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A Quantitative Phenomenological Study of the Proliferated Use of Electronics and the Impact on the Communication Skills of Prekindergartens

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A QUANTITATIVE PHENOMENOLOGICAL STUDY OF THE PROLIFERATED USE OF ELECTRONICS AND THE IMPACT ON THE COMMUNICATION SKILLS OF PREKINDERGARTENS

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Approval Page

This dissertation was submitted by Pamela B. Colbert under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

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Abstract

A QUANTITATIVE PHENOMENOLOGICAL STUDY OF THE PROLIFERATED USE OF ELECTRONICS AND THE IMPACT ON THE COMMUNICATION SKILLS OF PREKINDERGARTENS. Colbert, Pamela B. 2021: Dissertation, Gardner-Webb University.

Children who have a deficit in language as they enter school continue to be behind their peers as they progress from grade to grade. During the COVID-19 pandemic, many children were unable to attend school or preschool in person. Children develop language best in face-to-face environments. Previous literature did not include how the pandemic and the increased use of remote learning using technology might impact kindergarten readiness. This study adds to the body of knowledge by including perceptions of parents after remote learning during the COVID-19 pandemic. I utilized a quantitative phenomenological research design. Data were collected using a questionnaire survey that used a 5-point Likert scale. The questions determined the perceptions of parents of kindergarten students on (a) what parents of kindergarteners believe they did to prepare their children before kindergarten, (b) what skills parents of kindergarten students feel are important for success in kindergarten, and (c) how participation in remote learning change how parents feel they should have prepared their children for kindergarten. Results of the study indicate that parents did change their overall perceptions of what they felt were the most important skills for students to be prepared to know as they enter kindergarten. Before the pandemic and remote learning, parents felt that cognitive and motor were most important and that social/emotional was the most important measure of success in kindergarten. Following remote instruction, 48% of parents in the sample

population, stated they would do more to prepare their children in language/ communication.

Keywords: kindergarten readiness, technology use, communication skills, language development, parent perceptions

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Chapter 1: Introduction

Nature of the Problem

Preparation is directly related to success in all areas of life, including education. Just as youth prepare for college exams, it is critical that children also prepare as they enter elementary school. Kindergarten readiness ensures children entering school have the necessary degree of strength in social-emotional, cognitive, language, and physical skills to succeed. Before the COVID-19 pandemic, educators noted a decline in kindergarten readiness skills. The pandemic abruptly forced a transformation of the educational system, impacting all aspects of kindergarten readiness.

Communication skills are key for cognitive development. How well children communicate as they enter school can determine future success. Children who begin school below their peers in communication often remain below their peers throughout school. Language development skills enable children to read, write, and communicate with others. Being able to communicate wants and needs is an essential life skill. Reading and writing also enable people to learn about the world around them and to develop skills that will provide success. Reading and writing also allow people to learn about the world around them and develop skills that will provide success in learning new material, learning skills to complete tasks, completing school, and preparing for a future work field.

Statement of the Problem

While schools across the world have been required to close their doors to students, a new era of learning for both educators and students has emerged through

digital devices. Understanding the impact of the proliferated use of technology on the communication skills of prekindergarten-age children is critical. During the COVID-19 pandemic, parents assumed a greater role in the educational experience of many children in the United States and around the world. Before the COVID-19 pandemic, a decline in communication skills for children entering school was documented. A contributing factor may be the correlation between more screen time in youngsters and their readiness skills as they enter school, as reported by Kuta (2017). Technology use by children increased, as the number of children learning from home during the pandemic continued to climb. Children of all ages were spending more of their daytime hours on a device to communicate with teachers, view lessons, and submit work samples for grading. Parents were observing their children during the learning process and could understand through this experience which skills are imperative for students to become proficient in reading and math. This study aimed to investigate parent perceptions of which skills are needed to start school and to evaluate changes in parent perceptions. This study looked at the perception of parents before and after the experience of remote or virtual learning with their child to discover if there was a change based on the experiences during COVID-19.

Before the 2020 COVID-19 crisis, an alarming number of children were entering kindergarten with a deficiency in communication skills, including listening, speaking, reading, and writing. In 2014, the elementary school selected for the study, School A, had a speech language caseload of 21 students in kindergarten through sixth grade. Within 5 years, the same district increased to 98 students, as shown in Appendix A. The school

population and demographics have not changed significantly in that same 5-year period. Children entering kindergarten have shown a decrease in their language and communication skills, as screen time has continued to rise (Kuta, 2017). The decline in entry-level communication skills has negatively impacted the ability of children entering school to express basic needs and wants and to share their thoughts and ideas with others (Määttä et al., 2014). Kindergarten readiness continues to be an area of focus for educators and politicians in the United States because students who do not acquire language skills before entering school are considered to have a developmental delay (Shiver, 2001). Studies have shown that up to 90% of children who enter school with a delay will continue to have difficulties related to academic learning behaviors and mental health as they progress through school (Määttä et al., 2014). It is important to determine what skills parents perceive important to kindergarten readiness, as well as how parents are assisting their children with the needed skills. When compared to typical kindergarten students, those with delays when they enter kindergarten have shown a lower vocabulary, have difficulty with tasks, are much slower to offer a valid response, and make more errors on rapidly naming objects (Määttä et al., 2014). The implementation of remote learning in districts across the state and nation has resulted in less individual and face-to-face interaction with teachers. This aberration of learning has expedited the need to ensure parents are knowledgeable about the communication requirements of children and how to help them reach their potential.

Communication is an integral part of our daily lives. We depend on our ability to

communicate with family, employees, and community members as we live, work, and play. We value communication, but the overall acceptance of the increased usage of digital devices threatens the ability of children to communicate effectively. Cell phones, iPads, and social media were all designed to facilitate communication without boundaries; yet even with the increase in devices and the focus on staying connected, there has been a decline in the communication readiness skills of children entering kindergarten (Kuta, 2017). Adults and children spend more and more time on digital devices as accessibility and internet connectivity increase (Rowan, 2013). In 2019, 28% of adults said they spent most of their day online, as compared to a report of 21% in 2015 (Kumar & Perrin, 2019). Screen time includes watching television, digital movies, and web-based videos such as YouTube; playing games; emailing; using social media; and using other electronic devices (Screen Time, 2020). It is estimated that 90% of adults have a cell phone; and if they are under the age of 44, the percentage goes up to 97% of adults having a device (Madrigal, 2013). While digital resources can bring an abundance of information, overuse can contribute to a decrease in vital communication skills needed for fundamental language development, such as decoding, fluency, and vocabulary development (Rowan, 2013).

Children begin learning to communicate at birth using both receptive and expressive language. Humans are social beings, and communication allows humans to interact successfully with others (Buckley, 2012). Parents and caregivers of children are their first teachers, responsible for the growth and development from the beginning.

Children innately interact and learn from their caregivers. Infants seek facial interaction with adults and prefer visual stimulation. Communication is one of the aspects of early learning where parents and other adults in a child's life play an important role in teaching, modeling, and encouraging growth and proper development (North Carolina Department of Health and Human Services, 2019). Infants are born with a set of behaviors that allows them to communicate basic needs and wants by reflexive crying (Owens, 2020). As early as 3 to 6 weeks, an infant can respond to external stimuli by smiling, and the response of the caregiver offers affirmation for the child's behavior. Beginning communication skills are learned by mirroring the adult through face-to-face interactions children have with those in their environment. With a high number of adults working from home and children participating in remote learning, the growing trend of device usage escalated (Valet, 2020). While these devices may be used for educational material such as alphabet games or interactive stories and listening, research has demonstrated that increased screen time is associated with developmental delays. For every 30-minute increase of screen time each day, there is a 50% risk for expressive language delays in children (Silva, 2017).

The human brain develops during the first years of life, and proper development during this early period has a significant impact on how a child learns and grows intellectually. The critical period for language development is from birth to age 4, when children most easily master language (Shiver, 2001). Brain development during this period sets the foundation for all other brain development (Margalit, 2016). As language

acquisition develops, there is an increase in the production of myelin, and images of brains from children between ages 1 and 6 show a rapid increase of myelination in areas of the brain that support language (Stacey, 2013). Proper development depends on the kind of stimulation they receive both at home and in other settings (Kuta, 2017). Young children make connections between language and the world around them. Face-to-face interactions encompass both verbal and nonverbal cues and integrate visual, auditory, and tactile information (Buckley, 2012). When there is a lack of personal interaction, children are unable to learn the nonverbal cues from social interactions and to make the necessary emotional connections to form new vocabulary. Children acquire communication skills and social skills through listening, talking, singing, and playing with their parents; however, these skills are not learned if parents and students are on their devices extensively and children do not receive the attention they need for healthy development (Matthews, 2017). Distracted parenting prevents children from interacting and having the parent model communication skills. Visual images of faces or characters on device screens do not offer three-dimensional images needed as input for children during language acquisition (Lusted & Joffe, 2018). Most of the learning that takes place during early development depends on the child's environment and the ability of the child to make observations of the language behaviors of others (Lusted & Joffe, 2018).

Early language skills depend on vocabulary growth that is supported when language is directed to the child and not between adults (Montag et al., 2015). When adults are interacting with children, they can model proper taking turns, retelling, and

emotions associated with words or phrases and help children learn to respond to words, texts, or questions. When asking questions, parents or caregivers help build a child's expressive language and can help them understand word meaning and increase their oral and listening vocabulary (Lusted & Joffe, 2018). Children who have poor communication skills are more likely to struggle with cognitive development, which is parallel to language development (Owens, 2020). As the brain develops and children increase experience, they can make connections with new words and word meanings and relate them to previous material. Connecting vocabulary appropriately allows them to properly retrieve information for later use.

The size of a child's vocabulary is one of the best predictors of learning to read (Rowe, 2012). Students who do not interact with adults and others who engage them in communication skills do not develop their own skills. Silva (2017) demonstrated that increased screen time places infants at risk for expressive language delays and can result in young children saying fewer words. In a study including 900 young children ages 6 months to 2 years of age, Silva found that toddlers who were exposed to more screen time were more likely to have delays in expressive language skills. Young children are regulated by the attention of their parents. They are dependent on their parent's attention as a means of survival, social development, and emotional development. When students enter kindergarten with a deficit in communication skills, they have difficulty closing the gap created in learning new material. It is believed that there is a link between the amount of time spent on electronic devices and the decline in communication skills of students

who are entering school for the first time. During the study, I learned from parents how they used technology to facilitate remote learning and what impact that had on student learning and closing the gap for those who entered kindergarten deficient in communication skills.

Despite the growing number of children involved in structured childcare programs from birth to age 5, there continues to be a decline in the readiness scores as well as a widening of the gap between children who are from lower socioeconomic backgrounds (Harvey & Oble, 2018). This is associated with a lower number of children participating in programs who are from lower socioeconomic backgrounds and those from households where English is a second language, according to de Brey (2018). In a report published concerning readiness, King (2019) shared that only 48% of poor children are ready for kindergarten, as compared to 75% of those from medium- to high-income families. Parents are spending time with their children but are doing so while using electronic devices and providing children with “continuous partial attention” (Christakis, 2018, para. 5). In the past 5 years, there has been a steady increase in the number of children served by speech language services in the elementary school utilized in the study (Appendix A). The increase in speech language needs at the school has warranted the hiring of a second speech language pathologist who is contracted full time at the school. Many of these children are served in language and not the mechanics of speaking.

Theoretical Framework

Constructivists Piaget and Vygotsky were pioneers in the study of how children

learn and how they develop language, with both believing that cognition comes before language (Owens, 2020). Vygotsky (1962) proposed that the learning of language is dependent on outside environmental factors. Constructivism rests on the idea that learning occurs with authentic experiences (Owens, 2020). Vygotsky believed that language occurred when a child mastered the social means of thought. Vygotsky is regarded as the founder of social-cultural theory as an approach to psychology. Vygotsky realized that learners internalized complex ideas, but additionally he argued that the internalization of knowledge could be improved when students were guided by well-developed questions posed by a teacher (Daniels et al., 2007).

Vygotsky (1962) was concerned with the relationship between how children developed thoughts and language. He was interested in how language impacted thinking. Vygotsky viewed language as a social communication first and then believed it changed over time to promote both language and cognition. Speech structures mastered by the child became the foundation for his thinking. Vygotsky focused his theory of language development on social learning and the zone of proximal development. When children engage in social interactions with others, Vygotsky believed one could obtain their zone of proximal development by studying the children's potential to learn and the learning that takes place. This concept is important as it relates to the change in what a child can learn independently as compared to what a child can gain with guidance from someone who has more skill in language, usually a parent or caregiver. Vygotsky held the opinion that an adult or older child could model behaviors and provide verbal commands and the

child would internalize the information to guide and regulate their own performance and understanding of language.

Background

The first full-day public kindergarten in the United States was introduced in North Carolina in the 1970s (Office of Early Learning, 2019). North Carolina worked to improve and expand public education. Twenty years following the implementation of kindergarten, studies showed that children were not prepared to learn as they entered kindergarten, and North Carolina answered the problem with Smart Start (Office of Early Learning, 2019). Smart Start offers a comprehensive program with accountability for the care of children between birth and age 5 (Office of Early Learning, 2019). The idea was that Smart Start programs would level the playing field for young children by making sure that all childcare facilities met basic qualifications and would be monitored for compliance. Although improvements in preschool programs had a positive impact on overall student entry skills including communication, students were still performing lower than expected in the area of communication.

The government continued to seek ways to improve early education and student readiness for kindergarten in public schools. According to the Office of Early Learning (2019), based on the recommendations of a think tank in 2015, a new formative assessment, Kindergarten Entry Assessment (KEA) was administered to all students entering kindergarten. The assessment looked at “five domains of child development: approaches to learning, language development and communication, cognitive

development, emotional and social development and health and physical development" (Office of Early Learning, 2019, p. ii).

Research Setting of the Study

The district used for the present study was a small, rural district in the foothills of North Carolina. Sixty-five percent of the students attending kindergarten had attended a private or public childcare facility that was licensed by the state of North Carolina and monitored through the state licensure program. The district had two licensed prekindergarten classrooms on site. The onsite pre-k classrooms maintained a class size of 12 with a 1:6 ratio for students. Students were assessed as they enter and exit the program in language skills as well as other areas of learning and development. There were five kindergarten classrooms with a class size of 18 with a 2:18 ratio. All kindergarten students were assessed prior to the entry of kindergarten in a locally designed KEA tool. The school was a Title I school with free and reduced lunch percentages at 48% for the current year based on the North Carolina School Report Card. Kindergarten students were assessed in the spring prior to their fall entry date. When students with a learning deficit were identified, they were referred to the school's Title I reading program for intensive interventions and instructions on communication skills. In addition to the Title I reading program, services were also available for students who speak English as their second language through the English language learners (ELL) program. Prior to entry, some students were identified by North Carolina Child Find to need speech services, physical or occupational therapy, and other services.

The elementary school had a high attendance rate, a letter grade of B in the state accountability system, and 100% highly qualified staff according to the state definition of qualified staff for grades prekindergarten through sixth grade. The school began using the language program Letterland 1 year prior to the study. Letterland builds new information about letters and sounds by introducing letters as characters with stories that build understanding about the letter and how the sound is used in various situations (Sedita, 2018). Twenty-five percent of the population of students who attended the school were out-of-district students who pay yearly tuition to attend the school even though it is a state-supported public school. The remaining population were residents in the district and paid a supplemental education tax but no additional tuition. The school was part of a district-wide STEAM (science, technology, engineering, arts, and math) initiative and encouraged students to participate in real-world application of learning. The school system was small with only one elementary, one middle, and one high school, with a total estimated student population of 1,250. The school system ended the 2019-2020 school year with 100% of the students learning remotely beginning March 16 until June 2020. Students in kindergarten through Grade 3 returned 4 days per week with social distancing beginning in August and Grades 4-12 returned in cohort groups on an AABB schedule with 2 days of face-to-face instruction and 3 days of remote learning each week for the 2020-2021 school year and finished the school year with that plan. Changes in schedules were due to regulations and guidelines for social distancing and safety due to COVID-19.

Purpose of the Study

The purpose of this quantitative phenomenological study was to investigate the impact of increased usage of digital devices during remote learning and the impact on kindergarten readiness. Communication is a key aspect of kindergarten readiness that could have been negatively impacted in remote learning situations. Students who enter school with a deficit in communication skills are likely to continue to have gaps in learning throughout school. It is critical that educators and parents understand the elements of kindergarten readiness and how they are impacted by digital learning so adjustments can be made to teaching strategies to embrace this new way of learning. The information collected is discussed in more detail in Chapter 4 of this study. Chapter 5 presents potential solutions that will improve the entry-level communication skills of school children.

A plan was designed to educate parents, caregivers, and preschool providers that increased communication learning in children from birth to age 5. Sample solutions benefited children who entered kindergarten and provided the prerequisite skills to continue language development and communication skills as they moved into school and began learning to read. Reading is linked to success for students in school and as they enter the workforce. The importance of this study determined how improved readiness and success for students as they entered kindergarten positively impacted their overall ability to learn and complete age-appropriate grade and age tasks as they progress through school. Those students will be more likely to maintain success as they continue

through school, including remote learning situations and into adulthood. This study extended the scope of previous studies and included the increased use of digital devices in response to remote learning.

Research Questions

The research questions centered on the perceptions of what parents believe are important communication skills to teach or model to their children as they compare to what research shows and teachers believe meet the expectations of skill levels as students enter kindergarten. The research also looked at readiness skills for kindergarten and how they have changed as well as changes to the child's environment as they pertain to communication. The study also looked at how remote learning during the pandemic of 2020 impacted student learning and progress in communication skills. The research questions for this study were

1. What do parents believe they are doing to prepare their child with the necessary skills before entering kindergarten?
2. What skills do parents feel are important for a child's success in kindergarten?
3. How does participation in remote learning change how parents feel they should have prepared their children for kindergarten readiness?

Overview of Methodology

The purpose of this study was to determine the perceptions of parents of kindergarten readiness and their child's communication skills and how they might have changed during remote learning due to COVID-19. The research collected quantitative

data from parents of children in kindergarten from one elementary school used in the study. Questionnaires were administered to parents to gather perceptions of what parents felt were the skills needed to enter kindergarten, how they prepared their children for kindergarten, and if remote learning has changed their perceptions of what skills a child should master prior to attending kindergarten.

The quantitative descriptive research methodology was used to explain the phenomenon comparing differences in parent perceptions of learning following remote learning. As defined by Groenewald (2004), phenomenology is how someone's experiences are characterized; therefore, the questionnaire in this study aimed to collect evidence that defines the parent's meaning of their lived experience throughout current and past parenting techniques. The phenomena of remote learning impacted parent perceptions of which skills were important for students to know prior to entering kindergarten.

As a researcher, it was important to remove any bias or preconceived notions based on my prior experience as an administrator, parent, or previous kindergarten teacher. Consequently, the goal of this research was to understand the perceptions of parents as related to their young children's learning needs.

Assumptions

During the study, it was assumed that parents participating in the focus groups would be truthful in their answers about how they interacted and modeled language for their children prior to entering kindergarten. It was further assumed that parents wanted

their children to grow and develop both physically and cognitively, becoming productive adults. Another assumption was that parents and children in the study participated in remote learning during the global pandemic caused by COVID-19. It was further assumed that teachers in the study had a general understanding of the cognitive development of young children as it relates to kindergarten readiness and how it impacts future success.

Limitations

One limitation of this study was that I was also the previous administrator at the school where the research data were collected. The teachers and parents may have been hesitant to participate in the study. A qualitative study rests on the idea that it is limited by the reliability of the researcher (Merriam, 1998). Creswell (2015) stated that the researcher uses their understanding and abilities during the process of the research.

Delimitations

A delimitation of the study was the sample studied was limited to one elementary school in the rural, southeastern United States; therefore, results may not be generalized to other groups of children who are entering kindergarten. The data collected and the findings that resulted from analyzing the data are presented in Chapter 4 of this dissertation. The discussion of the results and implications as to why we need to improve the entry-level communication skills of children are presented in Chapter 5 of this dissertation.

Significance of the Study

Communication is an important part of our daily lives. We depend on the use of communication skills in all facets of our lives from family to business needs. Communication enables individuals to understand others, learn new information, share ideas, and express wants and needs. Communication skills are linked to cognitive development. Research shows that as students mirror language skills modeled by adults in their learning environment, children link new vocabulary with facial expression and

tone as they make categorical perceptions to classify what they are learning (Owens, 2020). When these classifications are made, students connect words, phrases, and vocabulary; and these links allow them to access the language appropriately when speaking, listening, reading, and writing. A delay or deficit in communication skills can negatively impact cognitive development and the ability of children to make connections as they learn new material (Määttä et al., 2014). Students who are unable to make categorical perceptions as they learn language are unlikely to attach words to the proper connections within the long-term memory to be able to correctly access the word and the associated meaning. When vocabulary is not correctly categorized, it is not linked appropriately to the cognitive skills or information being stored, causing a gap in learning new material (Owens, 2020). When students do not enter kindergarten with the appropriate level of communication skills, it is difficult to close the gap created. Gaps in the vocabulary of children are evident as early as 18 months and increase without intervention as the child gets older (North Carolina Department of Health and Human Services, 2019). Kindergarten teachers expect that students will begin school with average physical, cognitive, and language skills (Abu Taleb, 2013). Language and reading readiness skills include alphabet knowledge, vocabulary, working memory, letter sounds, and phonemes (Cross, 2011). Students need to be developmentally reading to link new instruction learned in kindergarten to previously learned information (Cross, 2011). Reading is a key skill linked to future student success in school (Kuta, 2017). Problems in childhood with communication can impact individuals through adulthood,

making it difficult to reach their full potential and communicate with others in a work or professional environment. With most schools in the United States participating in remote learning for the last quarter of the school year, the overuse of technology by students who have limited interactions with personal instruction is growing. Research indicates that students need human connections to develop communication skills at appropriate levels (Kuta, 2017). The use of remote instruction must include steps to decrease the gaps in learning and promote healthy cognitive development in children. Technology is widely used at all levels of instruction in schools. North Carolina introduced digital competencies for teachers, administrators and students in 2016 (ISTE, 2020). When technology began being used in education teachers focused on how to use the technology and then began using the technology to learn. The standards used during 2020 school year were based on the International Society for Technology Education Standards for students (ISTE) and include five areas; sources of information, informational text, technology as a tool, research processes, safety and ethical use (Appendix B). Standards begin at kindergarten and continue through high school.

Definition of Terms

For the purpose of the study, the terms used were based on the definitions of the terms as they are listed below.

Communication

The process that combines speech and language that allows individuals to exchange thoughts and ideas with others. To be understood by others (Owens, 2020).

Speech

The process of planning and using motor sequences to verbally communicate with others (Owens, 2020).

Kindergarten Readiness

Readiness for school for a child includes language development, general knowledge, health and physical development, and social-emotional development (Scott-Little & Maxwell, 2000).

Receptive Language

The ability to gain information by listening and processing language from others (Ginsburg, 2007).

Expressive Language

A person's ability to communicate their wants and needs through verbal and nonverbal means (Ginsburg, 2007).

Phonology

The rules that govern the sounds and sequence of sounds to form syllables. Phonemes can signal a difference in word meaning (Owens, 2020).

Categorical Perception

The use of perceptual knowledge to categorize words based on attributes, function, and world knowledge of the words (Owens, 2020).

Phonemes

Specific sounds used in combinations that produce language (Owens, 2020).

Semantics

The relationship of language as it relates to actual objects, ideas, or events and how the words represent the concepts and our thoughts about reality (Owens, 2020).

Syntax

The rules that govern the form and structure of words, phrases, sentence order, and other elements to organize the elements of speech (Owens, 2020).

KEA

KEA relates to formative assessments designed to determine a plan of instruction for students as they begin kindergarten (Office of Early Learning, 2019).

Smart Start

A program put into place in North Carolina, beginning in 1993. The program assures that daycares and child development centers maintain proper guidelines and offer children healthy and appropriate care from birth to age 5 (Office of Early Learning,

2019).

Remote Learning

Learning that occurs when both the student and the teacher are unable to work together in the traditional classroom and are separated by distance (Training Industry, 2020).

Summary

Kindergarten readiness is a critical point in education that has been studied for decades. Foundational communication skills are necessary and enable students to build their understanding of the world around them. Students who enter school behind their peers spend years working to catch up. This research broadens the scope of previous work to evaluate the importance of kindergarten readiness by adding emphasis on the impact of remote learning and the increased usage of digital devices. As we move forward with this work, it is important to recognize the changing environment of our educational system. Education in the United States has stayed stagnant in many aspects over time. Students have followed traditional objectives, schedules, and rules pertaining to public education. During the past decade, schools have begun to transition to a hybrid version where students use technology in conjunction with traditional teaching methodologies. With one pandemic, education morphed into a new era.

The pandemic of 2020, due to COVID-19, forced teachers to change how they deliver instruction to millions of students from preschool to kindergarten. During remote learning, students were expected to log on to digital devices and participate in learning

platforms such as Zoom or Google Meet. Educators became facilitators of learning and depended more on parents to help with motivation and monitoring of participation in instruction. Many students worked in learning platforms such as Google Classroom and SeeSaw to complete daily lessons. The shift from face-to-face learning to digital learning decreased the amount of face-to-face instruction students experienced daily. Adults who were monitoring students during the online instruction were also using their devices to work and communicate as well as socialize during the pandemic. Chapter 2 further examines the link between parent perceptions of what students needed to learn to be successful in kindergarten and how new information was disseminated along with student engagement in that remote learning.

Chapter 2: Literature Review

Introduction

The purpose of this quantitative phenomenological study was to investigate the decline in kindergarten readiness with an emphasis on the impact of the increased usage of digital devices during remote learning. Typically, there is a decrease in face-to-face communication during remote learning that negatively affects kindergarten readiness, potentially resulting in learning gaps. The learning gap created when students enter school with a deficit in communication skills is likely to follow them throughout their education. Educators and parents must understand the elements of kindergarten readiness and the impacts of digital learning to facilitate adjustments to teaching strategies that will embrace this new way of learning.

Review of Related Literature

Theoretical Framework Discussion

This study found bases in theories involving pedagogy and the function of language. The theories of Chomsky, Piaget, and Vygotsky present fundamental concepts in the particular function of language.

Avram Noam Chomsky (1965), a prodigy and linguist, believed that language was innate to humans; moreover, they are born biologically predisposed to learn language. Chomsky deemed that linguistic theory involved the speaker and listener in a homogeneous environment where language is fully understood and unaffected by conditions such as memory, attention, and errors applying knowledge of the language in

the performance.

Chomsky (1965) believed the foundation of language was stored in the human brain. Spoken language was a skill that separated man from other animals. Language includes the ability to understand and share ideas with others. Chomsky was adamant that the mind held distinguishable factors that defined both the structure and the system for language. He further argued if two people held identical knowledge, there would be notable differences in their capacity to express that knowledge.

Chomsky (1965) trusted the importance of language was more than understanding words and sentences. He considered cognitive thought and language complementary. He held the position that if language was taught with structure, retention of words would occur as ideas embodied by those words instead of mere words or strings of words. Chomsky also believed that one of the primary aspects of language was the creative nature it could attain.

Jean Piaget, another theorist of language, called attention to the significance of social interaction and cognitive development (Piaget et al., 1969). Piaget et al. (1969) saw interaction as pivotal to overcome the instability of the characters we individually construct. Piaget et al. linked the role of conceptual and logical understanding in language development. According to Piaget, language was fundamentally a social factor due to the conventional nature of words and was crucial to conceptual development (Furth, 1969). Piaget believed that parents and other adults, as well as peers, further the transformation of language in children (Fox & Riconscente, 2008). Piaget et al. also

believed the development of language involved a constructive process where children assume an active role in their assimilation of language.

Piaget et al. (1969) theorized that children represented their familiar worlds as a reflection of thought in their language and that language had no bearing on the development of thinking. Piaget et al. believed that language development followed cognitive development.

> Likewise learning does not appear now to be a process during which the subject's activity is limited to receive or to react automatically to what is received; rather learning seems to be a complex construction in which what is received from the object and what is contributed by the subject are indivisibly linked. (Furth, 1969, p. 239)

Vygotsky (1962), known as the founder of the socio-cultural theory approach in psychology, varied from the beliefs held by Chomsky and Piaget. He was confident there was a relationship between cognitive development and language development. Vygotsky believed speech developed simultaneously with thought. Vygotsky further trusted that as a child learned to associate a word with an object, they would generalize about similar objects when applying words to new objects.

Vygotsky believed that language was crucial in cognitive development and that it developed mainly through social interaction (McLeod, 2014). Vygotsky's position was that language in the form of individual speech guides cognitive development. Vygotsky argued that culture and language played an integral part in human cognitive development

and built human perceptions of the world around them (McLeod, 2014). Vygotsky noted that when children grow up in an environment that is absent of communication and speech by caregivers, there is likely to be a deficit in the child's verbal and social speech development (McLeod, 2014).

Vygotsky (1962) shared that the teacher's role in working with students was to use good questioning techniques and provoke the student to move forward in thinking. A student's ability to represent thinking is the zone of proximal development (Bell, 2020). Vygotsky deemed it necessary for the teacher to lay the foundation and build language and communication experiences and opportunities in the classroom environment to enhance learning. Vygotsky's social interactionist theory serves as the cornerstone for modern trends in applied linguistics.

While the theories presented by Chomsky, Piaget, and Vygotsky show different approaches to understanding fundamental language development, there was agreement on the need for this critical groundwork to occur in the early stages of language development. Chomsky, Piaget, and Vygotsky held that curiosity and discovery played an important role in development (McLeod, 2014). Vygotsky believed that culture played an important role in cognitive development, while Piaget emphasized that cognitive development was universal (McLeod, 2014). The early years for child development are spent in the home and with a caregiver prior to beginning formal education through school or preschool. During this time, Vygotsky advocated that social factors had an important role in cognitive development (McLeod, 2014). Understanding the links

between cognitive learning and language development show how students who begin school with a language deficit have a gap in cognitive development throughout elementary education.

Modern linguists and theorists agree that cognitive development for language begins at birth and the early years are imperative for future success. Early language development begins as parents label objects. Social development includes the ability for a child to coordinate their interest in external objects and is demonstrated when a baby alternates the intensity of a gaze from an object to the parent (Siller & Sigman, 2008). Parents who provide language input contingent on the child's attention span will improve the child's ability to communicate and will cause language to develop faster (Siller & Sigman, 2008). In a longitudinal study, Siller and Sigman (2008) investigated the predictive relationship between responsiveness in parental behaviors and language development in children. Children who learned social cues in conjunction with language were able to understand meaning across a variety of situations. Conversely, children who enter kindergarten with a low level of language skills and abilities fall behind and struggle to catch up with their peers (Daily & Maxwell, 2018).

Communication and Language Acquisition. Humans are social beings, and they communicate verbally and nonverbally to control social and emotional situations (Buckley, 2012). Babies are born communicating with cries that announce their birth, hunger, or a need for a diaper change (Kumar & Perrin, 2019). Children only a few hours old have been recorded imitating a caregiver with mouth or tongue placement

(Suddendorf et al., 2012).

> If neonatal imitation is a deliberate social act, then infants with more social temperament could be expected to display more imitation than others. If neonatal imitation is the basis of later imitation, if these phenomena are devologous, then infants who show more neonatal imitation would be expected to also score higher on later imitation tasks. (Suddendorf et al., 2012, p. 53)

Infants begin to develop language as caregivers respond to their cries and vocalization and give their attention to the child (Kumar & Perrin, 2019). Once babies master dyadic exchanges, they establish more complex communication (Bottema-Beutel et al., 2014). By age 1, children are proficient at participating in a joint engagement where they shift their gaze from an activity to the parent and recognize facial cues (Bottema-Beutel et al., 2014). Once caregivers interject language and symbols with pretend play, they impart a context condition where the child can begin to associate words and their meaning (Bottema-Beutel et al., 2014). The existence of symbolic play cultivates skills that are necessary for the healthy development of communication for children (Quinn & Kidd, 2018). This symbolic play is crucial to language development (Vygotsky, 1962). The ability to associate objects with a particular word involves symbolic mapping and allows the object and word to be linked conceptually (Quinn & Kidd, 2018). The skills children learn in the beginning stages of life build to enable them to develop as readers, writers, and social beings (Hawkey, 2019). When children are learning to communicate, they must develop both receptive and expressive skills

(Hawkey, 2019). Babies respond to speech early by turning their heads in the direction of the person speaking and listening to understand new words and their meanings. They learn the meanings of words by paying attention to facial expressions, emotions, and body language as adults and older children model language (Kumar & Perrin, 2019).

The components of language include morphology, semantics, phonology, syntax, and pragmatics (Owens, 2020). Further, morphology, phonology, and syntax are characterized as components of form (Owens, 2020). Morphology is the internal structure of words and includes prefixes, suffixes, and inflection (Owens, 2020). To determine the content of communication, we must understand the semantics of language. Semantics govern the meaning of words or groups of words used in communication (Owens, 2020). Semantics relate to the use of words to form a perception of the objects, relationships, and events or concepts about reality (Owens, 2020). Semantics are stored in the brain based on the relationship and concepts associated with the word. If a child learns a word but does not learn the emotional context with the word, it could be stored improperly in the brain. When words are stored, phonology determines the distribution of syllables and the sequencing of sounds that form words (Owens, 2020). Syntax is how language is ordered, what constitutes a sentence, and what is grammatically acceptable. Sentences are comprised of noun phrases and verb phrases. The word choice and arrangement of phrases determine whether a sentence is declarative or interrogative. Spoken language is less formal than written language and has a more relaxed syntax (Owens, 2020). Pragmatics is the overarching aspect of how language is organized (Owens, 2020).

Language, both spoken and written, is quintessential to success in learning new material in school and throughout life; and early literacy has proven to have a significant relationship with graduation rates (Weyer, 2018). Parents and caregivers play an important role in the language development and cognitive growth of children (Ginsburg, 2007). Research shows the most important factor in a child's cognitive development is the investment of time by caregivers (Hernández-Alava & Popli, 2017). Language is acquired by children as they listen and experience language in the world around them (Siller & Sigman, 2008). When raising small children, parents must talk to their children, modeling mouth and tongue placement in the enunciation of words and sounds (Zolten, & Long, 2006). Children mimic the sounds and words they hear from those in their environment, including sounds from toys and digital devices such as television, radio, and phones. When young children view a parent speaking, they also associate the sounds and words with the emotion and facial expressions that are communicated through nonverbal cues (Zolten, & Long, 2006). Children use those nonverbal cues to help store words and sounds with the appropriate meaning and feeling inside the brain (Landry et al., 2006). When children learn words independent of the nonverbal cues, they may mismatch the meaning of the word and store the word incorrectly, making it difficult to retrieve the word for future use (Siller & Sigman, 2008). Parents who use a variety of vocabulary when talking to and in the presence of children help increase the vocabulary of the child (Hernández-Alava & Popli, 2017).

Communication skills are prerequisites to future success in school and adulthood

(Landry et al., 2006). Children who begin school below their peers in communication skills often have difficulty with reading, and the gap in learning continues throughout their schooling (Landry et al., 2006). How parents prepare their children for school is a factor in how the child will perform in school (Landry et al., 2006). Educators must understand what parents perceive to be the most crucial skills children master prior to entering school (Slutzky & DeBruin-Parecki, 2019).

Brief History of Public Education. Traditional education dates back to ancient Greece where men were educated in reading, writing, math, and physical education (Lambert, 2021). In Rome, boys and girls went to primary school (Lambert, 2021). During the middle ages, people were widely illiterate, with only those of the upper class receiving a formal education until the 16th century when boys attended grammar school 6 days per week before going into an apprenticeship (Lambert, 2021).

Formal education in the United States dates back to when the country was still under British rule, and decisions were made by local colonial authorities in response to the needs of the people (Hiatt, 1994). In the beginning, schools were based on religious beliefs held by the parents in the community and were organized by social status (Hiatt, 1994). Pulliam (1987, as cited in Hiatt, 1994) reported that during the 18th century rule of George Washington and Benjamin Rush, the first tax-supported universal education system began. Throughout the 19th and 20th centuries, the public attitude shifted from education for the elite only to a universal public educational system (Hiatt, 1994). Thomas Jefferson's egalitarian model was designed to ensure that schools would serve

the educational desires of all parents for their children including immigrants, the poor, and minorities (Hiatt, 1994). The universal shift in education caused friction between social classes about who should control public education. The bureaucratization of schools began, and our current educational system was born.

Horace Mann and Henry Barnard continued to build the professionalism of teachers and the bureaucratization of schools in the United States (Hiatt, 1994). Public kindergarten began in the early 1900s and was created based on the ideas of Friedrich Froebel who believed that children would grow to their full potential if they were provided the appropriate learning environment (Fuller, 2007). The introduction of the first full-day public kindergarten in the United States occurred in North Carolina in the 1970s. North Carolina worked to improve and expand public education (Shaver & Walls, 1998). Twenty years following the implementation of kindergarten, studies indicated children were not prepared to learn as they entered kindergarten, and North Carolina answered the problem with Smart Start where the focus was placed on preschool education of children (Collins et al., 2013).

The Head Start program was instituted by the federal government to help address the inequality of learning for children who came from poverty in the United States (Rose, 2010). The main goal of Head Start was to provide high-quality care and safety for children, while also offering a monitored and prescribed educational program (Rose, 2010). It was determined that quality programs for preschool needed to include both pre-academic skills and social skills. The expectation was that children would learn through

imaginative play in an engaging and stimulating environment created by the teacher in a classroom (Rose, 2010). Since 2008, there has been a 12% increase in funding by Congress for Head Start across the nation (U.S. Department of Education, 2015). The Obama administration requested an increase for the 2016 budget to build on the quality of Head Start to increase all programs to full-day and full-year programs rather than half-day programs that were not as effective (U.S. Department of Education, 2015).

Not all preschool programs were designed to meet the standards set by Head Start. North Carolina introduced Smart Start as a progressive answer to the problem (Collins et al., 2013). Smart Start offers a comprehensive program with accountability for the care of children between birth and age 5 (Collins et al., 2013). Smart Start programs aimed to level the playing field for young children by ensuring all childcare facilities met basic qualifications and monitored them for compliance. Although improvements in preschool programs had a positive impact on overall student entry skills including communication, students entering kindergarten were still performing lower than expected in the area of communication (Collins et al., 2013).

Over the past decade, policy makers and other stakeholders have become increasingly interested in understanding the strengths and needs of kindergarten students (Daily & Maxwell, 2018). The government continued to seek ways to improve early education and student readiness for kindergarten in public schools. The Office of Early Learning implemented a new formative assessment, the KEA, based on the recommendations of a think tank in 2015, to administer to all students entering

kindergarten (“Assessment for Learning and Development,” 2013). The assessment evaluated “five domains of child development: approaches to learning, language development and communication, cognitive development, emotional and social development and health and physical development” (“Assessment for Learning and Development,” 2013, p. 6).

Kindergarten readiness is a measure of what cognitive experiences and learning environments a child has encountered prior to entering school at age 5 (Harris, 2015). Readiness addresses the knowledge and concepts that children should have to be successful in school and includes math, literacy, and problem-solving as well as physical and mental development. Deficiencies in learning create an academic vocabulary gap and are linked to lower performance in reading and other subject areas throughout school (Cunningham & Stanovich, 1997). In 2015, Congress reauthorized the Elementary and Secondary Education Act, or ESEA, to ensure equitable opportunities for preschool-age children to attend high-quality preschool programs as a means to close the gap for disadvantaged children (U.S. Department of Education, 2015).

Although more children have the ability to attend preschool and daycare programs, children are still showing a decline in readiness skills as they enter kindergarten (McFarland et al., 2019). Only 59% of 4-year-olds attend a quality public preschool program, leaving over 40% of those children behind when they enter kindergarten (U.S. Department of Education, 2015). The number of children left out of preschool for North Carolina is much higher.

In North Carolina, only 23% of the state's 128,958 4-year-olds attend a quality preschool, leaving 84,809 children without the benefits of a quality preschool education (U.S. Department of Education, 2015). North Carolina did apply for a preschool development grant but was not chosen as one of 20 states to receive a grant in 2014 (U.S. Department of Education, 2015). Research shows that those children will begin kindergarten 12 to 14 months behind their peers in communication skills (U.S. Department of Education, 2015).

One contributing factor to the lack of kindergarten readiness is the increased use of technology by parents when they are supervising young children. Although technology has had many positive impacts on the world, researchers have learned that devices can also negatively affect humans when it comes to face-to-face communication (Lengacher, 2015). Technology has had an amazing impact on how we live. Most of the areas in which we use technology have experienced positive changes and lives have been improved, such as travel and healthcare. Communication, however, is one area that has been negatively impacted by technology (Ultius, 2016).

Children experience less one-on-one interaction and are encouraged to interact with devices as early as 3 months old. Parents use devices such as tablets, iPads, and phones to entertain their children and provide fewer personal interactions where the child receives verbal communication coupled with nonverbal cues. Studies show that young children learn language by observing their parents and caregivers (Zolten & Long, 2006). Parents who are distracted by devices do not give their children the attention they need to

develop language (Zolten & Long, 2006). Children who are ignored or have a lack of response from adults when they initiate conversation do not get the positive feedback they need and become less likely to begin conversations with others (Zolten & Long, 2006). Children who experience distracted parenting do not learn to attach emotions or social cues to new vocabulary and lose the ability to interpret the emotions of others during conversations (Ultius, 2016). Technology is a factor in preventing parents from being responsive parents (Landry et al., 2006). The use of devices as part of their work is indicated by 81% of parents in the United States (Lusted & Joffe, 2018). Adults also utilize social media and gaming when they are at home or caring for children with an increase of 54% of parents using social media from 2012 to 2013 (Ultius, 2016). For some, the use of technology helps them feel connected to the outside world when they are caring for children. Many adults report they feel addicted to using their devices (Lusted & Joffe, 2018). The use of technology has become a distraction for adults who are caring for children from birth to school age.

Researchers in a developmental science study found that infants and toddlers between 7 and 24 months old expressed an increased rate of distress and were less likely to be engaged in learning when their parents were using their cell phones (Matthews, 2017). Quality parental interactions are crucial for development both emotionally and cognitively to promote language learning (Landry et al., 2006). Parents who reported a higher use of technology had more unresponsive children and showed a negative impact on their ability to learn and function emotionally (Matthews, 2017).

Older children have been found to show a 32% rate of feeling unimportant to their parents when their parents are using their devices (Matthews, 2017). Children of all ages have reported that they feel their parents spend too much time on their cell phones or devices (Matthews, 2017). During development, children depend on their caregivers to model both receptive and expressive language. When children are learning new words, they take cues from their caregiver to help store the word appropriately for retrieval (Lusted & Joffe, 2018). If the vocabulary is stored incorrectly and is not linked to emotions or experiences, the neural pathway cannot be retraced for retrieval (Lusted & Joffe, 2018).

> They observed that cellphone use interferes with healthy parenting: children learn by watching us how to have a conversation, how to read other people's facial expressions. And if that is not happening, children are missing out on important developmental milestones. (Matthews, 2017, para. 8)

Technology use by adults through their work has blurred the line between work time and home time. Parents feel obligated to answer emails, so they get on their phones after work hours. Parents feel there is no separation from home and work (Mosatafavi, 2016). The use of technology is a probable cause for the lack of time parents spend engaged with their children (Ramasubbu, 2017). The U.S. Department of Health and Human Services approximated that children spend 7 hours each day on an electronic device (Margalit, 2016). The American Association of Pediatrics recommends no screen time below age 2 and limits for children between the age of 2 and 18 (Kuta, 2017). It is

also recommended that parents co-viewing technology with their children ages 2 to 6 increase communication and allow for modeling of reactions to language from the adult to the child (Lusted & Joffe, 2018). Parents who watch with their children tend to comment about what is on the screen, ask questions, and get the child's response; this provides a more positive learning experience for the child (Lusted & Joffe, 2018).

Early language development, between the ages of birth to age 5 or 6 is a crucial time in a child's life. Children depend on models of language to develop receptive communication skills that prepare them for academic readiness in kindergarten (Lusted & Joffe, 2018). Remote learning during the pandemic also increased the number of kindergarten children who were learning from home. Educators used the ISTE digital learning competencies during the 2020 school year and focused on transforming learning using technology as a tool (ISTE, 2020). The standards were developed to improve digital citizenship and inquiring thinking using technology tools (ISTE, 2020). Parents were spending more time with children, and children were spending more time using devices as they participate in remote learning.

Previous research involving kindergarten readiness is abundant, and the focus centers on what skills children need and why those skills are important. Many studies also look at how preschool programs and daycares can better meet the learning needs and targets of children prior to entering kindergarten. This quantitative phenomenological study will add to previous research by addressing the change in parent perceptions following remote and virtual learning during the current pandemic conditions in the

United States and the world. Prior to the pandemic, changes involved policies and governance of preschool programs. Since the pandemic, more children are in the care of parents or caregivers. The research will be important by identifying how and if parent perceptions were impacted and how this information can be used to help provide training and skills to parents to help them better prepare their children for school.

Chapter 3: Methodology

Introduction

The purpose of this chapter is to offer a detailed overview of the research methodology employed for this quantitative descriptive study regarding the decline in kindergarten readiness with an emphasis on the impact of increased usage of digital devices during remote learning. Technology usage has increased as a growing number of children have participated in online and remote learning. Prior to the COVID-19 pandemic, education experts had already noticed a decline in kindergarten readiness skills. Understanding the impact of the proliferated use of technology on kindergarten readiness is critical to ensuring children obtain the necessary skills to prepare them for school.

The principle components outlined in this chapter include a description of the research design and rationale, an overview of the methodology, the target population, and the instrumentation used in this study. In addition, this chapter examines threats to the validity of the study and discusses the ethical procedures. The chapter concludes with a summary of the methodology used in this research study.

Research Design and Rationale

The research used a quantitative descriptive approach and a questionnaire to collect the necessary data. The quantitative approach can be used to show trends in data or to illustrate a phenomenon across a large population. Descriptive research provided systematic information about the phenomenon. Systemic data collection required a robust

instrument with defined parameters and careful measurement. The questionnaire was selected as the instrument for this study. This instrument enabled me to quantitatively evaluate parent perspectives in three categories: (a) identify what parents did to prepare their child for kindergarten readiness, (b) identify the skills parents deem necessary for their child to be prepared for kindergarten, and (c) illustrate how the increased usage of digital devices impacted their journey to kindergarten readiness. The instrument was distributed to parents of currently enrolled kindergarten students. The results were based on the data collected from parents who chose to participate in the study.

Overview of Methodology

The purpose of this study was to evaluate the perceptions of parents regarding kindergarten readiness, their child's communication skills, and the impact of remote learning during COVID-19. The research used a survey questionnaire to collect quantitative data from parents of children in kindergarten from School A used in this study. The questionnaires did not gather demographic data; the focus was on the perceptions of what skills parents felt were needed to enter kindergarten, how parents prepared their children for kindergarten readiness, and the impact of remote learning on kindergarten readiness. The quantitative data were used to evaluate the phenomena of how the perception of skills required for kindergarten readiness changed during remote learning due to COVID-19.

Target Population

This research study was limited to one elementary school in rural district in North

Carolina. The target population for this study included parents of children enrolled in kindergarten during the 2021-2022 academic year in School A in the target district. The district has a graduation rate of 97%, is 47% free and reduced lunch. The district is made of 73% white, 24% Hispanic and 2% African American and 1% other. The teachers in the district are 100% highly qualified. Participation was strictly optional, thus the sample population included the parents who chose to participate.

Instrument

The instrument that will be used in this study is a questionnaire customized to address the research questions presented in this study. The instrument, Kindergarten Readiness Survey (Appendix C) was used after a written request (Appendix D) and permission granted from Kirsten Smith (Appendix D). Prior to use in Smith's study on kindergarten readiness, the questionnaire was validated in a research study. "To examine construct validity, exploratory factor analyses (EFA) were conducted to investigate the structure of the survey" (Burts et al., 2001, p.93). The questionnaire was found to be reliable and valid according to the "consistency of regression and correlation analyses", (Burts et al., 2001, p. 152).

Questionnaires are often selected as an instrument for quantitative data collection, and this questionnaire was selected to provide the most pertinent information for this study. The Kindergarten Readiness Questionnaire was selected to complete the quantitative phenomenological study on the perceptions of parents to determine if participation in remote learning changed their ideas of what skills children need to have

mastered prior to entering kindergarten. The questionnaire addressed the three research questions of the current study. The research questions were constructed to quantitatively evaluate parent perceptions regarding kindergarten readiness skills. The questions originated from previous research that was designed to study the mother's perception and practices of kindergarten readiness (Smith, 2012). Permission was granted from Smith prior to using it in this study (Appendix E).

The questions were modified to better reflect the purpose of the current study with the permission of Kirsten Smith. The questionnaire was administered to a specific population of parents of current students enrolled in kindergarten at the same rural School A. A 5-point Likert-style survey was used to measure the responses. Participation in the questionnaire was voluntary; therefore, a sample population representing the parents who agreed to participate was used for data collection.

The questionnaire was divided into three sections. The questions in the first section, Questions 1-24, focused on the experiences the child had at home prior to entering kindergarten and how these experiences prepared the child for kindergarten. The participants were given a scale of 1 (Almost Never) to 5 (Very Often). The results of these questions gave me an understanding of the skills parents perceived as important to prepare children for kindergarten and how these perceptions changed after remote learning during the COVID-19 pandemic.

The second section of questions, 25-42, was designed to gather information on what skills parents believed are needed for kindergarten readiness. The participants were

given a series of questions and asked to respond with the level of importance of specific skills their child encountered in kindergarten. The participants were again given a 5-point Likert scale: 1 (Not Important) to 5 (Extremely Important).

The third section of questions, 43-46, was designed to obtain an understanding of how the parent felt after remote learning during the kindergarten year. Parents were allowed to enter their opinions on what they felt was the most important skill to learn, what the most important thing they did to prepare, and what they would do differently. Then parents were asked to use the 5-point Likert scale to gauge how technology use in kindergarten impacted their child. This gave me the information needed to answer the research questions.

Research Questions

1. What do parents believe they are doing to prepare their child with the necessary skills before entering kindergarten? Questions 1-24 of the Kindergarten Readiness Survey instrument addressed parent perceptions of how they prepared their child for kindergarten with experiences through play and learning.
2. What skills do parents feel are important for a child's success in kindergarten? Questions 25-42 communicated the skills parents feel should be mastered before entering school to be successful.
3. How does participation in remote learning change how parents feel they should have prepared their children for kindergarten readiness? The

Kindergarten Readiness Survey showed in Questions 43-46 how parents feel their perceptions of kindergarten readiness changed after they participated in remote learning with their child.

Threats to Validity

Three areas have been identified as internal threats to the validity. The first threat was participants may not have felt comfortable rating a low score, as I was previously the principal of the elementary school. To mitigate this threat, the questionnaires were given anonymously.

Another internal threat that was identified was the limitation of the population and sample. The study was limited to one elementary school in rural North Carolina; the results may or may not compare to findings in other communities and demographics.

There were also inherent limitations to using a questionnaire as the instrument for collecting data. First, there was the possibility that a respondent could have randomly selected answers without properly reading the question. Also, the questionnaire was limited to the answer choices provided in the survey. The respondent did not have the option to express additional thoughts that were not included in the research questions.

Ethics

I ensured that all aspects of this study were conducted with ethical standards. The methods outlined in this study were rigorously followed to ensure the validity and reliability of the data. I maintained sole responsibility for the study. The participating school was not held accountable for any aspect of the research study. All participants

were required to complete the informed consent form (Appendix C) which is based on U.S. federal guidelines. Participation was extended to the parents of children currently enrolled in kindergarten at the participating elementary school only. Participation in the questionnaire was strictly voluntary. There was absolutely no incentive or punishment for anyone in the population to agree or decline to participate in the study. The confidentiality of participants was maintained throughout the study. Data collected were stored in a secure location with access granted only to me.

Summary

The purpose of this chapter was to outline the methodology used to answer the research questions identified for this study. A description of the research design and rationale, an overview of the methodology and the target population, and an overview of the questions from the questionnaire were given. In addition, this chapter identified potential threats to the validity of the study and discussed the ethical procedures this study followed. Chapter 4 demonstrates adherence to the methodology described in Chapter 3 and provides the data collected from the questionnaire.

Chapter 4: Results

Introduction

In this chapter, the results of the study are reviewed and linked to the research questions. Descriptive analyses will be used to present the results of the survey used in this quantitative phenomenological study to investigate the decline in kindergarten readiness with an emphasis on the impact of the increased usage of digital devices during remote learning. The survey was completed at one point in time to determine the beliefs and current attitudes about a practice (Creswell, 2015). The study examined the perceptions of parents and what they found important to prepare for kindergarten before and after the COVID-19 pandemic. During COVID-19, there was a decrease in face-to-face communication during remote learning. Children in all Grades K-12 moved to learning at home using online platforms and viewing their teacher on the screen, rather than in person. Children rely on models to learn language appropriately (Lusted & Joffe, 2018). The lack of face-to-face instruction could have negatively impacted kindergarten readiness, potentially resulting in learning gaps. Children who spend greater than 30 minutes using technology daily begin to show a lag in language development (Matthews, 2017). Language includes listening, reading, speaking, and writing. Communication skills are important to other subjects for students. When students enter school with a deficit in communication skills, it is likely to follow them throughout their education. It is critical that educators and parents understand the elements of kindergarten readiness and the impacts of digital learning to facilitate adjustments to teaching strategies that will

embrace this new way of learning (Slutzky & DeBruin-Parecki, 2019). It is critical that educators and parents understand the elements of kindergarten readiness and the impacts of digital learning to facilitate adjustments to teaching strategies that will embrace this new way of learning.

Research Questions

The research questions selected for this study focus on three areas of interest. First, they focus on the perceptions of what parents feel are important communication skills to teach or model to their children as they compare to what research shows and teachers believe meet the expectations of skill levels as students enter kindergarten. The research questions also address readiness skills for kindergarten and how those skills evolve with changes in the child's environment as they pertain to communication. Finally, the research questions explore the impact of remote learning on student learning and progress in communication skills during the pandemic of 2020. The following questions directed the study. The questions are designed to reveal the perceptions of how parents feel about the importance of skills needed prior to kindergarten and how those perceptions may have changed after participating in remote learning during the COVID-19 pandemic. The questions relate to Vygotsky and Piaget's work centered on how children learn and methodologies that promote understanding. The learning domains of communication, motor skills, language/communication, technology, and social emotional skills are the basis of the questionnaire used to gain insight to the parent perceptions of how they prepared their children for kindergarten and provide information of how those

perceptions might have changed following remote learning. Piaget's work in developmental stages provide a basis for which skills listed were age appropriate for children entering kindergarten who are not yet concrete learners (Piaget, 1969). Constructivism promotes the belief that children learn in a familiar environment (Piaget, 1969). Vygotsky's theory promoted active participation in a child's learning by the parent or teacher as well as cooperation, collaboration and ownership of the learning by the student (Vygotsky, 1962). The idea of preparing a child for kindergarten hinges on the constructivist belief that prior knowledge is essential as children learn new information and build on that knowledge with advanced skills (Vygotsky, 1962).

1. What do parents believe they are doing to prepare their child with the necessary skills before entering kindergarten?
2. What skills do parents feel are important for a child's success in kindergarten?
3. How does participation in remote learning change how parents feel they should have prepared their children for kindergarten readiness?

Sample Population

The population used in the study consisted of 97 parents or guardians of students in one rural district, where the child was enrolled in kindergarten for the 2020-2021 school year. Parents were sent the survey in a digital format using Google Forms. The sample population used in the study includes those who participated in the survey by submitting a response. No incentives were used to encourage parents to participate, and the survey was completed anonymously with no demographic data collected. The parents

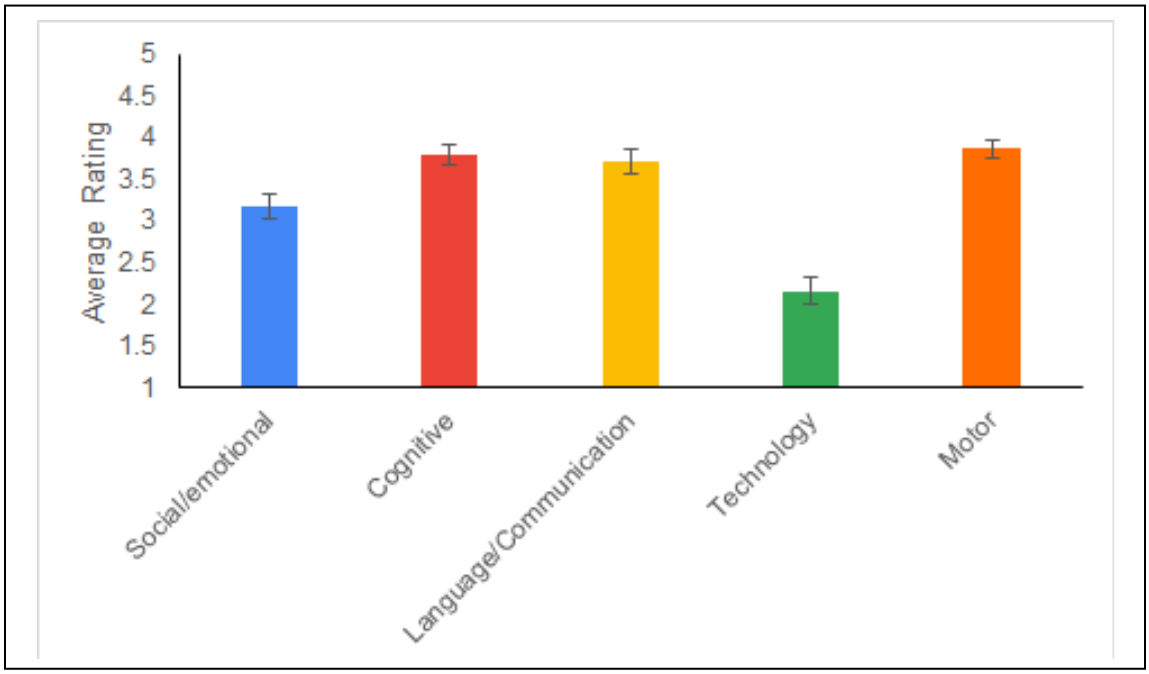
in the sample population had students who were enrolled in kindergarten for the 2020-2021 school year in School A. The children of the parents in the sample population attended face-to-face instruction at the school for 75% of the school year and participated in remote or virtual instruction for the remaining 25% of the school year. When the sample population's kindergarten children were learning virtually, they participated in Zoom classroom instruction and submitted work by uploading pictures of completed assignments or videos of them performing required tasks.

Research Question 1

"What do parents believe they are doing to prepare their child with the necessary skills before entering kindergarten?" Parents reported how frequently their child was exposed to 24 learning experiences prior to entering kindergarten. The responses to Questions 1-24 relate to Research Question 1. A 5-point Likert scale was used to assess frequency. A rating of 1 corresponded with "almost never," and a rating of 5 indicated "very often." Items consisted of activities such as building with blocks or solving math problems, which pertain to five domains: cognitive, language, social/emotional, technology, and motor. The skills are in line with Piaget's preoperational stage of cognitive development (Piaget, 1969). For each parent, an average rating was calculated for items within each domain (see Figure 1).

Figure 1

Average Frequency Ratings for Kindergarten Preparation



Note. The five domains of skills are represented on the x-axis, and average frequency ratings are displayed on the y-axis (n = 25). A rating of 1 corresponded with "almost never," and a rating of 5 indicated "very often." Error bars represent SEM.

A one-way repeated measures ANOVA was used to assess differences in the averages for the five domains. There was a significant main effect of learning domain ($F[4, 96] = 52.526$; $p < 0.0001$). Pairwise comparisons revealed that the average scores for the cognitive domain, the language domain, and the motor domain were each significantly higher than scores for the social/emotional domain ($p < 0.0001$, $p < 0.001$, $p < 0.0001$ respectively) and the technology domain ($p < 0.0001$, $p < 0.0001$, $p < 0.0001$ respectively). The average score for the social/emotional domain was significantly higher

than the score for technology ($p < 0.0001$). With a significant main effect, we learn that parents spend the most time fostering cognitive, language, and motor skills and devote the least time to technology skills prior to kindergarten. The frequency ratings show us that on average parents in the study presented their children with opportunities to participate in cognitive, language/communication, and motor skills "some of the time." It is important that students begin school with skills in language/communication needed to be successful. Parents need more information and training on how they can increase the opportunities for children to participate in language/communication skills prior to entering school. This also has implications for preschools and those who govern preschool curriculum to increase the opportunities for language/communication development in the curriculum of all childcare facilities that offer preschool to 3- and 4-year-old children. Language development, social learning and discovery learning are believed to be important using the constructivist theory of learning.

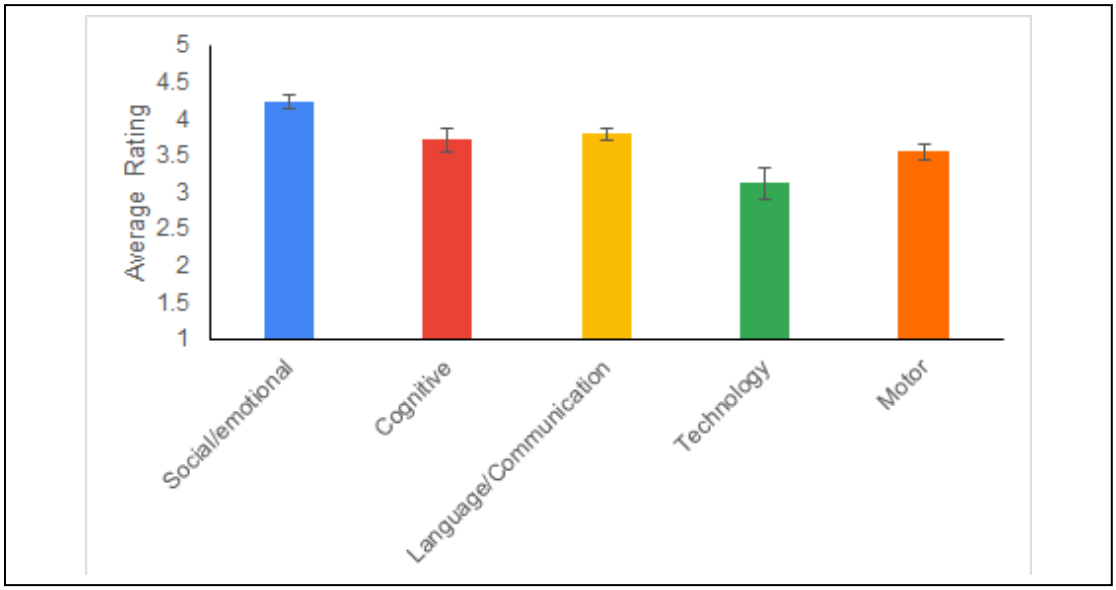
Research Question 2

"What skills do parents feel are important for a child's success in kindergarten" measures how important each domain was to student success in kindergarten. Parents rated the importance of 18 learning objectives for kindergarten on a 5-point Likert scale, in which a score of 1 corresponded with "not at all important" and a score of 5 corresponded with "extremely important." The average importance ratings were calculated for items pertaining to the five domains: social/emotional, cognitive, language, technology, and motor (see Figure 2). A one-way repeated measures ANOVA was used

to assess differences in the averages for the five domains. There was a significant main effect of learning domain ($F [4, 92] = 10.654$ $p < 0.0001$). The average importance of the social domain was significantly higher than the averages for technology ($p < 0.0001$), cognitive ($p < 0.01$), language ($p < 0.001$), and motor ($p < 0.0001$). The average importance of the language domain was higher than the average for technology ($p < 0.01$). This indicates that parents believe that learning objectives related to the social/emotional domain are the most important for kindergarten. Constructivist such as Vygotsky believed that children learned by interacting with others in their learning environment (Vygotsky, 1962). During remote learning, children were prevented from attending school or day care centers due to the pandemic. Parents participating in the survey ranked social emotional learning as a priority when their child entered kindergarten (see Figure 2). This could be explained by the fact that children during Covd-19 did not have the same social experiences prior to entering school that children had prior to the pandemic. During the pandemic of Covid-19, schools, and pre-schools were mandated to close. Parks, playgrounds, churches and other social outlets closed during the pandemic, which limited social interaction of children prior to entering school.

Figure 2

Average Importance Ratings for Kindergarten Learning Objectives



Note. The five domains of skills are represented on the x-axis, and average importance ratings are displayed on the y-axis (n = 25). A rating of 1 corresponded with "not at all important," and a rating of 5 indicated "extremely important." Error bars represent SEM.

Figure 2 shows that parents rated social/emotional very important on the rating scale and signifies that parents feel social/emotional is the most important domain to learning in kindergarten. This finding does not correlate with how they spent time preparing their child for kindergarten. Figure 1 shows that social/emotional learning was not the priority for parents prior to their child attending school. A change in parent perceptions could be explained by the fact that they were unable to participate in face-to-face social opportunities due to restrictions for indoor and outdoor gatherings due to COVID-19. Likewise, the increased rating in time spent on technology versus the

perception of importance could also be driven by the implications of COVID-19. For example, because students were unable to go to events and public learning facilities, they utilized online resources to fill the gap.

Figure 1 depicts how parents spend time preparing students for kindergarten. Parents spent more time on cognitive, language/communication and motor skills. Figure 2 displays the results of parent perceptions of what is most important for children to learn in kindergarten. Although, parents spent the least amount of time preparing for social/emotional learning prior to their child entering school, it was ranked the highest on what they felt was importance during school. Similarly, technology was ranked and the lowest area in preparation for school, and while, still the lowest ranked skill during kindergarten of the five domains, technology was ranked at a higher degree of importance for learning during kindergarten.

Research Question 3

"How does participation in remote learning change how parents feel they should have prepared their children for kindergarten readiness?" The parent perspective on how preparation for kindergarten might change following remote learning was reported to answer Research Question 3.

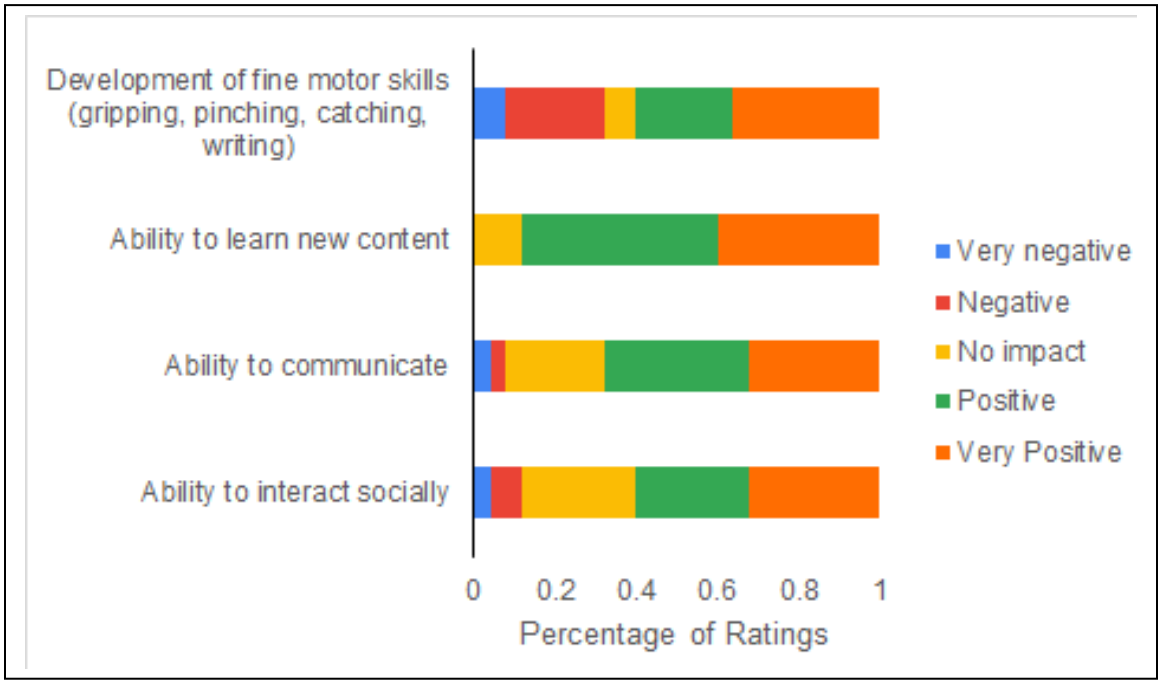
Parents indicated the perceived impact of technology on their child's abilities to interact socially, communicate, learn new content, and develop fine motor skills on a 5-point Likert scale. A rating of 1 represented "very negative," a rating of 3 indicated "no

impact," and a rating of 5 represented "very positive." Generally, parents reported a positive impact of technology on the development of the four types of skills, with the highest positive impact in cognitive learning (see Figure 3).

Parents spent significantly less time preparing their child to meet social/emotional skills yet rated it as the most important skill for kindergarten to measure and also felt that the use of technology had a negative impact on social/emotional skills. Analysis of this information from parent perceptions implies that parents believe schools should be responsible for social/emotional skills for students in a face-to-face setting. When designing curriculum for preschools, leaders must ensure that adequate time is spent on social/emotional skills with particular attention to the amount of time young children spend using technology. Increased use of remote learning and technology tools, as a means to access academic instruction, places additional requirements on teachers and preschool programs to also include times in a child's learning plan that are specifically designed to promote social/emotional learning. Remote instruction must strategically promote social interactions through activities such as game night, story time, and interactive lessons where students have time to practice and explore social/emotional skills, utilize communication, and express their wants and needs.

Figure 3

Valence of Impact Ratings for Technology on Kindergarten Skills



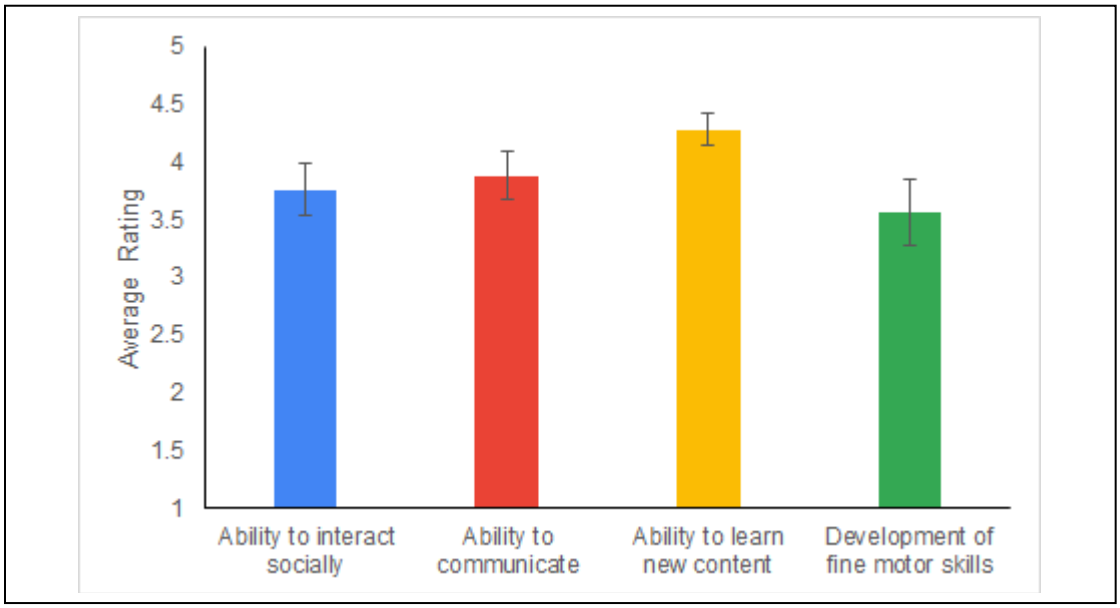
Note. Skills are indicated on the y-axis, and the percentages of ratings corresponding to very negative (blue), negative (red), neutral (yellow), positive (green), and very positive (orange) for each of the skills are displayed on the x-axis (n = 25).

A one-way repeated measures ANOVA was used to assess differences in the average impact ratings for the four skills (see Figure 4). There was a significant main effect of skill type ($F [3, 72] = 4.76$; $p = 0.004$). The average impact rating of technology on children's ability to learn new content was higher than the impact rating on the development of fine motor skills ($p < 0.01$), ability to interact socially ($p < 0.01$), and ability to communicate ($p < 0.05$), thus parents believed that technology had the most

positive impact on the ability of their child to learn new information.

Figure 4

Average Impact Ratings of Technology on Kindergarten Skills



Note. Kindergarten skills are represented on the x-axis, and average impact ratings are displayed on the y-axis (n = 25). A rating of 1 corresponded with "very negative," a rating of 3 corresponded with "no impact," and a rating of 5 indicated "very positive." Error bars represent SEM.

Data Analysis

All statistical analyses were performed using R statistical software. The survey responses were divided into three sections: kindergarten readiness (Items 1-24), parent evaluation of learning objectives (items 25-42), and impact of technology (Items 46-49). The open-ended questions (Items 43-45) were excluded from the statistical analysis. For

the kindergarten readiness section and the section on parent evaluation of learning objectives, items were grouped based on five domains: motor, social/emotional, language/communication, technology, and cognitive skills. For each section, the frequencies of each rating, the mean rating, and the standard error of the mean were computed for each domain. Differences in the mean ratings for the domains within each section were assessed using a one-way repeated measures ANOVA. For the impact of the technology section, there was no need for grouping because the four items stand alone as measures of social, communication, learning, and motor skills. Frequencies of each rating, the mean rating, and the standard error of the mean were computed for each item. Differences in the mean ratings for each item were assessed using a one-way repeated measures ANOVA.

General Findings

Parents indicated in the open-ended questions that they felt social/emotional was most important in preparing their child for school. Social/emotional skills are great predictors of how well a child will perform in school (Owens, 2020). Cooperation and social learning are important in the theory of constructivism and crucial to a child's learning, (Vygotsky, 1962). Students who are comfortable expressing their wants and needs, working with others, and following directions are prepared to engage in learning in a school setting. When asked what they would have done differently to prepare for kindergarten, 48% of the parents stated they would have spent more time on literacy skills such as reading, alphabet knowledge, and writing. Speech/language skills are key to

a child's success in learning, and those who begin with a deficiency in language continue to have learning problems throughout school (Lusted & Joffe, 2018).

Several other observations can be made from the data presented in Figures 1-4. First, as shown in Figure 2, exposure to social and emotional skills was ranked as the most important skill of the five skills presented; while in Figure 1, the findings indicate parents did not feel the students were exposed to enough social and emotional skills to prepare them for kindergarten. This finding is not surprising given the number of closures and canceled events in response to COVID-19. In past years, students participated in preschool events, play dates, and many other activities and events outside their homes. With the pandemic closing venues and restrictions on events, the number of social and emotional interactions was extremely limited for many students.

Another observation can be made in relation to the exposure to technology. Parents ranked technology as the lowest-ranked importance of the skills presented and also ranked it lowest in relation to the amount of exposure. Although a lower ranking was given for importance and exposure, an overall positive observation was made with respect to the impact technology has on kindergarten readiness skills (Figures 3 and 4).

The use of technology for learning new content (Figure 3) received an overwhelmingly positive response. This could be due to the number of educational programs that were made available at no cost to families during the pandemic. Many software companies and educational resources recognized the need and stepped in during the pandemic to provide educational resources at no cost to alleviate the struggle for

parents to provide the necessary tools.

An interesting observation when comparing the data in Figures 1-4 is in relation to the scores given for technology. Although parents gave the technology learning objective lower scores in both frequency (Figure 1) and importance (Figure 2) in respect to kindergarten readiness, the ratings for impact (Figures 3 and 4) clearly show a prodigiously positive perception of the impact technology has on kindergarten skills.

The results provide insight into what skills parents dedicate the most time to in preparing their children for school, in contrast to what skills that they consider the most important for their child to acquire in kindergarten. Prior to kindergarten, parents spent the most time cultivating cognitive, language, and motor skills and the least time developing social and technology skills. The average ratings for cognitive, language, and motor skills all fell between “sometimes” and “regularly,” whereas the averages for social and technology were closer to “sometimes” and “rarely,” respectively. This may be due to the limited opportunities for social interaction outside of formal schooling, but it might also suggest that parents do not focus on social skills because they know their children will experience socialization once they enter school.

Surprisingly, technology skills were exercised rarely, given the prominence of technology in society; however, this result may be specific to the types of technology assessed by the survey, such as using Zoom or a computer. Children may be more experienced with phones, tablets, and televisions. This also does not dismiss the possibility of rating bias in the respondents. Due to fear of negative perception, parents

may not want to give the impression that they allow their child to use technology often; however, the findings on what skills parents' value also support the idea that technology skills may not be considered as important as other skills.

When parents were asked to rate the importance of items corresponding to the different learning domains, on average, parents rated cognitive, social/emotional, language/communication, and motor skills between "fairly important" and "very important." Technology skills were the least important, with an average rating of "fairly important." Social/emotional skills were considered the most important, with a mean that was slightly but significantly higher than that of all other learning domains. This indicates that although parents spend little time on social skills prior to kindergarten, parents believe that social development is the most crucial component of kindergarten education. This has implications for the structure of the curriculum to focus on collaboration and group work as a way to address the concerns of parents.

Given these findings of what skills parents' value, it is interesting to consider their perceived impact of technology on their child's learning experience. Although the previous results suggest that technology is considered the least important skill domain, parents generally reported that technology had a positive impact on the development of social skills, learning, motor skills, and communication skills. They reported the most positive impact of technology on the child's ability to learn new content. Through examination of the percentages of each response type, parents rarely reported technology having a negative impact on any of the skills. This has encouraging implications for

education as virtual learning becomes more and more ubiquitous.

Conceptual Framework

Vygotsky, Piaget, and Chomsky believed that language development is dependent on the critical groundwork that occurs in the early stages of human development. Communication and language acquisition are linked to success in learning new information as children age and develop parallel to one another. Research related to the decline in language development existed prior to the study; however, there was very little information about the impacts on remote learning during the COVID-19 pandemic and the increased academic use and exposure to technology through virtual learning. The study added to the body of knowledge by reporting the perceptions of parents and how the participation of remote learning changed their views on what skills are necessary to learn prior to entering kindergarten.

Chapter 5: Discussion

Introduction

The purpose of this quantitative phenomenological study was to investigate the decline in kindergarten readiness with an emphasis on the impact of the increased usage of digital devices during remote learning. Remote learning offers instruction with a decrease in face-to-face communication between the teacher and student during learning time. Students learn language such as speech by imitating adults in their environment (Owens, 2020). For every 30-minute increase of screen time each day, there is a 50% risk for expressive language delays in children (Silva, 2017). The learning gap created when students enter school with a deficit in communication skills is likely to follow them throughout their education. When looking at both academic learning behaviors and mental health, studies show that up to 90% of children who enter school with a delay will continue to have difficulties into adulthood (Määttä et al., 2014). This quantitative study focused on the perceptions of parents and how those perceptions changed after participating in remote learning with their children by analyzing their answers to a survey.

Research Questions

The following questions were used to guide the research in this study.

1. What do parents believe they are doing to prepare their child with the necessary skills before entering kindergarten? Results from Chapter 4 recognize parents spend the most time preparing their children in the areas of

cognitive, language, and motor skills and the least time developing social and technology skills.

2. What skills do parents feel are important for a child's success in kindergarten? The data in Chapter 4 highlight the importance of emphasis that parents place on social/emotional, cognitive, and language skills. Parent perceptions indicated a greater emphasis on these skills compared to motor and technology.
3. How does participation in remote learning change how parents feel they should have prepared their children for kindergarten readiness? After participating in remote or virtual instruction, parent perceptions changed from how they perceived the skills needed for kindergarten prior to their children attending school. Parents felt the use of technology had a positive impact on communication but indicated a somewhat negative impact of technology on the skills for motor development, social skills language, or communication skills. Approximately 48% of parents in the study indicated they would add language skills such as reading, alphabet knowledge, and writing based on their experiences and student needs during remote or virtual learning.

Findings

Prior to the child attending kindergarten, parents on average placed similar importance on motor and cognitive skills which were slightly higher than the average time spent preparing for language/communication. When asked to rate how children

should be evaluated for success during kindergarten, parents rated social/emotional as the most important, on average believing social/emotional learning to be “very important” and rated language/communication, technology, and motor as “fairly important.” Parents believed that technology had the most positive impact on their child’s ability to learn new content; although when asked what they did to prepare their child for school, the lowest measure was given to technology as compared to the other domains measured.

Figure 2 shows that exposure to social and emotional skills was ranked as the most important skill of the five skills presented; while in Figure 1, findings indicate parents did not feel the students were exposed to enough social and emotional skills to prepare them for kindergarten. The guidelines for social interaction during the pandemic negatively impacted the ability of children to have playdates, group events, and social interaction with their peers in a face-to-face setting.

Another observation can be made in relation to the exposure to technology. The parents ranked technology as the lowest-ranked importance of the skills presented and also ranked it lowest in relation to the amount of exposure. Although a lower ranking was given for importance and exposure, an overall positive observation was made with respect to the impact technology has on kindergarten readiness skills (Figures 3 and 4).

The use of technology for learning new content (Figure 3) received an overwhelmingly positive response. This could be due to the number of educational programs that were made available at no cost to families during the pandemic. The internet increases the availability of age-appropriate content as well as a wealth of

programs for students to interact with as they learn.

An interesting observation when comparing the data in Figures 1-4 is in relation to the scores given for technology. Although parents gave the technology learning objective lower scores in both frequency (Figure 1) and importance (Figure 2) in respect to kindergarten readiness, the ratings for impact (Figures 3 and 4) clearly show a prodigiously positive perception of the impact technology has on kindergarten skills.

Recommendations for Further Action

Communication skills and social skills are predictors for success in school. Parent education is important to help better prepare children for school. The use of technology by both children and adults is rising, and the use of technology negatively impacts a student's ability to learn and develop language. Language is a key factor in the future success of students entering kindergarten.

It is recommended that lawmakers develop curriculum for preschool-age children that is rich in language development skills that cover all areas of language including listening, speaking, reading, and writing. While some daycares or preschool centers follow curriculum, others do not. Curriculum needs to be universal for all preschool programs. North Carolina has a low percentage of students who attend quality preschool centers. Legislation needs to be passed that would provide quality preschool for all 4-year-olds across the state.

Parents need information on the harm that can be caused by the overuse of technology by both parents and children. Age-appropriate limits on screen time should be

outlined by professionals and shared with all parents of young children. Young children learn primarily by watching their parents. Parents and guardians serve as the primary models for young children who are learning language and have a responsibility to provide opportunities for learning to take place. When technology becomes a barrier between the child and the adult, the child does not develop language at the rate they should to be ready for kindergarten by age 5.

Recommendations for Further Research

The results in this study warrant investigation of how parents are prepared to assist their children in preparing for school. Information gained could help districts and schools as they work with parents to learn approaches to increase early literacy skills and improve kindergarten readiness. Further research is needed to determine the long-term effects of increased technology by children prior to kindergarten. It is recommended that stakeholders in School A conduct a longitudinal research study to follow student academic progress as they move from kindergarten through 12th grade. A longitudinal study would provide crucial data on the long-term effects of the proliferated use of technology and the impact on student academic success. Additionally, further research should be done adding demographic information, such as ethnicity, socioeconomic status, and parent educational background. A study comparing the readiness of children with working parents compared to stay at home parents, would also give information needed by those who work with young children. Studies should also be conducted in other parts of the state of North Carolina since this research was limited to a small, rural area in the

northwestern region of the state.

Additionally, questions concerning the amount of screen time experienced by children prior to attending school would add a depth of knowledge about the impact technology use had on the development of young children.

Implications

The study results imply that parents do believe children should be prepared to attend kindergarten, but they are not fully educated on the domains that are important for healthy development. The importance of finding a balance between learning with technology and limiting the amount of time using technology is key to the success of students in a technology-rich environment. As technology becomes more and more available to all children, regardless of socioeconomic background, it will become increasingly necessary that preschool be accessible and regulated and involve parental education. Without standardized preschools, students who are afforded the ability to attend a quality preschool center will continue to perform above their peers and increase the achievement gap for lower socioeconomic children who are not provided those same resources. Language development is a key domain for success in kindergarten and throughout school and into adulthood. North Carolina has less than a quarter of the current 4-year-olds enrolled in a quality preschool program (U.S. Department of Education, 2015). To close the gap in learning, children need to enter school with the same skill set in the five learning domains. Legislation should be written that would bring the same consistency to preschools as exists for public K-12 schools. If the state

continues to neglect normalizing high quality in all preschool programs, curriculum changes to the current kindergarten curriculum may be necessary to address the gap in skills of children who enter kindergarten.

Experts in the field of child development urge parents to limit the screen time of children at an early age (Ultius, 2016). Technology use negatively impacts communication skills which are primary indicators for future learning success (Lusted & Joffe, 2018).

Parents perceive that children are learning more content when using technology, but parents may be unaware of the dangers of using technology at an early age or the overuse of technology at any age during development. Parents must be educated and understand the implications of overuse of technology or premature exposure to technology (Matthews, 2017). Technology will continue to increase; parents and children will continue to utilize technology. Additionally, schools have also increased the use of devices during instruction both face to face and remotely. More must be done to share information with parents that would allow them to make informed decisions when placing a device in the hands of a child and how they set limits to the time children spend online. Adult caregivers must also review their own use of technology while children are in their care (Matthews, 2017). Caregivers who use technology while caring for children limit the one-on-one time with that child, and children are likely to be less engaged and have emotional and cognitive delays in learning (Matthews, 2017).

The study has implications for the district to review what information is shared

with parents with preschool children and spend more time in educating parents on the learning domains and how they can help prepare their children at home. Parents could be presented a brochure or flyer giving examples of how they could prepare their child in the five domains and strategies to learn and increase readiness in all five domains prior to attending school.

Information from the study could potentially be shared with parents of current kindergarten children and families with preschool aged children. Sharing the results would help parents learn the importance of the five domains and the importance of increasing communication and speech activities to at least daily.

Conceptual Framework

Vygotsky, Piaget, and Chomsky agreed that language development is dependent on the critical groundwork that occurs in the early stages of human development. Communication and language acquisition develop parallel and are linked to success in learning new information as the child ages. The five domains in the study are based on the constructivist approach to education. Prior knowledge of the students is important to the success of kindergarten students. Constructivist such as Piaget believed that learners should be exposed to materials to develop understanding and knowledge of new information (Piaget, 1969). When students build their own understanding they also develop authorship and ownership of their learning (Fox & Riconsente, 2008). Students who have proper prior knowledge begin school without a learning gap. Prior to the study, some research was available concerning the decline in language development

where the child had increased use of technology; however, there was very little information about the impacts on remote learning during the COVID-19 pandemic and the increased academic use and exposure to technology through virtual learning. The study added to the body of knowledge by reporting the perceptions of parents and how the participation of remote learning changed their views on what skills are necessary to learn prior to entering kindergarten. As parents worked with their child in a cooperative environment and focused on authentic learning there is a greater understanding by the student (Fox & Riconsente, 2008).

Limitations

One limitation of this study is that I was also the previous administrator at the school where the research data were collected. The teachers and parents may have been hesitant to participate in the study. There was a low response rate which would be another limitation. It might be useful to expand the study to other populations to increase the sample size. Another limitation is that the results may not generalize to other populations because the study only captures a small sample from one rural district in a particular geographic location. Potential response bias is another factor to consider, as parents may have answered in a way they think I wanted them to answer without being honest. A qualitative study rests on the idea that it is limited by the reliability of the researcher (Merriam, 1998). Creswell (2015) stated that the researcher uses their understanding and abilities during the process of the research.

Conclusion

Speech/language, social/emotional, motor, cognitive, and technology skills are all important for overall child development. Piaget et al. (1969) believed that language and cognitive development develop simultaneously. Children who enter kindergarten below their peers in language will continue to perform below their peers as they continue education unless significant steps are taken to reduce the gap in learning. This study revealed that parents believe students do need to prepare for kindergarten. Parents on average placed similar importance on motor and cognitive skills which were slightly higher than the average time spent preparing for language/communication. Parents rated social/emotional as the most important, on average believing social/emotional learning to be “very important” and rated language/communication, technology, and motor as “fairly important” when looking at which skills were important for success in kindergarten. Parents believed that technology had the most positive impact on their child’s ability to learn new content; although when asked what they did to prepare their child for school, the lowest measure was given to technology as compared to the other domains measured. When parents participated in remote instruction, they became facilitators and were able to experience how and what their children learned in kindergarten. Following this experience, 48% of parents who participated in the survey commented they would change how they prepared their child for kindergarten by adding additional opportunities in reading, writing, and literacy skills.

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Appendix A

School Speech Data

Chart showing the number of students identified and served each year in the EC for speech or speech related services for School A.

Year	Speech Primary	Speech Related Services
2014	14	7
2015	39	49
2016	31	50
2017	38	52
2018	38	50
2019	42	56

Appendix B

ISTE Standards Digital Competencies

ISTE STANDARDS

1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

a. Apply existing knowledge to generate new ideas, products or processes.
b. Create original works as a means of personal or group expression.
c. Use models and simulations to explore complex systems and issues.
d. Identify trends and forecast possibilities.

2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

a. Interact, collaborate and publish with peers, experts or others employing a variety of digital environments and media.
b. Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
c. Develop cultural understanding and global awareness by engaging with learners of other cultures.

4. Critical Thinking, Problem Solving and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

a. Identify and define authentic problems and significant questions for investigation.
b. Plan and manage activities to develop a solution or complete a project.
c. Collect and analyze data to identify solutions and/or make informed decisions.
d. Use multiple processes and diverse perspectives to explore alternative solutions.

d. Contribute to project teams to produce original works or solve problems.

3. Research and Information Fluency

Students apply digital tools to gather, evaluate and use information.

a. Plan strategies to guide inquiry.
b. Locate, organize, analyze, evaluate, synthesize and ethically use information from a variety of sources and media.
c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks.
d. Process data and report results.

Appendix C

Questionnaire

Kindergarten Readiness Survey

All children have different ways of learning at different points in their lives. We are interested in what experiences your child had at home prior to entering kindergarten. How did you use the following to prepare your child?	Almost Never (less than monthly)	Rarely (monthly)	Sometimes (Weekly)	Regularly (2-4 times a week)	Very Often (daily)
1.Building with blocks	1	2	3	4	5
2. Selecting from a variety of learning areas and projects (i.e. dramatic play, construction, art, music, science etc.)	1	2	3	4	5
3. Has had his/her work displayed	1	2	3	4	5
4. Experimenting with writing, drawing, copying, and using their own invented spelling	1	2	3	4	5
5. Played with games, puzzles, and construction materials (e.g. Tinker Toys, Bristle Blocks)	1	2	3	4	5
6. Explored science materials (e.g. animals, plants, wheels, gears etc.)	1	2	3	4	5
7. Sang, listened or moved to music	1	2	3	4	5
8. Done movement activities using large muscles (e.g. balancing, running, jumping)	1	2	3	4	5
9. Used manipulatives (e.g. pegboards, Legos, and Unifix Cubes	1	2	3	4	5
10. Used commercially-prepared phonics activities	1	2	3	4	5
11. Circled, underlined, and/or marked items on worksheets	1	2	3	4	5
12. Used flashcards with ABC's, sight words, and/or math facts	1	2	3	4	5
13. Participated in rote counting	1	2	3	4	5
14. Practiced handwriting on lines	1	2	3	4	5
15. Color, cut, and paste pre-drawn forms	1	2	3	4	5
16. Sat and listened for long periods of time until they become restless and fidgety	1	2	3	4	5
17. Had the opportunity to learn about people with special needs (e.g. a character in a book)	1	2	3	4	5
18. Received rewards as incentives to participate in activities which they are reluctant participants.	1	2	3	4	5
19. Been placed in time-out (i.e., isolation, sitting on a chair, in a corner, or being sent to another room)	1	2	3	4	5
20. Drawn, painted, colored or used other art materials	1	2	3	4	5
21. Navigated and used basic commands on a computer	1	2	3	4	5

22. Participated in virtual meetings such as Zoom or Google Meet	1	2	3	4	5
23. Solved real math problems using real objects.	1	2	3	4	5
24. Do activities that integrate multiple subjects (reading, math, science, etc.)	1	2	3	4	5

As you think about your child (ren) as they entered kindergarten in the fall, consider the following statements:	Not at all Important	Not very Important	Fairly Important	Very Important	Extremely Important
25. As an evaluation of children's readiness for kindergarten, achievement tests are _____.	1	2	3	4	5
26. Instruction in letter and word recognition is _____ in pre-school.	1	2	3	4	5
27. It is _____ for children to see and use functional print (menus, magazines) environmental print (cereal boxes, chip bags).	1	2	3	4	5
28. It is _____ that children have the ABC's memorized when entering kindergarten.	1	2	3	4	5
29. It is _____ for activities to be responsive to my child's interest.	1	2	3	4	5
30. It is _____ for children to work individually at desks or tables most of the time.	1	2	3	4	5
31. Workbooks are _____ for my child to do before entering kindergarten.	1	2	3	4	5
32. It is _____ for children to create their own learning activities (e.g. cut their own shapes, decide on the steps to perform an experiment, plan their own creative drama, art and computer activities).	1	2	3	4	5
33. It is _____ for my child to write by inventing their own spelling.	1	2	3	4	5
34. It is _____for my child to color with pre-drawn forms.	1	2	3	4	5
35. It is _____ to read stories to my child daily.	1	2	3	4	5
36. It is _____ for my child to dictate stories to me.	1	2	3	4	5
37. It is _____ to provide many opportunities for developing my child's social skills (i.e. cooperating, helping and talking) with their peers.	1	2	3	4	5
38. It is _____ for my child to have outdoor time.	1	2	3	4	5

39. It is _____ for me as parent/guardian to be involved in my child's education.	1	2	3	4	5
40. It is _____ for strategies like setting limits, problem solving, and redirection to be used to help guide my child's behavior.	1	2	3	4	5
41. It is _____ for me as parent/guardian to be actively involved with my child's teacher and school program.	1	2	3	4	5
42. It is _____ for my child to have knowledge of using a computer independently prior to attending school.	1	2	3	4	5

When answering these questions consider how you feel after you participated in remote learning with them during their kindergarten year.

43. What do you feel is most important for your child to know or to do in order to be ready to enter kindergarten?

44. What do you feel was the most important thing you did to help prepare your child to enter kindergarten?

45. What do you feel you should have done differently to help prepare your child to enter kindergarten?

46. How has the use of technology in kindergarten impacted your child's:	Very positive	Positive	No impact	Negative	Very negative
Ability to interact socially	1	2	3	4	5
Ability to communicate	1	2	3	4	5
Ability to learn new content	1	2	3	4	5
Development of fine motor skills (gripping, pinching, catching, writing).	1	2	3	4	5

Appendix D

Request to Use Previous Study

Pam Colbert <XXXXXX>

Dissertation Questionnaire

1 message

Pam Colbert <XXXXX> Mon, Feb 22, 2021 at 8:21 PM

To: "kirstensmith2@msn.com" <kirstensmith2@msn.com>

Greetings from North Carolina,

My name is Pam Colbert and I am a Doctoral student working to complete my dissertation. I found your paper and questions and would very much like to use them for my study. Would you be willing to send me written permission to use your questions?

Please let me know if you have other questions or need more information. Thank you for considering my request.

Sincerely,

Pam Colbert

Sent from Mail for Windows 10

Appendix E

Permission to Use Questionnaire

Pam Colbert <XXXXX>

Re: Dissertation Questionnaire

1 message

Kirsten Smith <kirstensmith2@msn.com> Tue, Feb 23, 2021 at 12:26 PM
To: Pam Colbert <XXXXX >

Hello Pam,

Thank you for your interest in the questionnaire I used in my thesis. Yes, please use it for your dissertation. And feel free to make any changes that you need to have it work best for your research. I love hearing of others doing similar research to what I did, especially if they can do the research in a bigger group of people than I was able to.

Please let me know if you need something more than this email for permission.

Best of luck to you!

Kirsten Smith