be the core of teaching and learning through PLCs (Fairfield, 2011). There is empirical evidence that highlights mutual trust, respect, and support amongst members as crucial elements needed in a successful PLC. Yin et al. (2019) examined the relationships between teachers' perceptions of faculty trust, PLCs, and their professional learning among a sample of 2,106 Hong Kong early childhood teachers. They found that teachers' trust in colleagues exerted a positive effect on their professional learning (Yin et al., 2019).

In addition to relational supports, such as trust and joint commitment, structural supports are also vital when establishing a PLC. Yin and Zheng (2018) addressed the important role of a principal's leadership practices in providing favorable structural conditions for PLCs in schools. Like McLaughlin and Talbert's (2001) study in the K-12 context, Yin and Zheng found that leadership practices had positive effects on faculty trust and PLCs in an early childhood setting. Along with support from administrators or directors, the structural supports of location and time can impact PLC success (Damjanovic & Blank, 2018; Vescio et al., 2008).

Teacher Perceptions of PLCs in Early Childhood Settings

There is a large body of research outlining PLCs and connecting this practice to K-12 student achievement, yet less is known about teacher perceptions of this collaborative framework, particularly in the early childhood context. Ho et al. (2016) explored the relationship between school-level teacher qualifications and school-based PLC practices in early childhood education in Hong Kong. They conducted a survey that aimed to examine how preschool teachers perceived four components of PLCs: shared responsibility, reflective dialogues, deprivatized practices, and organizational learning. The findings suggest a significant relationship between teacher qualifications and teachers' perceptions of PLC practices (Ho et al., 2016). These scholars suggested that individuals who held higher degrees were more knowledgeable about and open to working in PLCs. Further, they suggested that as the percentage of teachers who hold bachelor's degrees in preschools increases, teachers will be more positive about PLC practices (Ho et al., 2016).

Damjanovic and Blank (2018) wanted to better understand the role of PLCs in the preschool setting and specifically focused on documentation during group learning. The researchers conducted observations and interviews to help describe teachers' experiences in PLCs and documentation during group learning. They found that contrary to the common belief that PLCs serve as a support system to teachers, the realities in school PLCs tend to be more complex (Damjanovic & Blank, 2018). The idealized thought that teachers use PLCs to engage in inquiry and construct knowledge to change practice was not evident in these teachers' descriptions of their initial experiences. Teachers' experiences in this particular PLC demonstrated how difficult it may be to move from a culture of teaching in isolation to planning and teaching in collaboration with others. Damjanovic and Blank (2018) suggested that

developing collaborative skills in a professional community is an uncertain and slow process that requires more than the structural provision of space and time for teachers to meet. Data revealed that the PLC conversation became more productive and focused on student learning when documentation was discussed. Because of this, Damkanovic and Blank (2018) suggested that incorporating documentation into PLCs would encourage teachers to shift their thinking and focus more on children's capabilities.

Understanding Professional Development Requirements within Head Start Programs

The author aims to inform the development of PLCs as a professional development tool in various North Carolina Head Start centers. It is important to consider the Head Start context and professional development strategies that have been previously utilized in this setting. Head Start is a federal program that serves families of vulnerable populations and promotes school readiness (North Carolina Department of Public Instruction). Head Start programs do this by providing a learning environment that is designed to meet the emotional, social, health, nutritional, and psychological needs of young children. In addition to servicing children, Head Start also educates families through what they describe as a comprehensive family-focused approach (North Carolina Department of Public Instruction, n.d.). Head Start teachers play a vital role in accomplishing these goals. To aid teachers in providing rich learning experiences for their students and maintaining a family-focused approach, the Head Start program has provided various forms of professional development to its teachers (Harding et al., 2019).

Professional development serves as a support to Head Start teachers who strive to provide family-focused care for some of the United States most vulnerable populations; however, historically, professional development for teachers in this setting was less prevalent (Harding et al., 2019). Harding et al. (2019) describe how policy change has impacted many of the shifts in

professional development supports over the past decade. In 2002, 65% of state-funded early childhood education programs required teachers to receive at least 15 hours of professional development each year. By 2016, this percentage increased to 85%. In alignment with this shift among early childhood education programs, Head Start policy also added emphasis on the importance of professional development and as of 2007 requires all teachers to receive at least 15 hours of professional development annually (Harding et al., 2019).

In their 2013 study, Zan and Donegan-Ritter examined the impact of a yearlong model of professional development designed to enhance teacher-child interactions in Head Start centers. Some of the professional development tools utilized in their approach were video-based self-reflection, peer coaching, mentoring by education supervisors, and bimonthly workshops. They found that during their eight-month professional development program, those who received the professional development, both degree and non-degree teachers, showed improvement in teacher-child interactions compared to a group of similar teachers who did not participate. The positive outcomes demonstrated by this 2013 study align with the ideas that relationship-based approaches to professional development, such as coaching or mentoring, have been found to be especially successful at raising the quality of early childhood educators' teaching practices and learning environments (Egert et al., 2018; Kraft et al., 2018). The PLC framework utilizes professional relationships to collaborate and advance professionally (Cherrington & Thornton, 2015; Lomos et al., 2011). The following sections will address how PLCs have been applied in multiple contexts.

PLCs in Head Start Programs

There are two notable studies that have explored the use of PLCs in Head Start settings. Lachowicz (2017) explored the effectiveness of the PLC model as a viable professional

development tool. The findings of this study suggested that Head Start teachers understood the intent and purpose of implementing PLCs (e.g., professional collaboration, learning from peers, problem-solving, professional improvement and development), but the effectiveness of actually implementing this framework varied. Lachowicz (2017) noted that the varying successes could be due to the size of each PLC, quality of leadership or facilitation, teacher self-efficacy, or the presence of stress among participating teachers. Similarly, LoScalzo (2017), found that when PLCs were created with a focus on increasing culturally relevant practices, specific structures led to increased success in teacher learning. The structures within the PLCs that were deemed helpful toward success were the use of protocols and time for teachers to plan instruction and reflect on their practices. This existing research in the Head Start context is limited but provides valuable information for the future development of PLCs as a tool for professional development in this setting. Since teachers are the main participants of PLCs at any education level, further research is needed to explore their perceptions, thoughts, and beliefs about this framework as a professional development tool.

Current Study

There is a large body of research that supports the implementation of professional learning communities across primary and secondary educational settings; however, little research has been conducted that focuses on PLCs in the early childhood sector, more specifically Head Start settings (Cherrington & Thornton, 2015; Fairfield, 2011; Lomos et al., 2011; Vangrieken et al., 2015). Future research is needed to guide collaborative planning, teaching, and problem-solving in this field. As Damjanovic and Blank (2018) noted, not all teachers, especially those in preschool settings, will easily transition into collaborative work environments. The current study explores North Carolina Head Start teacher perceptions of PLCs as a framework for professional

collaboration. A needs assessment was created and will be administered to address our overarching research question: What are the common lived experiences of North Carolina Head Start teachers with professional collaboration? What are NC Head Start teachers' perceptions of the overall helpfulness of PLCs and what are their expectations for this type of collaborations? We will further examine their perceptions, beliefs, and thoughts about PLCs, specifically, as a professional development tool. Gaining an understanding of North Carolina Head Start teachers' perceptions prior to PLC development will help guide the implementation of this framework. The information gained through a needs assessment will create a smoother transition into collaborative teaching practices and ultimately result in more favorable student outcomes.

CHAPTER 4: METHODS

The methods reported here are connected to a larger mixed-methods study. The investigators of the larger study examined the unique experiences of Head Start partners with science education, science talk, and food-based learning in their programs. In the larger study, additional data was collected through surveys and one-on-one interviews to inform a professional development program created to educate teachers on how to design and teach developmentally appropriate integrative, practice-based science for the children they service. The research team intended to use PLCs as a tool to enhance professional development in these areas. The methodology of the current study, described here, reflects one component of the larger project. Survey data specific to PLCs were analyzed along with data collected through semi-structured interviews with North Carolina Head Start teachers. This mixed methods design provides an in-depth understanding of North Carolina Head Start teachers' thoughts and beliefs about PLCs as a tool to collaborate professionally. Thus, essentially, we utilized a parallel mixed methods approach to understand the importance and use of PLCs in the Head Start setting. Both quantitative and qualitative data were seen to complement one another and added depth, or further clarity, to understand the concept and utility of PLCs in Head Start centers (Stolle, 2022).

The quantitative survey data, lends insights into North Carolina Head Start teachers' overall experiences, understanding, misconceptions, and thoughts on professional collaboration as a part of PLCs and participation in PLCs. While the qualitative portion of the current study, grounded in the use of phenomenology, sought to understand a common experience or phenomenon, Head Start teachers have regarding collaborating with other professionals in a PLC. The interview guide was also developed to examine the anticipated benefits and challenges to being a part of a collaborative group. Thus, the qualitative approach represents the

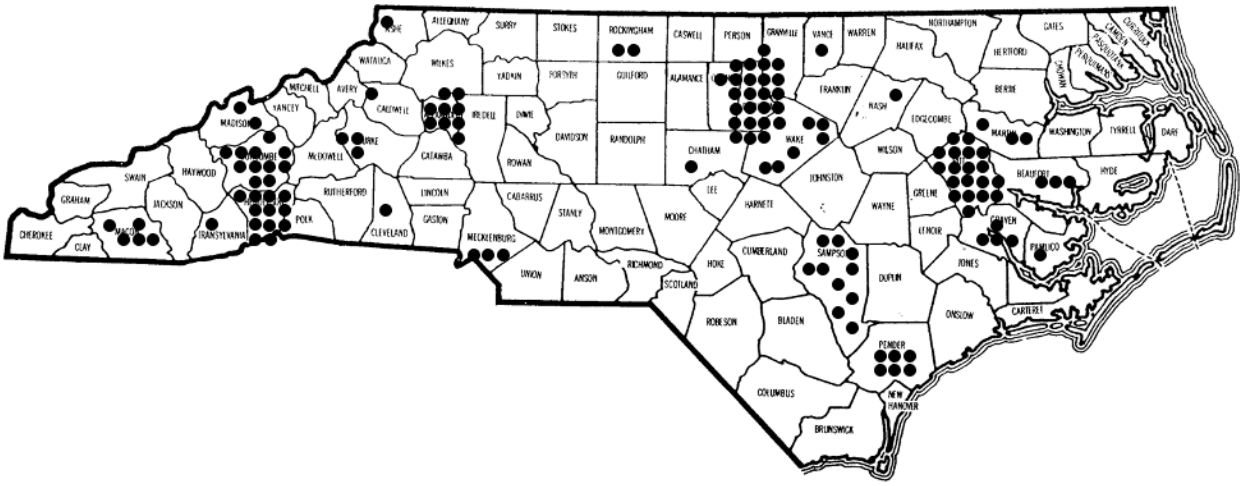
commonalities in lived experience among the study's participants (Creswell, 2007; Moustakas,1990). This methodological approach was appropriate for the current study because there is gap in literature as it specifically relates to PLCs within early childhood settings. While PLCs are commonly used in the primary and secondary educational settings, less is known about early childhood teachers' perceptions of PLCs, particularly those of North Carolina Head Start teachers.

Sample

Lead Head Start teachers were recruited from across North Carolina to participate in completing a survey connected to the larger study described above. One hundred sixty-eight North Carolina Head Start teachers completed the survey. Figure 1 displays the county in which each participating teacher worked. Teachers were recruited from various regions throughout the state to get a representative sample.

Figure 1.

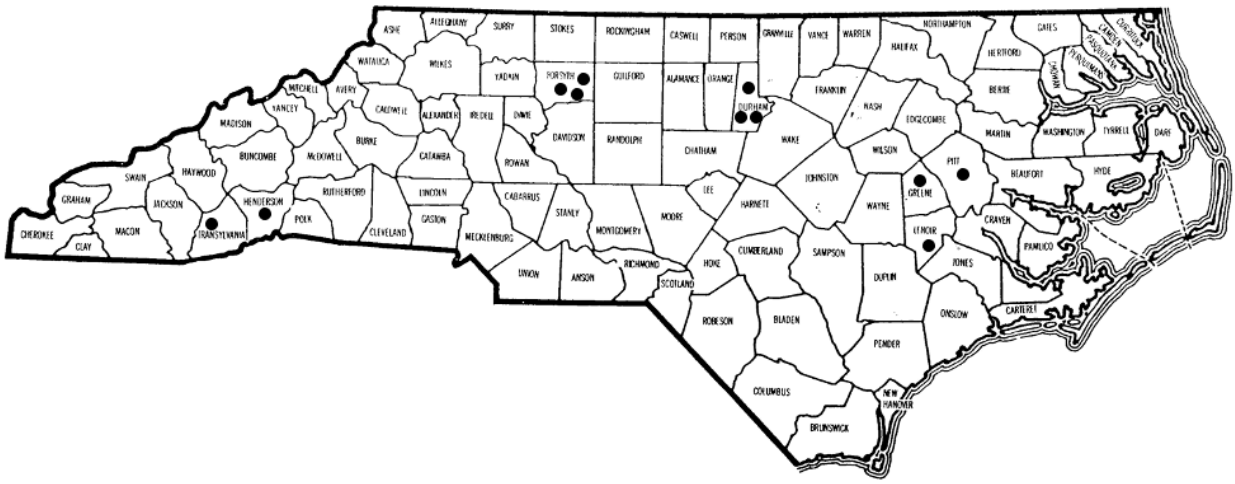
NC County Map: Survey Participant Location, Fall 2020



While completing the survey, teachers were informed of the opportunity to participate in an individual PLC-focused interview. If the participant indicated he or she was willing to participate in the PLC-focused interview, they were contacted by a trained research assistant to schedule an interview. Eleven teachers (n =11) were recruited from various regions throughout the state to obtain diverse voices across the state. This sample population was selected to reveal a common lived experience about a relevant phenomenon, in this case, Head Start Pre-K teacher perceptions of PLCs (Creswell, 2007). Three of the interview participants taught in the eastern portion of North Carolina, three in central, three in west-central, and two in far western North Carolina.

Figure 2.

NC County Map: Interview Participant Location, Fall 2020



Procedure

After approval was obtained from the University Institutional Review Board (Appendix A), researchers were granted permission from respective program directors prior to communicating with Head Start teachers, however, the Head Start director was unaware of which individuals in their organization ultimately volunteered to participate in the study. Once

permission was obtained, Head Start Teachers within each organization were recruited by phone or email using recruitment scripts and flyers (Appendix B & Appendix C). These recruitment materials included a link for teachers to complete the online survey. Those who were willing and consented completed the survey via the Research Electronic Data Capture (REDCap) site. During survey completion, teachers indicated whether they would like to participate in a focus interview. Teachers who indicated their desire to participate in the PLC focus interviews were asked to schedule an individual interview with the research team. Consent was obtained at the time of survey completion (Appendix D). All interviews were conducted over the phone. Phone interviews allowed the research team to gain access to teachers throughout various regions of the state. With consent, the interviews were recorded, and the recordings were transcribed verbatim onto a word document for analysis by a trained research assistant. During both the interview process and transcription, all data collected was deidentified, so confidentiality was always maintained during and after the study. Participants were allowed to withdraw from the study at any time. Teachers who completed the online survey were entered into a drawing for a $100 gift card. Teachers who participated in individual interviews were awarded a $30 gift card for their time.

Measures

The survey at large consisted of 78 items that assessed Head Start teachers' experiences teaching science and incorporating food experiences in the classroom (Appendix E). The survey was structured around the substantive level theory which prior research has identified as a useful framework for exploring factors that impact preschool teachers' experiences with teaching nutrition in their classrooms (Carraway-Stage et al., 2014). Each survey item was created by qualified team members or adapted from validated existing surveys, SHAPES and CAN Teach

(Whitaker et al., 2009; Derscheid et al., 2012; Ammerman et al., 2007), as well as published local, state, and federal policies (Carraway-Stage et al., 2014; USDA, 2014). Table 1 displays an overview of the larger survey's components. The current study reports on twelve items within Section B that focus specifically on utilizing PLCs as a professional development tool. Table 2 includes the survey questions present in Section B of the overall survey. These are the items analyzed in the current study.

Table 1.

Statewide Teacher Survey Sections

Section A	Science Education and Food-based Learning Practices (11 items)
Section B	Training & Professional Development (25 items)
Section C	Priority for Science Education, Science Talk with Children, & Food-based Learning (4 items)
Section D	Tell Us About Yourself (10 items)
Section E	Your Experiences with COVID-19's Impact (28 items – Optional)

Table 2.

PLC Specific Survey Items

How helpful do you think a Professional Learning Community (PLC) would be in: a. Identifying needs of specific children b. Sharing or creating strategies to address the needs of specific children c. Sharing or creating parent communication resources d. Sharing or creating curriculum resources e. Sharing or creating physical resources f. Other (specify) g. None of the above. I do not think a PLC would be helpful at all.	Drop down menu for each item: a. Not Helpful b. Somewhat Helpful c. Very Helpful
Please check off on a level of 1-5 if you agree or disagree with the statements about the PLC. a. Participating in a PLC would be meaningful	Drop down menu for each item: 1. Strongly Disagree 2. Disagree 3. Neither Disagree or Agree

b. Participating in a PLC would be worth my time c. I feel comfortable discussing my thoughts with a group of professionals d. Other members of the PLC will share valuable thoughts e. The whole team will benefit from the discussions that take place in a PLC f. It will be helpful to discuss science/nutrition education that takes place in my classroom with fellow teachers g. I will enjoy getting to know my fellow teachers better h. I will share what is discussed in a PLC with other co-workers (assistant teachers) i. Other (specify) j. None of the above. I do not think a PLC would be helpful.	4. Agree 5. Strongly Agree

For the qualitative part of the study, in-depth semi-structured interviews were conducted. A semi-structured format gave the trained interviewer the flexibility to deviate from the interview guide when appropriate to fully investigate the topic without restriction. Important to phenomenology, the interview guide was designed using an iterative process. The interview questions in Table 3 were developed to elicit examples and other narrative descriptions and encourage the sharing of thoughts, ideas, and feelings. Moustakas (1990) writes about the importance of formulating interview questions in this manner to reveal more fully the essence or meaning of a phenomenon of human experience. Questions were developed in collaboration with an experienced research team and informed by the literature. The interview guide was also be piloted by at least one early childhood educator prior to data collection; this individual was not considered part of the official sample size. Overall, the interview guide was designed to include major questions intended to facilitate open ended discussion, in addition to specific probes to

clarify participant responses and gain depth insight on interview topics. The interview guide examined teachers' thoughts and beliefs about PLCs, and teacher perception of what barriers may exist upon implementation of PLCs (Appendix F).

Table 3.

Interview Questions and Probes for Semi-Structured Interviews with Head Start Pre-K Teachers

Interview Questions	Probes
As an educator of young children, do you often work in collaboration with other teachers at your center to plan learning activities? If yes: Can you please tell me about your experiences working with other teachers. If no: Okay. (continue to optional probes)	Do you think working with other teachers is important? If yes: Please explain why this is important for you as a teacher?
How would working with other teachers in a PLC help you as a classroom teacher	A main focus of this research study is on science and nutrition education in early childhood classrooms. How would PLC support help you to plan and teach science and nutrition in your classroom? How would this type of teamwork help you meet the needs of the children you work with?
What would a successful PLC look like for you?	Who would participate? If other early childhood professionals were able to be a part of your PLC, who would you invite? What would each member's role be? How often would you meet? Where would you meet? What would encourage and motivate members? What types of topics and supports would be addressed? How would you document your work and discussions?
What challenges might you face when creating and participating in a PLC?	When thinking about using a PLC to support your science and nutrition education, what challenges might you encounter?

So we have just discussed your experiences with and thoughts about professional learning communities, how do you anticipate COVID-19 will impact your classroom?	In what ways has COVID-19 already impacted the way you work with other teachers? How might COVID-19 impact the creation of a PLC in your center?

Data Analysis

For the quantitative data, frequencies were run on each of the survey items to determine the number of participants who selected each response. These numbers were then converted to a valid percent.

For the qualitative data, as interview transcripts were received, the research team began completing an initial coding of the data. After transcription was complete, the process of in-depth coding took place. Two trained coders read through the transcripts individually and familiarized themselves with the data. During this phase of coding, the coders took notes of concepts, ideas, or phrases that surfaced in their first in-depth reading of the transcripts. They formed initial codes with descriptions during this note-taking phase. The two coders then met and defined their codes line by line in each interview. Together they reached a consensus on the codes and created a codebook. The codebook was used as a tool to organize continual analyses of common perceptions among data to construct clusters of meaning (Creswell, 2013). At this point, researchers created categories, themes, and subthemes to compare and report the overall "essence" of the teachers' experiences and perceptions (Creswell, 2012; Moustakas, 1990).

Trustworthiness

The use of phenomenology paired with multiple measures of qualitative validity and credibility, provide structure and trustworthiness to the current study. Trustworthiness must be achieved in qualitative research, like the concepts of reliability and validity in quantitative studies (Shenton, 2004). This study utilized the adoption of research methods, peer scrutiny of

the research project, iterative questioning, standardized training, bracketing, researcher reflective commentary in the form of memoing, participant summary review and debriefing sessions to increase trustworthiness and rigor.

One way to increase credibility of qualitative research is to adopt research methods that have been well-established in existing qualitative investigations (Shenton, 2004). This project was informed by the phenomenological framework. The principal investigator and co-investigators combined have vast experience with qualitative research that follows the phenomenological approach. Additionally, throughout the development of the interview guide, many scholars provided feedback that was used in multiple levels of revision. The interview guide was developed to include iterative questioning. The use of probes were presented to elicit detailed data in which the researcher returned to topics previously raised by the participant. This was accomplished by rephrasing a question to extract more relevant information relevant to data collection. This was one way to detect misinterpretations and be sure the information collected was credible (Shenton, 2004).

The interviewer and coders were trained using a five-step process to ensure the consistency and credibility of the findings (Goodell et al., 2016). The interviewer initially listened to a pre-recorded interview and practiced notetaking and summarizing. The interviewer also conducted a mock interview with a member of the research team using the intended interview guide. This step allowed the interviewer to become familiar with the flow of the interview and practice probing, note-taking, and summarizing (Goodell et al., 2016). Multiple supervisors listened and provided feedback after the initial mock interview. The next step of the training process consisted of the researchers conducting a mock interview with an individual within the target population who was included in the sample. Like the initial mock interview,

supervisors listened and provided feedback. Individuals involved in the coding process participated in a similar training process. They were coached on creating the codebook, reviewing the codebook, independent coding, and team coding.

Another step taken to increase rigor of this study was bracketing. The interviewer participated in a bracketing session before conducting interviews. Bracketing refers to the process of writing about and reflecting on one's personal experiences and thoughts about the phenomenon at hand. Bracketing is completed to help the researcher separate his or her personal views from those of the participants (Tufford & Newman, 2012). During the independent coding and team coding processes, the research team practiced memoing. This is a reflective commentary tool used to document thoughts and ideas that arise during coding. Memos were then used to help create codes, themes, and guide conversation during debriefing sessions (Tufford & Newman, 2012). Additionally, participants were given the opportunity to review the transcript summary of their interview. The participants read the summary for accuracy and made any necessary corrections.

Finally, frequent debriefing sessions during data collection and analysis were utilized to increase the credibility of these qualitative research findings (Shenton, 2004). The researchers and their supervisors discussed the findings as they relate to the overall vision of the project. These debriefing sessions provided an opportunity to discuss developing ideas and interpretations, address alternative approaches, draw attention to flaws in the interview process, and helped the researchers recognize their own biases or preferences (Shenton, 2004).

CHAPTER 5: RESULTS

The results from both the survey and interview data are reported below. The survey results are broken down into two groups: (1) questions that address NC Head Start teachers' perceived expectation and comfort surrounding the use of PLCs and (2) questions that assess how helpful NC Head Start teachers perceived the use of PLCs would be in their practice. The interview data revealed six major themes described below: (1) receiving and providing support, (2) mutual trust and respect, (3) structure and organization, (4) supervisor involvement, (5) enhancing science and food-related education, and (6) limiting factors.

Survey Results

Individuals in the sample (n =168) self-reported on their ethnicity, age, gender, language, and educational background. Of the total sample, 38.9% of the teachers identified themselves as white, 50.9% as black, 5.4% as Latino or Spanish, and 1.2% as multi-ethnic. Teacher ages ranged between 23 and 67 years old. Majority of teachers identified themselves as females (92.3%), while one teacher identified as male, and one stated their preference for both genders: male and female (0.6%). Eighty-seven percent of the teachers spoke only one language (English), while 13% of the teachers spoke more than language. Languages spoken were as follows; Spanish, Italian, Russian, and in a few cases a combination of two languages. The majority of bilingual teachers indicated being fluent in Spanish. Table 4 includes the participants' highest level of education. The majority of teachers (68%) had a four-year degree or higher, while only 7% of teachers had less than a two-year associate's degree. Many teachers (75%) reported having a valid teaching license, and 25% reported not having a valid license but were working towards it.

Table 4.

Highest Level of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Some college coursework < 30 credits	11	6.5	6.7	6.7
	1 yr. community college diploma	1	0.6	0.6	7.3
	2 yr. Associate of Arts (A.A.) degree	11	6.5	6.7	14.0
	2 yr. Associate of Science (A.S.) degree	7	4.2	4.3	18.3
	2 yr. Associate of Applied Science (A.A.S) degree	22	13.1	13.4	31.7
	4 yr. Early Childhood / Childhood Development (EC/CD) degree	46	27.4	28.0	59.8
	4 yr. Education degree	16	9.5	9.8	69.5
	4 yr. degree in related field	16	9.5	9.8	79.3
	4 yr. degree in other field	7	4.2	4.3	83.5
	Some graduate coursework	9	5.4	5.5	89.0
	Master's Degree	17	10.1	10.4	99.4
	Specialist Degree	1	0.6	0.6	100
Missing		4	2.4		
Total		168	100		

The first group of research questions aimed to address NC Head Start teachers' perceived expectation and comfort surrounding the use of PLCs.

Head Start Teacher Perceived Expectation of Utilizing a PLC

The first survey item within this group required teachers to rate how much they agree or disagree that participating in a PLC would be a meaningful experience for them. Most of the Head Start teachers either agreed (55.8%) or strongly agreed (28.8%) that a PLC will be a very meaningful experience for them, while 12.3 percent of the teachers held a neutral stance, and less than 4 percent of the teachers either strongly disagreed (0.6%) or disagreed (2.5%) with this statement.

Table 5.

PLC as a Meaningful Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Strongly Disagree	1	0.6	0.6	0.6
	Disagree	4	2.4	2.5	3.1
	Neither Disagree or Agree	20	11.9	12.3	15.3
	Agree	91	54.2	55.8	71.2
	Strongly Agree	47	28.0	28.8	100
Missing		5	3.0		
Total		168	100	100	

Teachers were also asked to rate how much they agree or disagree that participating in PLCs would be worth their time. Most of the Head Start teachers either agreed (57.1%) or strongly agreed (27.3%) that participating in PLC would be worth their time, while 13 percent of the teachers held a neutral stance, and less than 3 percent of the teachers either strongly disagreed (0.6%) or disagreed (1.9%) with this statement.

Table 6.

PLC Worth the Time

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Strongly Disagree	1	0.6	0.6	0.6
	Disagree	3	1.8	1.9	2.5
	Neither Disagree or Agree	21	12.5	13.0	15.5
	Agree	92	54.8	57.1	72.7
	Strongly Agree	44	26.2	27.3	100
Missing		7	4.2		
Total		168	100	100	

The next survey item had teachers rate their agreement or disagreement with their comfortability discussing thoughts within a group of professionals. Most of the Head Start teachers either agreed (46.3%) or strongly agreed (19.8%) that they would feel comfortable discussing their thoughts with a group of professionals, while 21.6 percent of the teachers held a

neutral stance, and about 12 percent of the teachers either strongly disagreed (1.9%) or disagreed (10.5%) with this statement.

Table 7.

Comfortable Sharing Thoughts Within Group of Professionals

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Strongly Disagree	3	1.8	1.9	1.9
	Disagree	17	10.1	10.5	12.3
	Neither Disagree or Agree	35	20.8	21.6	34.0
	Agree	75	44.6	46.3	80.2
	Strongly Agree	32	19.0	19.8	100
Missing		6	3.6		
Total		168	100	100	

Teachers were also asked to rate how much they agree or disagree that other PLC members would share valuable thoughts during their meeting times. Most of the Head Start teachers either agreed (54.9%) or strongly agreed (25.9%) that other members of the PLC would share valuable thoughts, while 17.9 percent of the teachers held a neutral stance, and only 1.2 percent of teachers disagreed with this statement.

Table 8.

Other PLC Members Would Share Valuable Thoughts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Strongly Disagree	0	0	0	0
	Disagree	2	1.2	1.2	1.2
	Neither Disagree or Agree	29	17.3	17.9	19.1
	Agree	89	53.0	54.9	74.1
	Strongly Agree	42	25.0	25.9	100
Missing		6	3.6		
Total		168	100	100	

Next, teachers rated how much they agree or disagree that the whole team would benefit from the discussions that would take place within a PLC. Most of the Head Start teachers either agreed (51.9%) or strongly agreed (29.7%) that their whole team would benefit from the discussions that take place in a PLC, while 15.8 percent of the teachers held a neutral stance, and less than 3 percent of the teachers either strongly disagreed (1.3%) or disagreed (1.3%) with this statement.

Table 9.

The Whole Team Will Benefit from the Discussions That Take Place in a PLC

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Strongly Disagree	2	1.2	1.3	1.3
	Disagree	2	1.2	1.3	2.5
	Neither Disagree or Agree	25	14.9	15.8	18.4
	Agree	82	48.8	51.9	70.3
	Strongly Agree	47	28.0	29.7	100
Missing		10	6.0		
Total		168	100	100	

Teachers also reported their beliefs on how much they would enjoy getting to know their fellow teachers better through participation in a PLC. Most of the Head Start teachers either agreed (48.4%) or strongly agreed (30.2%) that they would enjoy getting to know their fellow teachers better while working in a PLC, while 18.2 percent of the teachers held a neutral stance, and about 3 percent of the teachers disagreed with this statement.

Table 10.

Enjoy Getting to Know Fellow Teachers Better

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Strongly Disagree	0	0	0	0

Disagree	5	3.0	3.1	3.1
Neither Disagree or Agree	29	17.3	18.2	21.4
Agree	77	45.8	48.4	69.8
Strongly Agree	48	28.6	30.2	100
Missing	9	5.4		
Total	168	100	100	

Lastly, the teachers reported whether they would agree to share what was discussed in a PLC with other co-workers at their centers, such as their assistant teachers. Most of the Head Start teachers either agreed (55.7%) or strongly agreed (34.2%) that they would share what was discussed in a PLC with their other co-workers such as an assistant teacher, while 8.9 percent of the teachers held a neutral stance, and less than 2 percent of the teachers disagreed with this statement.

Table 11.

Sharing What is Discussed in a PLC with Other Co-Workers (Assistant Teachers)

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid				
Strongly Disagree	0	0	0	0
Disagree	2	1.2	1.3	1.3
Neither Disagree or Agree	14	8.3	8.9	10.1
Agree	88	52.4	55.7	65.8
Strongly Agree	54	32.1	34.2	100
Missing	10	6.0		
Total	168	100	100	

Overall, teachers' perceptions of PLCs were positive. They generally agreed that participating in a PLC would be a meaningful experience that is worth their time. Majority of teachers believed that PLC members would share valuable thoughts and all members would benefit from the collaborative discussion that takes place. In addition to this, the teachers would

enjoy the opportunity to build their professional relationships and get to know their fellow teachers better through the collaborative efforts that take place in a PLC.

Head Start Teacher Perception on PLCs Overall Helpfulness

The second group of survey questions aimed to reveal how helpful NC Head Start teachers perceived the use of PLCs would be in their practice. The following questions address the use of PLCs as a tool for meeting student needs and preparing classroom resources. The first survey item identified how helpful NC Head Start teachers believed PLCs to be when identifying needs of specific children in their classrooms. Majority of the teachers (67%) believed PLCs can help them identify the specific needs of the children in their classrooms. This was followed by 28 percent of teachers finding this resource to be somewhat helpful and 4.3 percent acknowledging it to be not helpful at all.

Table 12.

Perceived Helpfulness of Identifying Needs of Specific Children

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Not Helpful	7	4.2	4.3	4.3
	Somewhat Helpful	46	27.4	28.4	32.7
	Very Helpful	109	64.9	67.3	100
Missing		6	3.6		
Total		168	100	100	

The next item addressed how helpful the teachers believed PLCs would be in sharing or creating strategies that would address the needs of specific children in their classrooms. Majority of teachers (75%) believed PLCs can help them share or create strategies that would address the needs of specific children in their classrooms. This was followed by 23 percent of teachers

findings this resource to be somewhat helpful and 1.9 percent acknowledging it to be not helpful at all.

Table 13.

Perceived Helpfulness of Creating Strategies to Address the Needs of Specific Children

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Not Helpful	3	1.8	1.9	1.9
	Somewhat Helpful	37	22.0	23.0	24.8
	Very Helpful	121	72.0	75.2	100
Missing		7	4.2		
Total		168	100	100	

Teachers were also asked to rate the helpfulness of PLCs in sharing or creating curriculum resources in their classrooms. Majority of teachers (71%) believed PLCs can help them share or create curriculum resources for their classrooms. This was followed by 27 percent of teachers finding this resource to be somewhat helpful and 1.3 percent acknowledging it to be not helpful at all.

Table 14.

Perceived Helpfulness of Creating Curriculum Resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Not Helpful	2	1.2	1.3	1.3
	Somewhat Helpful	44	26.2	27.7	28.9
	Very Helpful	113	67.3	71.1	100
Missing		9	5.4		
Total		168	100	100	

Next, teachers rated how helpful they felt PLCs would be when sharing or creating physical classroom resources in their classrooms. Majority of teachers (67%) believed PLCs can

help them share or create physical resources for their classrooms. This was followed by 31 percent of teachers finding this resource to be somewhat helpful and 1.9 percent acknowledging it to be not helpful at all.

Table 15.

Perceived Helpfulness of Creating Physical Resources

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Not Helpful	3	1.8	1.9	1.9
	Somewhat Helpful	49	29.2	31.0	32.9
	Very Helpful	106	63.1	67.1	100
Missing		10	6.0		
Total		168	100	100	

Teachers were asked to rate their agreement or disagreement about PLCs being helpful to discuss science and nutrition education with their fellow teachers utilizing a PLC framework. This question was included to help inform the main objective of the larger project: utilizing PLCs as a tool to enhance science and nutrition education in NC Head Start classrooms. Most of the Head Start teachers either agreed (54.4%) or strongly agreed (27.5%) that it would be helpful to discuss science and nutrition with fellow teachers, while 15 percent of the teachers held a neutral stance, and less than 4 percent of the teachers either strongly disagreed (0.6%) or disagreed (2.5%) with this statement.

Table 16.

Helpful to Discuss Science/Nutrition Education that Takes Place in Classroom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid					
	Strongly Disagree	1	0.6	0.6	0.6
	Disagree	4	2.4	2.5	3.1
	Neither Disagree or Agree	24	14.3	15.0	18.1

Agree	87	51.8	54.4	72.5
Strongly Agree	44	26.2	27.5	100
Missing	8	4.8		
Total	168	100	100	

When asked if there were any other ways PLCs may be helpful, one participant wrote that PLCs would be helpful when learning about topics for new teachers specifically.

Overall, Head Start teachers perceive PLCs in a positive light and view it to be helpful for identifying student needs and creating strategies to help meet these needs. In addition to this, teachers believed PLCs would help them create curriculum resources and physical resources needed to help service the children in their classrooms. Lastly, there was consensus that a PLC could be a great tool in helping to discuss science and nutrition education.

Interview Results

Of the eleven interview participants, all (100%) identified themselves to be female. When reporting on ethnicity, seven identified themselves to be black (64%), three white (27%), and one Latina (9%). Two of the eleven teachers spoke Spanish in addition to English. When identifying their highest level of education, two teachers reported having a two-year associates degree (18%), six had obtained a four-year bachelor's degree (55%), and three had obtained a master's degree (27%). Two of the eleven teachers reported having a BK teaching license (18%), one had an elementary teaching license (9%), two had both a BK and elementary teaching license (18%), one had received their early educator certificate (9%), and five reported not having any licenses (46%).

Analysis of the interview transcripts revealed six major themes regarding NC Head Start teachers' past experiences working collaboratively, desired experience working within a PLC, and thoughts about using the PLC framework to support the science and food-related education

in their classrooms. These themes include: (1) receiving and providing support through collaboration, (2) mutual trust and respect, (3) structure and organization, (4) supervisor involvement, (5) enhancing science and food-related education, and (6) limiting factors. Within each major theme, teachers specifically elaborated on and collectively discussed various viewpoints that were categorized into subthemes. The six major themes and subthemes are presented in Table 17.

Table 17.

Six Major Themes of Qualitative Interviews (n=11) with NC Head Start Teachers

Themes	Examples
Receiving and Providing Support Through Collaboration	
Subthemes:	
Planning Learning Activities	"We all learn in different ways, so you could have a variety of different options or inputs into how to help the kids learn." Interview #1
Support with Student Behavior	"If I'm having trouble with a student, whether it's getting them to grasp a concept or behavior, then I can get ideas and maybe help that student, which in turn helps me." Interview #2
General Problem-Solving	"We can bounce ideas off each other. You can come up with strategies together… you can come up with so much more from another individual than you can by yourself." Interview #11
Mutual Trust and Respect	
Subthemes:	
Mutual Commitment and Willingness to Participate	"People wanting to participate. And then open mindedness… You have to have people who are willing to share their ideas, be open minded to other people's ideas." Interview #3
Candid Conversation	"We want to show everybody respect. We want to give each person a time to talk, to share their ideas and share their opinions." Interview #6

Common Voice	"We had one person who was able to say what the group met about and kind of voice all of our opinions to the staff manager." Interview #1
Structure and Organization	
Subthemes:	
Space and Time	"I think flexibility is key. I think giving them adequate time to do it is one big thing… If they had time during the school to do it. If it was protected and covered, I think they would be much more willing." Interview #7
Defining Roles	"When we had clear, defined roles and the right fit for each type of person in those, it was so much more effective." Interview #7
Setting Goals	"Goals can be met more effectively because you could be brainstorming together." Interview #11
Supervisor Involvement	"It's important for management to be in there because the PLC should be an open space, or a safe place to where you are sitting back listening to the concerns of your teacher." Interview #3
	"I would even want a director or education managers to sit in as well. Being that they are the overseer of the school, I would want their input on how we run our PLC." Interview #8
Enhancing Science and Food-Related Education	
Subthemes:	
Planning Learning Activities	"That's actually an awesome idea… it was hard for me to be able to plan those so I think that a PLC involved in that could rally ideas as well as provide support to those who are trying to do that. It is hard for us." Interview #1
Accessing Materials and Preparing Ahead of Time	"I think it'll be a good place to have open discussion and get ideas and come out with a plan of action that you can use in the classroom." Interview #10
	"It would be helpful to be able to plan ahead… you'd be able to put them on lesson plan or get them approved by the health coordinator." Interview #4
Limiting Factors	

Subthemes:	
Accessing Resources	"Accessing the food for sure. Being able to access and have those resources." Interview #1
Lack of Content Knowledge	"Lack of knowledge. Teachers may not know if you want to do a science experiment or a food activity with a certain theme or certain subjects. They might not have any experience with that." Interview #2
Lack of Time	"There's not enough school hours in a day to get everything you want done." Interview #8

Theme 1: Receiving and Providing Support Through Collaboration

All the participating teachers reported on their experiences receiving and providing support among other professionals within their work contexts or their desire to receive and provide this type of support. In addition to teachers finding immense value in professional collaboration, this type of support was described to help teachers plan learning activities, support student behavior and problem-solve through various situations that arise in the classroom.

There was a general sense of importance for collaboration among the interviewees. One teacher said, "I think that [working with other teachers] is a very important part of collaboration, being able to give and take and being able to lead and then follow. I think that is a good skill to have as a teacher, as well as a professional in general" (Interview #1). Another teacher shared a similar insight when she said, "As an educator, I feel like it's always important, myself, to keep learning. I feel like, when I collaborate with other teachers, that I learn more things, and I learn how to handle situations" (Interview #2).

Planning Learning Activities

Teachers found support through collaboration to be particularly helpful in terms of planning learning activities for the children in their classrooms. They described "bouncing ideas

off of each other" (Interview #11) and helping to brainstorm strategies for the diverse group of learners in their classrooms. Many of the teachers noted receiving support from teachers with varying levels of experience. One new teacher said, "I'm a new teacher, so getting advice from more experienced teachers or even less experienced teachers who just have different ideas than me can help me provide more for my kids" (Interview #4).

Support with Student Behavior

Many of the NC Head Start teachers shared that this type of professional collaboration has been or would be helpful when addressing student behavior in their classrooms. When speaking about student behavior, many of the teachers referenced gaining strategies from talking with other teachers. A commonly mentioned benefit of collaboration was having a plethora of strategies to access when problems arise. A teacher shared her thoughts on this when she said, "If I'm having trouble with a student, whether it's getting them to grasp a concept or behavior, then I can get ideas and maybe help that student, which in turn helps me" (Interview #2). This teacher speaks to the idea that this type of collaborative support not only helps her students, but it also helps her grow as a teacher.

General Problem-Solving

In addition to being a resource to teachers for planning learning activities and addressing student behavior, the teachers described collaboration as a helpful tool for general problem solving required within a classroom and early learning center. Whether it be organizing materials, addressing a parental question, or communicating concerns with their supervisor, having a group of teachers to problem-solve with was described as a desirable and helpful resource. One interviewee depicted this by saying, "We kind of create a powerful list of strategies, because it's coming from all different kinds of avenues, perspectives, brains…you can

create something extraordinary to help the children" (Interview 8). The data depicted a diverse set of demands in the NC Head Start setting, and teachers felt like collaboration was a key tool in meeting these demands.

Theme 2: Mutual Trust and Respect

The interviewed teachers relayed the importance of having a shared sense of trust and respect among collaborative partners, or PLC members. The teachers shared their thoughts on creating a trusting and respectful PLC environment which revealed the importance of member commitment, willingness to participate, having candid conversation, and sharing a common voice.

Mutual Commitment and Willingness to Participate

The NC Head Start teachers described a successful PLC as a group of people who are all committed to their work within the PLC. One teacher described this as members being "committed to the learning of young children as well as committed to partnering with others" (Interview #1). To be considered committed, PLC participants must be willing to engage and "want to be there" in addition to "wanting to help one another" (Interview #8). Another part of this commitment is members being willing to share their thoughts and ideas with one another. They reported that having a "safe space" (Interview #3) to talk with one another and problem-solve is of utmost importance. If mutual trust is established, then teachers will feel "safe" and more willing to participate. Many teachers described the need to be open-minded when collaborating within a PLC. It is important teachers are "willing to share their ideas" but are also "open minded to other people's ideas" or to "receive knowledge from others" (Interview #1 and Interview #3).

Candid Conversation

Once a trusting environment has been established, PLCs are a space where the teachers felt they could or desired to have open, candid conversation. As reported earlier, the data depicts a diverse set of demands in this educational environment, and teachers reported the use of PLCs would provide them a "place to vent" and "just be honest" about these demands with others who "are going through the same thing" (Interview #2 and Interview #7).

Common Voice

Similarly, teachers felt like a PLC was a useful space for discussing shared opinions and presenting a common voice to leadership. One teacher said, "Sometimes management can be a little bit intimidating," so having a trusting environment where teachers can discuss their challenges and then present "one voice instead of multiple" with their concerns to their supervisor is yet another perceived benefit (Interview #1).

Theme 3: Structure and Organization

Participating teachers believed that successful PLCs are structured and organized. This structure and organization can be achieved by having a defined space and time to meet, defining member roles, and setting goals.

Space and Time

All teachers spoke to the importance of having a designated space and time to meet as a PLC. In the field of early education, it can be "hard to get everybody together at one time" because of the challenge to "find the time between everything else that we [teachers] have to deal with in the day" (Interview #2 and Interview #4). Teachers report feeling like they do not have time to accomplish all the demands of their jobs within the workday, therefore they would "be much more willing" to participate in this type of collaboration if their time to meet was provided

and “protected” (Interview #7). In addition to this, teachers reported the desire to have a “dedicated space” with comfortable, adult-sized furniture with enough area to accommodate the size of their group (Interview #10).

Defining Roles and Setting Goals

Given the challenge to find time, it was important to the teachers for the time spent within a PLC to be meaningful. One teacher summed up this idea when she said, “A successful PLC would be organized, timely, and relevant” (Interview #7). Many of the teachers shared that having defined roles and setting goals for each meeting would help them maximize their time within a PLC. Most teachers expressed the desire to have “clear, defined roles” that are the “right fit” for each person in the group (Interview #7). For example, someone to facilitate the meeting or “make sure that it is run smoothly and we kind of can cover all the topics” (Interview #1). The interviewees also suggested each meeting have a “leader” who “makes an agenda” (Interview #1). Having a list of items or topics that need to be discussed would help provide a “sense of order” and goals could be “met more effectively” (Interview #10 and Interview #11).

Theme 4: Supervisor Involvement

When describing a successful PLC, the participating teachers revealed it was critical to have their supervisors’ involvement and support. The teachers acknowledged that their center leadership would play a vital role in providing them the time and space needed to meet as a PLC, but they also described their desire for leadership to provide input on relevant PLC topics. One teacher described her supervisor as “the overseer of the school” therefore she “would want their [supervisor’s] input on how we [teachers] run our PLC” (Interview #8). Many other teachers expressed their desire for their center directors to attend PLC meetings to “hear their concerns

firsthand" and promote a "open space, or a safe place" where supervisors "listen to the concerns of [their] teacher[s]" (Interview #1 and Interview #3).

Theme 5: Enhancing Science and Food-related Education

It was evident that the participating teachers felt that having a PLC focused on science and food-related education was a "great idea" (Interview #7). One teacher exclaimed, "That's actually an awesome idea" (Interview #1).

Planning Learning Activities

All the teachers shared their sentiments on how difficult it is for them to plan and prepare developmentally appropriate science and food-related activities in their classrooms. Many of the teachers acknowledged the importance of science: "We get caught up on the academic side…writing and reading…[but] this [science] is just as important. Science is all around us" (Interview #1). Yet, all the interviewed teachers expressed their struggles with this content area: "I really, really struggle with trying to teach children about science" (Interview #6); "I do have a hard time thinking of science activities" (Interview #4); "I struggled with trying to find something that's not too advanced and then not knowing much about science myself…" (Interview #10).

Accessing Materials and Preparing Ahead of Time

The teachers described various ways that a PLC may help them better plan and prepare science-related content in their classrooms. They said that a PLC could help them "rally ideas" and teachers could "provide support" to one another (Interview #1). Many teachers expressed how a PLC would help them "plan ahead" and "get [their plans] approved by their health coordinator" (Interview #2). In addition to this, the teachers recognized that science plans often require multiple materials to be purchased or prepared in advance. They described a PLC as a

helpful tool in this preparation. One teacher said that "having a PLC that focuses on science can get even seasoned teachers to learn a little bit more…" about science specific content (Interview #1).

Theme 6: Limiting Factors

As previously described, the teachers who were interviewed were generally pleased with the idea of utilizing PLCs to plan and implement science and food-related content in their classrooms, however, they did perceive a few challenges that may arise in the process of implementing this framework including: accessing resources, lack of content knowledge, and lack of time to plan/implement.

Accessing Resources

Many of the teachers expressed concern with accessing or gaining approval to use the necessary resources for implementing science and food-related lessons in their classrooms. They described their struggle with knowing what they "can or can't do" and getting approval to use food-based materials in the classroom (Interview #8).

Lack of Content Knowledge

In addition to this, a few of the interview participants believed that lack of teacher content knowledge would hinder the PLCs ability to problem-solve and plan science related content. One teacher said, "They [teachers] might not have any experience with that [science instruction] (Interview #2). Another said, "I feel like sometimes people will have ideas that are kind of Pinterest level ideas and not really deep… they didn't know what science concept they're teaching, or why they're even really doing it" (Interview #5).

Lack of Time

Again, teachers expressed their concern with having the time needed to accomplish these goals in their PLC. One teacher said, “There’s not enough school hours in a day to get everything you want done” (Interview #8). So, while the teacher may have a desire to enhance science and food-related education in her classroom, she fears there will not be time to plan and prepare the necessary content and materials needed to do so.

The thoughts, beliefs, and stories shared by the participating NC Head Start teachers helped paint a picture of their past experiences working collaboratively, desired experience working within a PLC, and thoughts about using the PLC framework to support the science and food-related education in their classrooms. These findings align with existing research, fill a gap in current literature, and help inform the direction of PLC development in this unique setting.

CHAPTER 6: DISCUSSION

The results of the current study add to the limited body of research that supports implementing PLCs in early childhood settings, specifically North Carolina Head Start centers. The quantitative and qualitative results of the current study demonstrate the desire North Carolina Head Start teachers must work collaboratively with one another in PLCs. Aligned with existing research, the current study revealed NC Head Start teachers believe that various supportive conditions must exist for the use of PLCs to be truly successful (LoScalzo, 2017; Thornton and Cherrington, 2019; Vangrieken et al., 2015). While the results of the current study expose potential challenges in the use of PLCs as a professional development tool, this information can help better prepare teachers and leaders as they establish this collaborative framework in their centers.

Contextualizing Head Start Teachers' Views on PLCs

The findings of the current study are supported by human ecology theory. Bronfenbrenner's model suggests that the systems in which a person lives and develops are a set of nested systems. This means that systems cannot exist or be considered without acknowledging their placement within others or the interconnected nature of their existence (Thomas, 2005). This contextual approach to understanding development aids in interpreting the findings of the current study in two main ways: (1) participants' unique contexts in which they have developed inform their shared perceptions of PLCs as a tool for collaboration and (2) the context in which PLCs are developed within Head Start centers will greatly impact their success.

The Head Start setting is distinct and the lived experiences of teachers in this context is unique to them. These experiences have shaped their view on professional collaboration and what it will take for successful implementation of PLCs in their centers. It was of utmost

importance to explore their thoughts and beliefs surrounding PLCs to determine if this tool would be a valuable means for professional collaboration and development. The results of the current study reveal that based on their prior experiences and contexts of development, Head Start teachers believed PLCs would be a helpful tool and meaningful experience that is worth their time. They also believed that various supports, such establishing mutual trust and having supervisory support, must be in place for PLCs to be most effective.

Like considering the teachers' context when interpreting their thoughts and beliefs about PLCs, it was important to investigate the context in which PLCs will exist in the Head Start setting. The data of the current study suggest that the Head Start context is one where teachers feel they have very limited time to accomplish tasks, such as learning and adapting their teaching practices through participating in professional development, outside of meeting the daily needs of the children in their classrooms. The interview participants shared this as one of the reasons why it will be critical that supervisors support their endeavors within a PLC and provide them the space and time to collaborate using this framework.

PLCs in the Head Start Context

Like that of K-12 educators, Head Start teachers are feeling the demands to learn new skills and obtain the necessary knowledge to enhance the learning for children in their classrooms (Darling-Hammond et al., 2009). While one-day professional development workshops have been deemed ineffective in teaching these new skills and gaining necessary knowledge, PLCs have proved to be an effective tool to accomplish this goal in primary and secondary school settings (Darling-Hammond & Adamson, 2010). The findings of the current study suggest that NC Head Start teachers are: (1) already working collaboratively with peers, or willing/desiring to do so, (2) wanting to provide and receive support from other professionals in

a collaborative work context, and (3) are aware of the supportive measures perceived to be necessary to successfully work within a PLC.

The majority of the teachers in the survey agreed that participating in a PLC would be worth their time and would be a meaningful experience within the Head Start setting. They feel comfortable with the nature of this type of professional collaboration and find it beneficial to plan learning activities and support student behavior. The collaborative nature of PLCs seems to be alluring, and certainly beneficial to all, but particularly new or first-time teachers. Because of this, it can be assumed that PLCs will be a valuable and effective framework in the NC Head Start setting, specifically for the use of science and food-related professional development.

Supportive Conditions

It has been found that to make teacher collaboration successful, steps must be taken to support the collaborative process and the individuals involved (Vangrieken et al., 2015). The current study reveals various supportive conditions that NC Head Start teachers feel must be in place for PLCs to be successful in their workplace. Aligned with existing research and human ecology theory, the teachers in the current study described a successful PLC as one that has both structural and relational supports in place: a designated time and space to meet, supervisor involvement, structure or organization, and a trusting collaborative environment.

Cherrington and Thornton (2015) along with Vangrieken et al. (2015) reported on various structural supports that must be in place for PLCs to be effective. For example, the group needs time and space for meetings and support through external facilitators such as administrators, district offices, and networks. It was no surprise that all teachers interviewed in the current study shared their insight into the importance of both supportive conditions. The Head Start teachers acknowledged that having a time and space to meet, while a basic structural need, was something

they could see being a challenge. They felt that for this basic need to be met, they would need the full support of their supervisors, hence making support from their leaders vital to the success of the PLC overall.

The teachers of the current study also gave insight into the relational supports they felt were necessary for the development of PLCs in their workplace. Thornton and Cherrington (2019) wrote about the importance of clearly defining roles among PLC members. Like the findings of Thornton and Cherrington (2019), the results of the current study suggest that NC Head Start teachers also feel that having clearly defined roles and organization for their PLC meetings are key to being successful and accomplishing their goals. Existing research also suggests that successful PLCs in early childhood settings demonstrated a shared focus and commitment among members (Thornton & Cherrington, 2019). Likewise, the participants in the current study perceived mutual trust and commitment as vital elements of successful collaboration in a PLC.

The value that Head Start teachers placed on mutual trust, commitment, and willingness to participate aligns with what we already know about trust as an essential element in providing and receiving support through collaboration within a PLC. Throughout the literature, human connection and the foundations of trust are known to be the core of teaching and learning through PLCs in other more commonly used contexts (Fairfield, 2011). This sense of trust has been found to have a positive effect on professional learning and it can be assumed that it will be a key element in the success of PLCs in Head Start centers (Yin et al., 2019). These insights on supportive conditions give leaders a foundational place to start when establishing PLCs among their early childhood educators. For Head Start teachers to maximize PLC success, attention to these supportive conditions is vital.

Foreseeable Challenges

Another important consideration for long-term success of PLCs is acknowledging the challenges these teachers may face when using this framework to enhance their science and food-related education. Damjanovic and Blank (2018) suggested that developing collaborative skills in a professional community is an uncertain and slow process that requires more than the structural provision of space and time for teachers to meet. In addition to this, it has been proven to be difficult for teachers to move from a culture of planning teaching in isolation to collaborating with other professionals (Darling-Hammond et al., 2009). However, the findings in the current study suggest that teachers are already working in collaboration with one another, and they are seeking the space, time, structure, and support needed to continue doing so. While they desire this type of collaboration, NC Head Start teachers recognize that having the time, supervisor support, and access to professional development materials may impede their ability to maximize success within a PLC.

Limitations

Unfortunately, the researchers of the current study were not able to reach saturation with the qualitative data, limiting the findings. Saturation occurs when collection of new data does not yield novel information about the phenomenon being studied (Bowen, 2008). While there was consensus among many of the findings and clear themes were present among the data, true saturation of all codes and insights was not achieved. This was due to the challenges faced when recruiting interview participants. Recruitment for the focused interviews took place in the fall of 2020 and Spring of 2021 during the COVID-19 pandemic. This was a challenging time for all individuals, but notably challenging for families and educators. The added stressors that came from school closures, having to convert to online learning, and new daily life stress made this an

increasingly difficult time to collect the needed data. The researchers believe that saturation would have likely occurred if they had been able to acquire a larger sample size.

Another limitation of this study is the use of a geographically specific area (North Carolina) for both the survey and interview participants. In addition to this, the current study is limited by its small sample of interview participants. The interview sample consisted of eleven Head Start teachers from North Carolina. This limits the generalizability to other early childhood populations. While this small sample only reveals the thoughts and experiences of a specific group of people, the quantitative portion of the study did comprise a larger sample and supported the major findings that informed interview investigation. These limitations have potential to be addressed in the future by expanding on this study.

Implications and Future Research

The current study informs the importance and implementation of PLCs, and specifically as a tool to enhance science and food-related education in North Carolina Head Start centers. Teachers are eager and willing to utilize PLCs and are aware of the support needed and challenges they may face when adopting this method of professional collaboration. The findings reported above allow leaders in the field to consider the thoughts and beliefs of the teachers they serve as they plan for their professional development opportunities.

Future research can build on these findings by expanding their investigations beyond North Carolina. Further studies may investigate whether these findings align with other early childhood contexts beyond Head Start settings. In addition to this, continued research in this area can explore how teacher perceptions change as they begin or continue their collaborative efforts in PLCs. It may be beneficial to examine what kinds of support can further enhance the effectiveness of PLCs in Head Start settings. Based on the results from the current study, some

supports that should be further explored are: utilizing a co-leader model where an administrator is actively involved in the PLC as a co-leader or having a teacher-coach who is trained in providing leadership and direction to the PLC. These models might help circumvent some concerns the Head Start teachers expressed regarding supervisory support and lack of time. This type of continued research can help guide positive change in professional development programs for early childhood education. If we enhance the quality of professional development programs for early childhood educators, we in turn enhance the outcomes for the young children these professionals serve.

Conclusion

This study utilized both survey and interview data to describe NC Head Start teachers' perceptions of professional learning communities, or PLCs. It is reported that majority of teachers believe PLCs would be a helpful tool in meeting the needs of the children they serve, in addition to being a meaningful experience for them as a professional. It was also found that teachers are eager to participate in PLCs because they believe it will provide them with an opportunity to support other teachers as well as receive support. Teachers perceived various supportive factors as important to PLC success: establishing mutual trust and commitment, having structure and organization, as well as receiving supervisor support. Lastly, this study revealed what teachers feel may be challenging about working in a PLC: having time and accessing resources. Understanding what teachers believe to be important while collaborating with others and what they feel it will take to create a successful PLC, will help to inform the creation and implementation of this type of professional development tool.

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APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL

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** ·
rede.ecu.edu/umcirb/

Notification of Amendment Approval

From: Social/Behavioral IRB
To: Virginia Stage
CC:

Date: 10/24/2022
Re: Ame12 UMCIRB 18-002749
UMCIRB 18-002749
PEAS (Preschool Education in Applied Sciences)

Your Amendment has been reviewed and approved using expedited review for the period of 10/24/2022 to 10/9/2023. 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
Changing the PI from Dr. Virginia Stage to Dr. Archana Hegde.	

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

APPENDIX B: INTERVIEW COMMUNICATION SCRIPT

State-wide Teacher PLC Interview Communication Script

Dear *(Teacher)*,
My name is _____ and I am a graduate student in the Human Development and Family Sciences department at East Carolina University. I am working with my advisors, Dr. Archana V. Hegde, PhD, BK and Dr. Virginia C. Stage, PhD, RDN to conduct a study seeking to assess the barriers that Head Start teachers face when integrating science and nutrition education learning experiences in their classrooms, and teachers' thoughts and beliefs about professional learning communities (PLCs).

East Carolina University is recruiting North Carolina Head Start teachers to participate in the PLC portion of this research study. In order to participate, you must be 18 years of age or older and currently employed as a Head Start teacher in North Carolina.
As part of the study, you will complete an online questionnaire and participate in a telephone interview between the dates [XX/XX/XX – XX/XX/XX]. The specific day and time will be scheduled at a time that is convenient for you.

You will receive a $30 gift card as compensation for your time for completing both the survey and interview. If you choose to only complete the survey, you will be entered into a drawing for a $95 gift card.

If you meet the study criteria and would like to complete the online survey, please follow the survey link listed below. Participation in this study will take approximately 45-60 minutes (15-20 minute online survey; 20-30 minute telephone interview; 10 minute review summary to confirm accuracy or correct inaccuracies of our interpretation of the interview).

SURVEY LINK: _____

For additional questions, please email Virginia C. Stage at carrawaystagev@ecu.edu.

Thank you very much for your time. Your potential contribution would be greatly appreciated!
Sincerely,

Lane G. Philips, BS, K6
HDFS Graduate Student
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East Carolina University
Greenville, NC 27858

APPENDIX C: RECRUITMENT FLYER

ATTENTION

Head Start Teachers!

East Carolina University is recruiting North Carolina (NC) Head Start teachers to participate in a research study seeking to assess the barriers that Head Start teachers face when attempting to integrate science and nutrition learning experiences in the classroom, and teachers' thoughts and beliefs about professional learning communities (PLCs).

As part of the study, you will complete an online survey and participate in a phone interview between the dates [XX/XX/XX – XX/XX/XX]

Eligibility requirements include:

- 18 years of age or older
- Currently employed as Head Start teacher in NC

If you meet the study criteria and would like to participate, please follow the survey link listed below. Participation in this study will take approximately 45-60 minutes (15-20 minute online survey; 20-30 minute telephone interview; 10 minute review summary).

You will receive a $30 gift card as compensation for your time for completing both the survey and interview. If you choose to only complete the survey, you will be entered into a drawing for a $95 gift card.

Click here to complete the screening questionnaire and to provide consent for participation. For additional questions, please email Virginia C. Stage at carrawaystagev@ecu.edu.

APPENDIX D: CONSENT FORM

Title of Research Study: Understanding the State of Science and Nutrition Education in North Carolina Head Start Programs: A Needs Assessment

Sponsor/Funding Source: National Institutes of Health (NIH), National Institute of General Medical Sciences, Science Education Partnership Award

Principal Investigators: Virginia C. Stage, PhD, RDN (Persons in Charge of this Study)
Department or Division: Department of Nutrition Science
Address: Health Sciences Building (Suite 2307), East Carolina University Greenville, NC 27858
Telephone #: 252-744-1001

Researchers at East Carolina University (ECU), North Carolina State University (NCSU), University of North Carolina at Greensboro (UNCG), and North Carolina A&T (NC A&T) study issues related to society, health problems, environmental problems, public policy, behavior problems, and the human condition. To do this, we need the help of volunteers who are willing to take part in research.

Study Summary

The purpose of this study is to gain a clearer understanding of Head Start programs' needs, assets, and resources related to science, nutrition education, and teacher professional learning communities. The information obtained in this study will assist researchers in creating teacher professional development resources that align with the needs of North Carolina-based Head Start Teachers. Eligible participants must be over the age of 18 years and currently employed as a Lead Teacher in a North Carolina Head Start program. If you choose to take part in this study, you will be asked to complete two main parts to this study. In the first part of the study you will be asked to complete an online survey that will take approximately 15 to 20 minutes. During the second part of the study you will be asked to participate in one 20 to 30-minute telephone interview. At the conclusion of the interview, the researcher will take approximately 10 minutes to review a brief written summary of the interview with you and ask you to confirm accuracy or correct inaccuracies of our interpretation of the interview. There are no known risks (the chance of harm) associated with this research. Any risks that may occur with this research are no more than what you would experience in everyday life. If you are interested in learning more about this study, please continue to read the information below.

Why am I being invited to take part in this research?

You are being asked to take part in this research because you are a Head Start Teacher in North Carolina. To help us better understand what is happening around science and nutrition education, this research will consist of two parts:

- **PART I:** You will be asked to complete an online survey about (1) science education in the classroom, how you talk about science with children, and nutrition education practices,(2) teacher training and professional development, and (3) priority of science education, science talk, and nutrition education in the classroom. You will also be provided with the opportunity to complete an optional survey about your experience with COVID-19's (the coronavirus disease caused by the severe acute respiratory syndrome) impact.
- **PART II**: You will be asked to complete a telephone interview. In the interview we will discuss your experiences, thoughts, and beliefs around professional learning communities in your Head Start program.

The decision to take part in this research is yours to make. By doing this research, we hope to gain a clearer understanding of North Carolina Head Start programs specific needs, assets, and resources related to science and nutrition learning environments and teacher professional learning communities. Findings from this research will enable our team to create teacher professional development resources related to science and nutrition education that align with the needs of North Carolina-based Head Start teachers.

If you volunteer to take part in this research, you will be one of about 20 people across the state of North Carolina to do so.

Are there reasons I should not take part in this research?

Participants must be over the age of 18 years and employed as a Lead Teacher within a Head Start program in North Carolina.

What other choices do I have if I do not take part in this research?

You can choose not to participate in this research. Choosing not to participate in the study does not will not affect your relationship with your work site or ECU, NCSU, UNCG, or NC A&T.

Where is the research going to take place and how long will it last?

The research will be conducted via an online survey and an interview over the phone. The online survey can be completed any time before the scheduled telephone interview. Online surveys can be completed at a place of your choosing. Specific dates and times for the interview will be scheduled during a time that is convenient for you. The total amount of time you will be asked to dedicate to this study is no more than 60 minutes: 15-20 minutes for the online survey, 20-30 minutes for the telephone interview, and 10 minutes reviewing the summary of your interview.

What will I be asked to do?

You will be asked to do the following:

1. Complete a 50-item online survey with an option 28-item add-on survey about COVID-19. The survey is broken down into the following sections:
   Section A: Science Education Practices (11 items)
   Section B: Training & Professional Development (25 items)
   Section C: Priority for Science Education, Science Talk with Children, & Food-based Learning (4 items)

Section D: Tell Us About Yourself (10 items)
Section E: Your Experiences with COVID-19's Impact (28 items) (*Optional Survey*)

2. Complete one 20-30-minute telephone interview about your experiences, thoughts, and beliefs around professional learning communities in your Head Start program.
3. Review a brief written summary of the interview and confirm accuracy or correct inaccuracies of our interpretation of the interview.

The telephone interview will be audio recorded. Audio recordings will be accessible to the PI, Co-PI (Hegde) and other study staff previously approved through the University & Medical Center Institutional Review Board (UMCIRB). Participants will be given an identification number and code name used for interviews. Traditionally, no identifying information is included in the interview, but the participant might inadvertently reveal identifying information that will be de-identified on any transcripts produced from the audio recordings. Hard copies of interview recordings will be stored in a locked file cabinet in a locked office in the Rivers West Building in room 131. Electronic audio files will be stored on the PI's and Co-PI's (Hegde) Pirate Drive (an online, password-protected, secure storage folder accessible only by the study team members). Within seven years after the conclusion of the study, digital recordings will be erased.

What might I experience if I take part in the research?
We don't know of any risks (the chance of harm) associated with this research. Any risks that may occur with this research are no more than what you would experience in everyday life. We don't know if you will benefit from taking part in this study. There may not be any personal benefit to you, but the information gained by doing this research may help others in the future. Your specific responses will not be shared with your respective employers or other government agencies.

Will I be paid for taking part in this research?

You will receive a $30 gift card as compensation for your time for completing both the survey **and** interview.

If you choose to complete only the survey, you will be entered into a drawing for a $95 gift card.

If you choose to complete the optional questions about COVID in the survey (Section E), you will be entered into a drawing for a $95 gift card.

You will be entered for the raffle. Each person has a separate and equal chance to win. Raffle winners will be notifed at the end of the study (Spring 2021).

Will it cost me to take part in this research?
It will not cost you any money to be part of the research.

Who will know that I took part in this research and learn personal information about me?
ECU, NCSU, UNCG, and NC A&T and the people and organizations listed below may know that you took part in this research and may see information about you that is normally kept private. With your permission, these people may also use your private information to do this research:

- The sponsors of this study (National Institutes of Health)
- The University & Medical Center Institutional Review Board (UMCIRB) and its staff have responsibility for overseeing your welfare during this research and may need to see research records that identify you.

How will you keep the information you collect about me secure? How long will you keep it?
Data from the surveys will be stored electronically on the PI's and Co-PI's (Hegde) Pirate Drive (an online, password-protected, secure storage folder accessible only by the study team members). All computers with access to the Pirate Drive are password protected and available only to authorized personnel. Hard copies of data (e.g. transcribed interviews) will be stored in a locked file cabinet in a locked office in the Rivers West Building in room 131. Within seven years after the conclusion of the study, survey files and the digital recordings will be erased. Participants' name, phone number, and email address will be recorded so we can remind the participant of the time and location for the in-depth interview (if applicable), however, this information will be stored separately from de-identified data. Participants will be given an identification number. Further, code names will be used for interviews. Traditionally, no identifying information is included in the interview, but the participant might inadvertently reveal identifying information that will be de-identified on any transcripts produced from the audio recordings. The use of a pseudonym will help ensure participants cannot be identified from the interview recording after it has been de-identified.

What if I decide I don't want to continue in this research?
You can stop at any time after it has already started. There will be no consequences if you stop and you will not be criticized. You will not lose any benefits that you normally receive.

Who should I contact if I have questions?
The people conducting this study will be able to answer any questions concerning this research, now or in the future. You may contact Virginia C. Stage at 252-744-1001 (Monday-Friday, between 8:00A and 4:00P).

If you have questions about your rights as someone taking part in research, you may call the University & Medical Center Institutional Review Board (UMCIRB) at phone number 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, you may call the Director for Human Research Protections, at 252-744-2914.

Is there anything else I should know?
Most people outside the research team will not see your name on your research record. This includes people who try to get your information using a court order.

Your information or biospecimens collected as part of the research, even if identifiers are removed, will not be used or distributed for future studies.

I have decided I want to take part in this research. What should I do now?
The person obtaining informed consent will ask you to read the following and if you agree, you should sign this form:

- I have read (or had read to me) all of the above information.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that I can stop taking part in this study at any time.
- By signing this informed consent form, I am not giving up any of my rights.

- I have been given a copy of this consent document, and it is mine to keep.

_____

Participant's Name (PRINT) **Signature** **Date**

Person Obtaining Informed Consent: I have conducted the initial informed consent process. I have orally reviewed the contents of the consent document with the person who has signed above and answered all of the person's questions about the research.

_____

Person Obtaining Consent (PRINT) **Signature** **Date**

APPENDIX E: SURVEY

UNDERSTANDING THE STATE OF SCIENCE IN NORTH CAROLINA HEAD START PROGRAMS

DIRECTIONS

We wish to learn more about science education practices and environments in North Carolina Head Start programs.

We understand that COVID-19 may have an impact on your program. Please answer questions as you would have prior to the start of COVID-19, unless otherwise directed. In North Carolina the COVID pandemic began in early March 2020.

Please answer questions about your Head Start program serving children 3-5 years, not your Early Head Start program (if you have one).

If you are unsure how to answer a question, please give the best answer you can rather than leaving it blank.

The survey has five sections:
(A) Science Education Practices
(B) Training & Professional Development
(C) Priority for Science Education
(D) Tell Us About Yourself
(E) Your Experiences with COVID (optional)

Within the scope of Science Education, survey questions will also ask about science talk and food-based learning you have used in your Head Start program.

- **Science education is providing educational experiences that engage children in scientific reasoning and inquiry (e.g. children observe and describe objects, materials, organisms, and events, classifying objects based on similarities, using measurement tools). Science education includes a variety of topics such as the life sciences (e.g. plants, animals), earth and space science, health sciences (e.g. food, nutrition, human health), and more.**
- **Science Talk is engaging children in scientific conversation by using scientific practice words or signs, such as observe, describe, compare, contrast, question, predict, experiment, reflect, cooperate, or measure. It also includes developing language skills by teaching children science-related topic words.**
- **Food-based Learning are defined as using food as a hands-on tool to teach children science including but not limited to gardening and nutrition (e.g. exposing children to healthy foods and discussing how foods helps the body grow and be healthy).**

If you have any questions, please contact Dr. Virginia C. Stage, PhD, RDN at 252-744-1001 or by email at carrawaystagev@ecu.edu

SECTION A: SCIENCE EDUCATION PRACTICES

The questions in section B ask about current science education practices in the classroom. Education in the "classroom" is defined as any educational strategy used in the classroom, playground, mealtime environment, or other educational setting on school grounds.

A1. In which environment do you teach science concepts most frequently? Mark only one.

a. Classroom
b. Learning Centers
c. Circle Time
d. Mealtimes
e. Outside learning (e.g. playground, garden)
f. Other____
g. None of the above. We do not teach these concepts.

A2. On average, how frequently do you provide formal, informal, and incidental learning experiences in science, science talk, and nutrition education to children in your classroom? Formal educational experiences are those that are planned ahead of time, materials are prepared, activity is documented on the lesson plan, and children are encouraged to engage in the activity (e.g. melting/freezing activities, cooking activities, etc.). Informal educational experiences occur when materials are made available to children, such as science centers/areas in the classroom, but the child freely chooses to engage with the materials (e.g. science center with magnifying glasses and items to view, spoons, measuring cups or spoons, etc.). Incidental education is not preplanned by the teacher and occurs "in the moment" when children are engaged in naturalistic experiences and then expended on by the teacher (e.g. a sudden change in weather, interest in how plants grow, etc.)

Formal (structured) Learning Experiences	**DROP DOWN MENU FOR EACH COLUMN** **a.** Very often (daily) **b.** Regularly (2-4/week) **c.** Sometimes (weekly) **d.** Rarely (monthly) **e.** Almost never (less than monthly) **f.** None of the above. We do not provide informal nutrition education in the classroom.
Informal Learning Experiences	
Incidental Learning Experiences	

A3. On average, how frequently do you use science talk (which is having conversations about science) and food-based learning to support science learning in your classroom?

SCIENCE TALK	**MENU FOR EACH COLUMN** **a.** Very often (daily) **b.** Regularly (2-4/week) **c.** Sometimes (weekly) **d.** Rarely (monthly) **e.** Almost never (less than monthly) **f.** None of the above. We do not provide informal nutrition education in the classroom.
FOOD-BASED LEARNING	

A4. How much do you rely on a lesson plan when teaching formal science learning experiences?

a. Very often (daily)
b. Regularly (2-4/week)
c. Sometimes (weekly)
d. Rarely (monthly)
e. Almost never (less than monthly)
f. None of the above. I do not rely on my lesson plan when teaching formal science learning experiences.

A5. On average, how frequently do you provide science education during mealtime to children in your classroom? Science education during mealtimes may include "science talk" and/or informal discussions with children about science concepts that occur during mealtimes (e.g. breakfast, lunch, snacks) such as the five senses, health benefits of foods, how food is grown, etc.

a. Very often (daily)
b. Regularly (2-4/week)
c. Sometimes (weekly)
d. Rarely (monthly)
e. Almost never (less than monthly)
f. None of the above. I do not rely on my lesson plan when teaching formal science learning experiences.

A6. During the past year, what resources were available to you to teach science concepts, use science talk, and provide food-based learning experiences in your classroom? For each resource, select one of the options to indicate the availability of that resource:

	SCIENCE	**SCIENCE TALK**	**FOOD-BASED LEARNING**
a. Curricular Resource (*specify*) _____			
b. Games	**MENU FOR EACH COLUMN** **a.** Available **b.** Not Available **c.** Not Applicable		
c. Educational posters			
d. Books			
e. Computer software			
f. Music			

g. Videos	
h. Materials for center play (e.g. kitchen, cooking utensils, food models)	
i. Refrigerator for perishable items	
j. Additional staff support to help with hands-on activities	
k. Funds to support purchasing supplies needed for new activities (including perishable items)	
l. Funds to support field trips (e.g. farm, grocery store, restaurant)	
m. Other (*specify*) _____	
n. None of the above.	

A7. During the past year, which of the community organizations or agencies listed below has your program partnered with to teach science concepts, use science talk, and provide food-based learning experiences in your classroom?

	SCIENCE	SCIENCE TALK	FOOD-BASED LEARNING
a. Local Farmer's Market	**CHECKBOX FOR YES**		
b. Local Grocery Store			
c. Local Food Bank			
d. Local Health Department			
e. Local Faith-based Organization			
f. Local Hospital			
g. Local Library			
h. Local Museum			
i. Parents/Guardians			
j. Grandparents/Other Family Members			
k. Farmer			
l. Scientist			
m. Physicians/Nurses			
n. Dentists			
o. Registered Dietitian (RD)			
p. Non-RD Nutrition Consultant			
q. University Faculty			
r. Student Volunteers (High School)			
s. Student Volunteers (University/College)			
t. YMCA (Young Men's Christian Association)			
u. Boys and Girls Club			
v. Farm Bureau			
w. Master Gardener's Program			
x. Partnership for Children (e.g. Shape NC)			
y. Supplemental Nutrition Assistance Program Education (SNAP-Ed) Agent			

z. Cooperative Extension/Expanded Food & Nutrition Program (EFNEP) Educator	
aa. Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	
bb. Other (*specify*) _____	
cc. None of the above. We have not had any community partnerships during the past year to support educational efforts.	

A8. When selecting an activity or curricular resource for teaching science, which of the following characteristics are most important to you of your program? For each resource, select one of the options to indicate the level of importance:

	SCIENCE	FOOD-BASED LEARNING
a. Cost to implement activity	**DROP DOWN MENU FOR EACH COLUMN** **a.** Important **b.** Somewhat Important **c.** Not Important **d.** I don't know	
b. Ease of use (e.g. requires less time to plan/prepare, easy to implement)		
c. Structure/Organization of Content (e.g. easy to understand and follow activity with clear guidelines for teaching in the classroom)		
d. Inclusive of all materials needed to implement the activity		
e. Length of activity		
f. Cultural appropriateness (e.g. availability of activity materials in multiple languages and sensitivity to other cultures)		
g. Other (*specify*) _____		
h. None of the above. We do not provide this kind of education in the classroom.		

A9. What challenges do you face when teaching science concepts or including food-based learning in your classroom?
MARK ALL THAT APPLY

	SCIENCE	FOOD-BASED LEARNING EXPERIENCES
a. Not enough money to cover the cost of additional materials (e.g. food for taste testing)		
b. Lack of expertise to provide age-appropriate education in this area		
c. Lack of human resources to support activities in this area (e.g. extra classroom support for food-based activities)		
d. Lack of material resources (e.g. curricular resources, supplies for activities, books, posters) to support		
e. Other areas in our program have higher priority (e.g. mathematics)		
f. Lack of time in our schedule to increase the amount of education on this topic		
g. Lack of knowledge about how to integrate this topic into our other regular activities		
h. Children would not be interested in spending more time focused on this topic		
i. Parents would not support the idea of children spending more time focused on this topic		
j. Other (*specify*) _____		
k. None of the above. We would not experience any challenges in providing education to children on this topic during the school day		

A10. Which one of the answers that you marked above in question A9 would be the most significant challenge?

| | LETTER OF THE MOST SIGNIFICANT CHALLENGE for **SCIENCE EDUCATION**
| | LETTER OF THE MOST SIGNIFICANT CHALLENGE for **FOOD BASED LEARNING**

SECTION B: TRAINING & PROFESSIONAL DEVELOPMENT

The questions in section B ask about the training and professional development that could influence the science education strategies you use in your classroom.

B1. When you were a newly hired teacher, how did your program train you to <u>teach children about science?</u>
MARK ALL THAT APPLY

a. Senior teachers verbally explain practices and strategies
b. I was asked to review the program's written guidelines
c. The program provided videotapes
d. I was required to attend a workshop or training session (e.g. pre-service, in-service, conference)
e. I was asked to read books or articles
f. I collaborated what the more experienced teachers to get ideas and successful strategies
g. I did not receive any training on teaching children about this concept

B2. To the best of your knowledge, which one of the answers that you marked above in question B1 is currently the most commonly used approach to train new teachers about the practices and routines that apply to teaching children about science?
| | LETTER OF THE MOST FREQUENTLY USED TRAINING APPROACH for **SCIENCE EDUCATION**

B3. When you were a newly hired teacher, how did your program train you to <u>use science talk or food-based learning in the classroom?</u>
MARK ALL THAT APPLY

	SCIENCE TALK	FOOD BASED LEARNING
h.	Senior teachers verbally explain practices and strategies	
i.	I was asked to review the program's written guidelines	
j.	The program provided videotapes	
k.	I was required to attend a workshop or training session (e.g. pre-service, in-service, conference)	
l.	I was asked to read books or articles	
m.	I collaborated what the more experienced teachers to get ideas and successful strategies	
n.	I did not receive any training on teaching children about this concept	

B4. When thinking of your own professional development needs for teaching science in your classroom, indicate what level of need you have in each category. Please mark one choice in each row.

a. Material resources	**DROP DOWN MENU FOR EACH COLUMN** **a.** No Need at All **b.** Some Level of Need **c.** High Level of Need
b. Curriculum resources	
c. Technology resources	
d. Periodic training	
e. Regular mentoring/coaching	

f. Other (*specify*) _____	
g. None of the above. I have no professional development needs.	

B5. When thinking of your own professional development needs for learning to use science talk and food-based learning in your classroom, indicate what kind? of need you have in each category. Please mark one choice in each row.

	SCIENCE TALK	FOOD-BASED LEARNING
h. Material resources	**DROP DOWN MENU FOR EACH COLUMN** **a.** No Need at All **b.** Some Level of Need **c.** High Level of Need	
i. Curriculum resources		
j. Technology resources		
k. Periodic training		
l. Regular mentoring/coaching		
m. Other (*specify*) _____		
n. None of the above. I have no professional development needs.		

B6. What motivates you to participate in professional development?
MARK ALL THAT APPLY

a. To stay updated with best practices
b. To grow and improve job performance as a professional
c. Topic was interesting, new, or different
d. Licensure or regulatory requirements (obtain continuing education units)
e. To better meet children's special needs
f. Passion for job/love of children
g. Network and meet other providers
h. Help educate children and prepare for school (kindergarten readiness)
i. Accreditation
j. Financial incentive offered for participation (e.g. gift card)
k. Resource incentive offered (e.g. classroom teaching materials)
l. Interest in promotion at job (e.g. center director)
m. Other (*specify*) _____
n. None of the above. I do not participate in professional development.

B7. To the best of your knowledge, which one of the answers that you marked above in question B6 is currently your strongest motivator for participating in professional development?
| | LETTER OF THE STRONGEST MOTIVATOR

B8. What were your professional development preferences prior to the start of COVID-19? In North Carolina the COVID pandemic began in early March 2020.
MARK ALL THAT APPLY

a. In-person training

b.	Live webinar (e.g. allows for question and answer with the host)
c.	Recorded webinar that I can view at any time
d.	Ongoing mentorship/coaching
e.	Ongoing peer-to-peer with other providers
f.	Self-study (e.g. anytime learning modules)
g.	Attending conferences with multiple trainings on one day (e.g. Saturday)
h.	None of the above. I have no professional development preferences.

B9. Which one of the answers that you marked above in question B8 was your most preferred method of receiving professional development?

| | LETTER OF THE MOST PREFERRED METHOD

B10. What are your professional development preferences considering the impacts of COVID-19? In North Carolina the COVID pandemic began in early March 2020.
MARK ALL THAT APPLY

i.	In-person training
j.	Live webinar (e.g. allows for question and answer with the host)
k.	Recorded webinar that I can view at any time
l.	Ongoing mentorship/coaching
m.	Ongoing peer-to-peer with other providers
n.	Self-study (e.g. anytime learning modules)
o.	Attending conferences with multiple trainings on one day (e.g. Saturday)
p.	None of the above. I have no professional development preferences.

B11. Which one of the answers that you marked above in question B10 is currently your most preferred method of receiving professional development?

| | LETTER OF THE MOST PREFERRED METHOD

The next set of questions are about your access to training. Please answer as honestly as possible.

B12. During the past year, did you participate in any of the following kinds of professional development activities focused on science education in the preschool classroom? If yes, what was the impact of these activities on your development as a teacher?
MARK ALL THAT APPLY

a.	Organization in-service training	**DROP DOWN MENU FOR EACH COLUMN** **a.** No Impact **b.** Some Impact **c.** Large Impact **d.** Did not participate in this activity
b.	Organization pre-service training	
c.	National Education Conferences/Seminars (e.g. National Head Start Conference)	
d.	State Education Conferences/Seminars (e.g. State Head Start Conference)	
e.	Online Training	
f.	Visiting other Schools	
g.	Informal Teacher Network	

h. Personal Research	
i. Professional Learning Community	
j. Mentoring/Coaching	
k. Course at Local College/University	
l. Training Specific to a Curricular Resource	
m. Partnership for Children (e.g. Shape NC)	
n. Other (*specify*) _____	
o. None of the above. No one in our program has attended a food or nutrition education training during the past year.	

B13. What challenges prevented you from participating in professional development <u>prior</u> to the start of COVID-19? In North Carolina the COVID pandemic began in early March 2020.
MARK ALL THAT APPLY

a. Unable to travel to the training location
b. Scheduled trainings do not fit within my work scheduled (e.g. outside of usual work hours)
c. Leaving my work site would leave the other staff short-handed
d. Training has not been made available in the past
e. Cost of the training
f. Not interested in training topics
g. Lack of internet or computer access
h. Trainings are hard to find
i. Unsure if the training qualifies for licensure rules
j. None of the above. I do no experience barriers to obtaining professional development.

B14. To the best of your knowledge, which one of the answers that you marked above in question B13 was your biggest challenge to participating in professional development prior to COVID-19?
| | LETTER OF THE MOST SIGNIFICANT CHALLENGE

B15. What challenges prevent you from participating in professional development <u>considering the impacts</u> of COVID-19? In North Carolina the COVID pandemic began in early March 2020.
MARK ALL THAT APPLY

a. Unable to travel to the training location
b. Scheduled trainings do not fit within my work scheduled (e.g. outside of usual work hours)
c. Leaving my work site would leave the other staff short-handed
d. Training has not been made available in the past
e. Cost of the training
f. Not interested in training topics

g. Lack of internet or computer access
h. Trainings are hard to find
i. Unsure if the training qualifies for licensure rules
j. Stress/anxiety related to the impact of COVID-19
k. None of the above. I do no experience barriers to obtaining professional development.

B16. To the best of your knowledge, which one of the answers that you marked above in question B15 is your biggest challenge to participating in professional development due to the impacts of COVID-19?
| | LETTER OF THE MOST SIGNIFICANT CHALLENGE

B17. Do you have internet access?
MARK ALL THAT APPLY

a. Computer on site at my center (workplace)	**DROP DOWN MENU FOR EACH COLUMN** **a.** Yes **b.** No
b. Home computer	
c. Library	
d. Public computer (e.g. store, restaurant)	
e. Mobile phone	
f. Tablet	
g. Other (*specify*) _____	
h. None of the above. I do not have access to the internet.	

B18. To the best of your knowledge, which one of the answers that you marked above in question B17 would you most likely use to access online training?
| | LETTER OF THE MOST PREFEERED

B19. Considering your <u>preferred source</u> for internet access (response to B16), does the source provide reliable and consistent internet access to stream training?

DROP DOWN MENU FOR EACH COLUMN **a.** Yes **b.** No **c.** Have access but choose not to stream training

B20. Considering your <u>preferred source</u> for internet access (response to B16), does the source provide reliable and consistent internet access to download training?

DROP DOWN MENU FOR EACH COLUMN

d. Yes
e. No
f. Have access but choose not to download training

B21. What social media sites do you use?

CHECK ALL THAT APPLY

g. Facebook
h. Twitter
i. SnapChat
j. Pintrest
k. Instagram
l. Other (specify)
m. I do not use social media

B22. What form of online training interests you the most?

MARK ONLY THREE

a. Podcast: Digital audio file available on the internet
b. Phone App: training that is available on a smartphone (do not include social media)
c. Video-based: YouTube-like videos with close-captioning
d. Text message: daily or weekly tips to more information through text messages
e. Social media-based: training access through Facebook, Instagram, Twitter, or other social media platform
f. Interactive videos: instructional videos with quick questions throughout (click and choose options)
g. Other

The next set of questions are about your prior knowledge and/or experience with Professional Learning Communities (PLC). A professional learning community, or PLC, is a group of professionals that meets regularly, shares expertise, and works collaboratively to improve teaching skills and child outcomes.

B24. How helpful do you think a Professional Learning Community (PLC) would be in:

a. Identifying needs of specific children	**DROP DOWN MENU FOR EACH COLUMN** **a.** Not Helpful **b.** Somewhat Helpful **c.** Very Helpful
b. Sharing or creating strategies to address the needs of specific children	
c. Sharing or creating parent communication resources	
d. Sharing or creating curriculum resources	
e. Sharing or creating physical resources	

f. Other (*specify*) _____	
g. None of the above. I do not think a PLC would be helpful.	

B25. Please check off on a level of 1-5 if you agree or disagree with the statements about the PLC?
1 = Strongly Disagree
5 = Strongly Agree

a. Participating in a PLC would be meaningful	**DROP DOWN MENU FOR EACH COLUMN** **1.** Strongly Disagree **2.** Disagree **3.** Neither Disagree or Agree **4.** Agree **5.** Strongly Agree
b. Participating in a PLC would be worth my time	
c. I feel comfortable discussing my thoughts with a group of professionals	
d. Other members of the PLC will share valuable thoughts	
e. The whole team will benefit from the discussions that take place in a PLC	
f. It will be helpful to discuss science/nutrition education that takes place in my classroom with fellow teachers	
g. I will enjoy getting to know my fellow teachers better	
h. I will share what is discussed in a PLC with other co-workers (assistant teachers)	
i. Other (*specify*) _____	
j. None of the above. I do not think a PLC would be helpful.	

SECTION C: PRIORITY FOR SCIENCE EDUCATION

The questions in section D ask about the priority level placed on science education in your Head Start program. Please try to answer questions as honestly as possible.

C1. Considering the many competing priorities in the early childhood setting (e.g. kindergarten readiness), from your perspective rate the importance of <u>science</u> education in the preschool classroom environment.
1 = Not at all important, science education takes low priority
5 = Extremely important, science education takes high priority

a. Your Personal Priority	**DROP DOWN MENU FOR EACH COLUMN** **1.** Not at all important **2.** Not very important **3.** Fairly important **4.** Very Important **5.** Extremely Important
b. Fellow Teachers	
c. Head Start Families	
d. Lower Administration Priority (e.g. Center Director)	
e. Upper Administration Priority (e.g. Managers/Coordinators, Program Director)	
f. Head Start (Federal) Priority	

C2. Considering the many competing priorities in the early childhood setting (e.g. kindergarten readiness), from your perspective rate the importance of <u>science talk</u> in the preschool classroom environment.
1 = Not at all important, science talk takes low priority
5 = Extremely important, science talk takes high priority

a. Your Personal Priority	**DROP DOWN MENU FOR EACH COLUMN**
b. Fellow Teachers	

c. Head Start Families	**1.** Not at all important **2.** Not very important **3.** Fairly important **4.** Very Important **5.** Extremely Important
d. Lower Administration Priority (e.g. Center Director)	
e. Upper Administration Priority (e.g. Managers/Coordinators, Program Director)	
f. Head Start (Federal) Priority	

C3. Considering the many competing priorities in the early childhood setting (e.g. kindergarten readiness), from your perspective rate the importance of food-based learning in the preschool classroom environment.

1 = Not at all important, nutrition education takes low priority

5 = Extremely important, nutrition education takes high priority

a. Your Personal Priority	**DROP DOWN MENU FOR EACH COLUMN** **1.** Not at all important **2.** Not very important **3.** Fairly important **4.** Very Important **5.** Extremely Important
b. Fellow Teachers	
c. Head Start Families	
d. Lower Administration Priority (e.g. Center Director)	
e. Upper Administration Priority (e.g. Managers/Coordinators, Program Director)	
f. Head Start (Federal) Priority	

C4. Throughout this survey we have asked about science education the challenges you may have faced in this area. Please use the space below to provide any additional information that you have not already had a chance to adequately describe. Consider the science talk and food-based learning experiences as part of your response if applicable.

_____
_____
_____
_____
_____

SECTION D: TELL US ABOUT YOURSELF

This set of questions will ask you to describe basic characteristics about you and your Head Start program. Remember, this survey gives you a chance to describe your program's efforts in the area of science, science talk, and nutrition education. This study is not an assessment of you or your Head Start organization.

D1. Age: _____

D2. Gender: _____

D3. Which of the following would you use to describe yourself?
MARK ALL THAT APPLY
a. White or European American, non-Hispanic
b. Hispanic, Latino(a), or Spanish
c. Black or African American, non-Hispanic
d. Asian or Asian American, non-Hispanic
e. American Indian or Alaskan Native, non-Hispanic
f. Middle Eastern or North African
g. Native Hawaiian or Pacific Islander
h. Multi-ethnic
i. Other – Specify _____

D4. Do you speak other languages in addition to English?
a. Yes
b. No

If yes, specify language and proficiency level _____

D5. What is your position with Head Start?
MARK ONLY ONE
c. Head Start Program Director
d. Education Manager
e. Health/Nutrition Manager
f. Family Engagement/Outreach Manager
g. Center Director
h. Lead Teacher
i. Assistant Teacher
j. Teacher (other)
k. Other – Specify _____

D6. Highest Level of Education:
MARK ONLY ONE
a. Did not complete high school
b. High school diploma
c. Some college coursework < 30 credits
d. 1 yr. community college diploma
e. 2 yr. Associate of Arts (A.A.) degree
f. 2 yr. Associate of Science (A.S.) degree
g. 2 yr. Associate of Applied Science (A.A.S) degree

h. 4 yr. Early Childhood / Childhood Development (EC/CD) degree
i. 4 yr. Education degree
j. 4 yr. degree in related field
k. 4 yr. degree in other field
l. Some graduate coursework
m. Master's Degree
n. Specialist Degree
o. Doctoral Degree (e.g. Ph.D, Ed.D, etc.)

D7. Specify the focus of your highest degree:
MARK ONLY ONE
a. Early Childhood Education
b. Other – Specify _____

D8. Licensure:
MARK ALL THAT APPLY
a. Birth to Kindergarten
b. BK Add-on
c. Pre-K Add-on
d. Elementary
e. Special Education
f. NC Early Childhood Credential/CDA
g. Early Educator Certificate (EEC)
h. Other - Specify _____
i. No licensure

D9. Number of years working at current Head Start organization:
_____ years _____ months

D10. Apart from Head Start, do you have experience working in other preschool settings?
a. Yes
b. No
c. Other *(specify)* _____

D11. How many children total are in your classroom? _____
_____ Girls _____ Boys

D12. What is the child to teacher/assistant teacher ratio in your classroom? For example, 1 teacher/assistant teacher for every 4 children.
_____

SECTION E: YOUR EXPERIENCE WITH COVID-19'S IMPACT

NOTE TO TEAM: This section is optional teachers should be asked if they would like to complete this optional part of the survey.

The questions in section E ask about your experiences with the impact of COVID-19 (the coronavirus disease caused by the severe acute respiratory syndrome coronavirus 2) has impacted Head Start teachers in North Carolina.

After your completion of this portion of the survey, you will have the chance to be entered into a drawing and are eligible to win a $100 gift card.

Timeline of COVID-19 in North Carolina: Although COVID-19 was first detected in Asia in late 2019, the first reported case in North Carolina appeared at the beginning of March 2020. On March 27, 2020 Governor Roy Cooper issued an executive order issuing a stay-at-home directive to help slow the spread of the virus, which was extended until May 8, 2020. Since April 23, North Carolina has been following a phased reopening under the guidance of Governor Cooper.

E1. What is the zip code where you primarily live/reside?

Fill in: _____

Prefer not to answer

E2. Have you experienced any economic hardship as a result of COVID-19?
Select all that apply

a. I was laid off
b. I was furloughed (2)
c. On work leave status to care for family members, including children (3)
d. I had to temporarily close a business I own (4)
e. I had to shut down for good a business I own (5)
f. I had to default on a loan payment and/or mortgage payment (6)
g. I missed paying one or more bills (includes utility bill and/or credit card) (7)
h. I had to layoff employees (8)
i. Experienced a change in housing (9)
j. No, I have not experienced any of these hardships (10)
k. Other, please describe: (11) _____
l. Prefer not to answer (12)

E3. Did you or anyone in your household receive any of the following services in the 3 months before COVID-19?
Select all that apply

a. SNAP or Food Stamps (1)
b. WIC (Program for Women, Infants, & Children) (2)

c. Disability Payments or SSDI (Social Security Disability Insurance) (3)
d. TANF (Temporary Assistance to Needy Families) (4)
e. SSI (Supplemental Security Income) (5)
f. Free or reduced-price school lunch or breakfast (6)
g. After school or summer meals program (7)
h. Food from food banks or food pantries (8)
i. Food gifts from relatives or friends (9)
j. Farmers market or Community Supported Agriculture (CSA) (14)
k. Relying on alternative sources of food (your own food production, wild food harvesting) (10)
l. None of the above (11)
m. Other (please specify): (12) _____
n. Prefer not to answer (13)

E4. Have you or anyone in your household received any of the following services since the start of the COVID-19 pandemic? Select all that apply

a. SNAP or Food Stamps (1)
b. WIC (Program for Women, Infants, & Children) (2)
c. Disability Payments or SSDI (Social Security Disability Insurance) (3)
d. TANF (Temporary Assistance to Needy Families) (4)
e. SSI (Supplemental Security Income) (5)
f. Free or reduced-price school lunch or breakfast (6)
g. After school or summer meals program (7)
h. Food from food banks or food pantries (8)
i. Food gifts from relatives or friends (9)
j. Farmers market or Community Supported Agriculture (CSA) (14)
k. Relying on alternative sources of food (your own food production, wild food harvesting) (10)
l. None of the above (11)
m. Other (please specify): (12) _____
n. Prefer not to answer (13)

E5. Has a doctor or other health professional ever told you that you HAVE any of the following health conditions? Select all that apply

Overweight or obese (1)
High blood pressure or hypertension (2)
Pre-diabetes (3)
High blood sugar, Type 1 diabetes, Type II diabetes (4)
Gestational diabetes / diabetes during pregnancy (5)
Metabolic syndrome (6)
Heart condition such as a heart attack, angina, or congestive heart failure (7)

Chronic lung disease or moderate to severe asthma (8)
Chronic kidney disease (9)
Chronic liver disease (10)
Immunocompromised (i.e. including cancer treatment, bone marrow or organ transplantation, immune deficiencies) (11)
Other health condition that might put you at higher risk of developing COVID-19? (14) _____
No, my doctor has never indicated any of the health conditions (12)
Prefer not to answer (13)

E6. In general, do you feel COVID-19 or its surrounding circumstances has impacted your health (physical/mental)?

a. Yes (1)
b. No (2)
c. Prefer not to answer/do not know (3)

E7. In general, has COVID-19 or its surrounding circumstances impacted the health (physical/mental) of any loved ones (family member or friend)?

a. Yes (1)
b. No (2)
c. Prefer not to answer/do not know (3)

E8. The COVID-19 pandemic has made it _____ for me to get the same amount of physical activity as before.

a. A LOT more challenging than usual (1)
b. A LITTLE more challenging than usual (2)
c. LESS challenging than usual (3)
d. NO more challenging than usual (4)
e. Prefer not to answer (5)

E9. Please describe the reasons that physical activity has or has not been challenging for you.

_____

E10. The COVID-19 pandemic has made it _____ for me to maintain healthy relationships with my co-workers:

a. A LOT more challenging than usual (x1)
b. A LITTLE more challenging than usual (x2)
c. LESS challenging than usual (x3)
d. NO more challenging than usual (x4)
e. Prefer not to answer (x5)

E11. Please describe the reasons that maintaining healthy relationships with your co-workers has or has not been challenging for you.

_____

E12. The COVID-19 pandemic has made it _____ for me to maintain healthy relationships with the children in my classroom:

a. A LOT more challenging than usual (x1)
b. A LITTLE more challenging than usual (x2)
c. LESS challenging than usual (x3)
d. NO more challenging than usual (x4)
e. Prefer not to answer (x5)

E13. Please describe the reasons that maintaining healthy relationships with the children in your classroom has or has not been challenging for you.

_____

E14. The COVID-19 pandemic has made it _____ for me to maintain healthy relationships with the families of the children in my classroom:

a. A LOT more challenging than usual (x1)
b. A LITTLE more challenging than usual (x2)
c. LESS challenging than usual (x3)
d. NO more challenging than usual (x4)
e. Prefer not to answer (x5)

E15. Please describe the reasons that maintaining healthy relationships with the families of the children in my classroom has or has not been challenging for you.

_____

E16. Please think about your behavior related to food before and since the COVID-19 pandemic began.

	For the 12 months before the COVID pandemic					Since the COVID pandemic began in North Carolina (early March)				
	Often True (1)	Sometimes true (2)	Never true (3)	I don't know (4)	Prefer not to answer (5)	Often true (1)	Sometimes true (2)	Never true (3)	I don't know (4)	Prefer not to answer (5)

The food that my household bought just didn't last (not enough food), and I/we didn't have money to get more. (1)	○		○	○	○	○	○	○	○	○
I/we couldn't afford to eat balanced meals. (2)	○	○	○	○	○	○	○	○	○	○
Did you or others in your household ever cut the size of your meals or skip meals because there wasn't enough money for food? (3)	○	○	○	○	○	○	○	○	○	○
Did you ever eat less than you felt you should because there wasn't enough money for food? (4)	○	○	○	○	○	○	○	○	○	○
Were you ever hungry but didn't eat because there wasn't enough money for food? (5)	○	○	○	○	○	○	○	○	○	○
How often would you say you were worried or stressed about having enough money to buy nutritious meals? (6)	○	○	○	○	○	○	○	○	○	○

E17. Please consider the following food-related habits and indicate whether you have experienced any changes in how often you have done these behaviors, since early March when COVID-19 began in North Carolina.

	Decrease (1)	Slight Decrease (2)	No Changes (3)	Slight Increase (4)	Increase (5)	Prefer not to answer (6)
Leaving the house for groceries (1)	○	○	○	○	○	○
Eating out (restaurant, cafeteria, fast food) (2)	○	○	○	○	○	○
Eating at someone else's place (family, friends) (3)	○	○	○	○	○	○
Take-away/pick up or delivery foods from restaurants/fast food (4)	○	○	○	○	○	○
Cooking at home (5)	○	○	○	○	○	○
Eating fresh fruits and/or vegetables (6)	○	○	○	○	○	○
Eating canned fruits and/or vegetables (7)	○	○	○	○	○	○
Eating frozen fruits and/or vegetables (8)	○	○	○	○	○	○
Cooking ready-to-eat frozen meals (9)	○	○	○	○	○	○
Relying on others to get groceries for you (10)	○	○	○	○	○	○
Buying food out of fear or anxiety (11)	○	○	○	○	○	○
Eating food out of fear or anxiety (12)	○	○	○	○	○	○

Stockpiling food (13)	○	○	○	○	○	○
Wasting food (14)	○	○	○	○	○	○
Drinking alcohol (15)	○	○	○	○	○	○
Snacking (16)	○	○	○	○	○	○
Baking (17)	○	○	○	○	○	○
Gaining weight (18)	○	○	○	○	○	○

E18. Which of the following resources about food would be helpful for you and your loved ones during this time? (Check all that apply)

a. Centralized information about food availability in my area (1)
b. Information about federal food assistance programs (2)
c. Information about charitable food organizations (I.e. food banks/food pantries) (3)
d. Nutrition advice on what to eat during COVID-19 (4)
e. Food safety advice during COVID-19 (5)
f. Online tools to help me access food or improve my diet such as educational videos, cooking shows, or meal prep advice (16)
g. Advice on actions I can take to ensure I have enough food (7)
h. Advice on actions I can take to ensure I have enough nutritious and healthy food (8)
i. Advice on how to reduce/prevent food waste (9)
j. Advice on food preservation (i.e. canning, freezing, drying) (15)
k. Advice on home gardening (17)
l. Advice on how to support local food producers (10)
m. Advice on how to support local food businesses (11)
n. Other ideas: (12) _____
o. None of these would be helpful (13)
p. Prefer not to answer (14)

E19. The following questions ask you about your feelings and thoughts since the COVID-19 outbreak began. In each case, you will be asked to indicate how often you felt or thought a certain way.

	All of the time (1)	Most of the time (2)	Some of the time (3)	A little of the time (4)	None of the time (5)	Prefer not to answer (6)
Since the start of the COVID-19 pandemic, about how often did you feel nervous? (1)	○	○	○	○	○	○
Since the start of the COVID-19 pandemic, about how often did you feel hopeless? (2)	○	○	○	○	○	○
Since the start of the COVID-19 pandemic, about how often did you feel restless or fidgety? (3)	○	○	○	○	○	○
Since the start of the COVID-19 pandemic, about how often did you feel so sad that nothing could cheer you up? (4)	○	○	○	○	○	○
Since the start of the COVID-19 pandemic, about how often did you feel that everything was an effort? (5)	○	○	○	○	○	○
Since the start of the COVID-19 pandemic, about how often did you feel worthless? (6)	○	○	○	○	○	○

E20. Now think back to BEFORE the COVID-19 pandemic began and answer the same set of questions.

	All of the time (1)	Most of the time (2)	Some of the time (3)	A little of the time (4)	None of the time (5)	Prefer not to answer (6)
Before the COVID-19 pandemic, about how often did you feel nervous? (1)	○	○	○	○	○	○
Before the COVID-19 pandemic, about how often did you feel hopeless? (2)	○	○	○	○	○	○
Before the COVID-19 pandemic, about how often did you feel restless or fidgety? (3)	○	○	○	○	○	○
Before the COVID-19 pandemic, about how often did you feel so sad that nothing could cheer you up? (4)	○	○	○	○	○	○
Before the COVID-19 pandemic, about how often did you feel that everything was an effort? (5)	○	○	○	○	○	○
Before the COVID-19 pandemic, about how often did you feel worthless? (6)	○	○	○	○	○	○

E21. If you are feeling more stressed and/or anxious since the COVID-19 pandemic began, can you explain a little more about the source of your stress and/or anxiety?

_____

E22. Have you engaged in any POSITIVE health behavior changes (I.e. exercising more, eating healthier) as a result of the stay-at-home directive, initiated on March 27th by Governor Roy Cooper?

a. Yes (1)
b. No (2)
c. Prefer not to answer (3)

Skip To: Q47 If Have you engaged in any POSITIVE health behavior changes (I.e. exercising more, eating healthier)... = No
Skip To: Q47 If Have you engaged in any POSITIVE health behavior changes (I.e. exercising more, eating healthier)... = Prefer not to answer

E23. If you answered 'yes' to the previous question, do you intend to continue these positive health behavior changes after the stay-at-home directive is lifted? Why or Why not?

_____

E24. Have you engaged in any NEGATIVE health behavior changes (I.e. smoking, eating more fast food) as a result of the stay-at-home directive, initiated on March 28th by Governor Roy Cooper?

a. Yes (1)
b. No (2)
c. Prefer not to answer (3)

Skip To: Q50 If Have you engaged in any NEGATIVE health behavior changes (I.e. smoking, eating more fast food) as... = No
Skip To: Q50 If Have you engaged in any NEGATIVE health behavior changes (I.e. smoking, eating more fast food) as... = Prefer not to answer

E25. If you answered 'yes' to the previous question, do you intend to continue these negative health behavior changes after the stay-at-home directive is lifted? Why or Why not?

_____

E26. Is there anything policy or decision makers could do to help make it easier for you and your family to be physically and mentally healthy during the COVID-19 pandemic? Please think about how your life could be improved and make as specific recommendations as possible.

_____
_____
_____
_____
_____

E27.Is there anything else you would like to share with us in terms of how your life, or your health-related behaviors, have been impacted, or have changed, since the beginning of COVID-19?

_____
_____
_____
_____
_____

APPENDIX F: INTERVIEW GUIDE

1| **OPENING**

Hi, [insert teacher name]. My name is Lanie Philips and I work as a research assistant at East Carolina University. I've been in touch with you about completing a survey and answering some interview questions. Is now a good time to talk?

Super! I hope your week is off to a good start and thank you for taking the time to talk with me today!

Bear with me as I have quite a bit of information to share with you before we hop into conversation.

You may have read some information about our study, but I wanted to take a moment and share why we are asking you questions today. In general, we are hoping to learn more about what early childhood educators, like you, know and think about professional learning communities, or PLCs. (I will be using the term professional learning communities and the shortened abbreviation PLCs throughout our conversation today). Specifically, we will focus on your beliefs about professional learning communities, what you feel would create a successful PLC, and the challenges you may face as a PLC member.

We realize that COVID-19 may have changed some of your classroom practices. But for today, we would like for you to think about your experiences, challenges, and needs before the COVID-19 changes, unless otherwise stated. In North Carolina, COVID-19 appeared at the beginning of March, so think about the time period before that date. At the end of the interview you will be given the chance to talk about changes that have happened since.

I want to remind you that your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. Your choice to participate in this study, or not, will not affect your relationship with your work site or any of the universities connected to this project (ECU, NCSU, UNCG, or NC A&T).

If you would like to move forward and participate in this study, the interview will last about 20-30 minutes. At the end I will take about 5 to 10 minutes to review what we talked about. You will have a chance to correct anything I may get wrong or add on to your ideas. If possible, I encourage you to find a quiet, secluded place to sit during the interview. I also wanted to let you know that I will be taking notes throughout and will also audio-record the session.

I know that was quite a bit of information, what questions do you have for me so far?

[Audio recorder]: As I just said, I would like to use an audio recorder during the discussion so that I can refer back to the conversation when I write my research report. Is it ok with you if I record this interview session?

a . (YES) Thank you!

b . (NO) OK. I'm afraid we have to audio record the interview. Because of that, you will not be able to participate in the interview today. Thank you for your time.

[PRESS BUTTON HERE]

It's on. You are now being recorded.

Great!

Now before we begin, I would like to ask you to provide an **alternate name** for yourself. You can make up a name for me to call you. That way, your actual name is never recorded. What name do you have in mind?

NAME:

Alright, ___ it is! I also want to let you know that there may be pauses in conversation or moments of silence while I take notes and reflect on what we have talked about. No worries, I am still here, but if you start to wonder if our call has dropped just say hello or my name and I will confirm that I am still on the line.

2I

INTERVIEW

Okay! Let's go ahead and get into the interview questions.

Remember, I am interested in hearing about your opinions, your experiences, and your challenges prior to March when COVID-19 began appearing in North Carolina. With that in mind, please give me examples and tell stories if you can. No information is too simple or too complex. But when you tell stories, please do not refer to people in your stories by their real name. You can make up an alternate name for that person or refer to them by their relationship to you.

At the end of our talk, I'll recap our conversation and give you a chance to add to or correct anything that's said.

Do you have any questions at this point?

INTRODUCTORY QUESTION

1. As an educator of young children, do you often work in collaboration with other teachers at your center to plan learning activities?

If yes: Can you please tell me about your experiences working with other teachers.
If no: Okay. (continue to probes)

REQUIRED PROBES	OPTIONAL PROBES	GENERAL PROBES
a. From very important to not important at all, how important do you think it is to work or collaborate with other teachers?	a. Can you explain or give me an example of why you feel it is important OR not important?	*Can you explain this more?* *Can you give an example?* *Can you think of anything else?* *Can you tell me more about that?* *Can you tell me a story about that?*

Optional Probe a: Use only if participant answers no to original question

For the first question I asked you about working collaboratively with other teachers and I heard you say….

REVIEW PROBES
Did I get that right?
Do you have anything else to add?

Transition: Thank you! Now that I have a better understanding of your experience with and thoughts about working with other teachers, we are going to spend some time talking about

professional learning communities. You may or may not be familiar with the idea of professional learning communities or PLCs, but I am going to provide a commonly used definition, so we can move forward with a common understanding of what a PLC is as I ask you other questions**. A professional learning community, or PLC, is a group of educators, and sometimes other professionals, that meet, share their ideas, and work together to problem solve and share strategies related to teaching and working with children.**

POTENTIAL BENEFITS

Transition continued: So, to continue our conversation, let's talk about some of the reasons why your center might want to create a PLC. (**OR** reasons why your center is already implementing PLCs)

2. How would working with other teachers in a PLC help you as a classroom teacher?

REQUIRED PROBES	OPTIONAL PROBES	GENERAL PROBES
	a. How would this type of teamwork help you meet the needs of the children you work with?	*Can you explain this more?* *Can you give an example?* *Can you think of anything else?* *Can you tell me more about that?* *Can you tell me a story about that?*

Next I asked you about how working in a PLC would help you and I heard you say….

REVIEW PROBES
Did I get that right?
Do you have anything else to add?

A SUCCESSFUL PLC

Transition: Thank you! Now let's talk about what you feel would help create a successful PLC.

3. What would a successful PLC look like for you?

REQUIRED PROBES	OPTIONAL PROBES	GENERAL PROBES
	a. Who would participate? i. If other early childhood professionals were able to be a part of your PLC, who would you invite? b. What would each member's role be? c. How often would you meet? d. Where would you meet? e. What would encourage and motivate members? f. What types of topics and supports would be addressed? g. How would you document your work and discussions?	*Can you explain this more?* *Can you give an example?* *Can you think of anything else?* *Can you tell me more about that?* *Can you tell me a story about that?*

When I asked you about what it would take to create a successful PLC I heard you say…

REVIEW PROBES
Did I get that right?
Do you have anything else to add?

CHALLENGES AND BARRIERS

Transition: Thank you! Moving on to the next question.

4. What challenges might you face when creating and participating in a PLC?

REQUIRED PROBES	GENERAL PROBES
	Can you explain this more? *Can you give an example?* *Can you think of anything else?* *Can you tell me more about that?* *Can you tell me a story about that?*

I asked you about challenges you may face in a PLC and I heard you say…

REVIEW PROBES
Did I get that right?
Do you have anything else to add?

SCIENCE, NUTRITION & FOOD-RELATED PLC

Transition: Thank you! A main focus of this research study is on science, nutrition, and food-related education in early childhood classrooms. The next couple of questions focus on using PLCs to plan science, nutrition, and food-based learning experiences for children in your classroom.

5. Talk about a specific type of PLC that focuses on science, nutrition, and food-related education. How would this type of PLC support help you plan and teach food-related science activities in your classroom?

REQUIRED PROBES	GENERAL PROBES
a. When thinking about using a PLC to support your science and food-related education, what challenges might you encounter?	*Can you explain this more?* *Can you give an example?* *Can you think of anything else?* *Can you tell me more about that?* *Can you tell me a story about that?*

When we talked about a PLC that focuses on food-related science activities I heard you say…

REVIEW PROBES
Did I get that right?
Do you have anything else to add?

Transition: Thank you! The last question is about the impacts of COVID-19 on your teaching practices.

6. So we have just discussed your experiences with and thoughts about professional learning communities, how has COVID-19 impacted your classroom?

REQUIRED PROBES	GENERAL PROBES
a. In what ways has COVID-19 impacted the way you work with other teachers? b. How might COVID-19 impact the creation of a PLC in your center?	*Can you explain this more?* *Can you give an example?* *Can you think of anything else?* *Can you tell me more about that?* *Can you tell me a story about that?*

The last question was about how COVID-19 has impacted you and your classroom. I heard you say…

REVIEW PROBES
Did I get that right?
Do you have anything else to add?

3| REVIEW

Now, I'm going to take a few minutes to review what you've 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.

4| CLOSING

Now that the interview is over, I would like to thank you for taking the time to talk with me. I learned lots of things from you today! I am going to turn off the recording now. Our next step will be to transcribe our interview and summarize what we discussed. Would you be willing to review our summary once it is completed to make sure we interpreted everything correctly?

(YES) Great! Is it better for me to send you an email or a hard copy?

What is the best email for me to reach you at? What mailing address should I send the hard copy to?

CONTACT INFO:

(NO) Alright! Not a problem!

Thank you again for your help! You have been so generous with your time! Have a great rest of the day!