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A Mixed Method Study of Teacher Perception of How Screen Time Affects Cognitive Development of Children between the Ages of Four and Five at One Early Childhood Education Center

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ABSTRACT

EDUCATIONAL LEADERSHIP

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M.A. CLARK ATLANTA UNIVERSITY, 2014

A MIXED METHOD STUDY OF TEACHER PERCEPTION OF HOW SCREEN TIME AFFECTS COGNITIVE DEVELOPMENT OF CHILDREN BETWEEN THE AGES OF FOUR AND FIVE AT ONE EARLY CHILDHOOD EDUCATION CENTER

Committee Chair: Barbara Hill, Ed.D.
Dissertation dated May 2018

The purpose of this study was to determine the impact screen time has on the cognitive development of children between the ages of four to five, at one early childcare education center. The significance of the study will help determine how the amount of screen time affects children’s cognitive development. The results of this study will help educational leaders determine how to effectively use technology for learning. Research suggests that the most important factor in a child’s development is a positive parent-child relationship, in which loving caregivers respond to a child’s cues and provide age-appropriate activities that nurture curiosity, exploration and learning (Lerner & Barr, 2014). This provides the foundation for teacher and child interactions in preschool
programs. The role of early childhood educators lays the foundation for education. Currently, over 80% of children between the ages of three and five years are reported to be using some type of electronic device on a daily basis (Joan Ganz Cooney Center and Sesame Workshop, 2011). Time spent with these electronic devices is defined as screen time, the total amount of time spent in front of any and all screens (Common Sense Media, 2013). The National Association for the Education of Young Children (2012) defines technology and media tools as, “computers, tablets, multi-touch screens, interactive white boards, mobile devices, cameras, DVDs, music players, audio recorders, electronic toys, games, e-book readers, and older analog devices.”

The impact of positive and consistent interactions to young children can help mold development. These meaningful interactions cannot be substituted with technology tools. The educators of School A are restricted to only allowing their students to engage in interactive screen time for a total of thirty minutes per week. This research was geared towards finding out if screen time effects a child’s cognitive development between the ages of four and five.
A MIXED METHOD STUDY OF TEACHER PERCEPTION OF HOW SCREEN TIME AFFECTS COGNITIVE DEVELOPMENT OF CHILDREN BETWEEN THE AGES OF FOUR AND FIVE AT ONE EARLY CHILDHOOD EDUCATION CENTER

A DISSERTATION
SUBMITTED TO THE FACULTY OF CLARK ATLANTA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF EDUCATION

BY
ANGELIQUE C. THOMAS

DEPARTMENT OF EDUCATIONAL LEADERSHIP

ATLANTA, GEORGIA

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“With God anything is possible.” I am a living testament to this statement. When I started at Clark Atlanta at the age of 17, I did not know where this journey was going to take me. Along the way, I’ve been modeled into the woman that I am today. I would like to first thank my mother, Denise Thomas, my angel on earth and personal paper editor. Thank you to my father who taught me so much through wisdom and tough love. Without his help and support I would not be here today. Thank you to my big sister, the true definition of superwoman. To my nieces who are the epitome of beauty and love, I hope I inspire them one day the way they inspire me. Thank you to my best friends who keep me motivated. The past 10 years at Clark Atlanta have been a wonderful experience. Special thanks to Sharan Glover, who walked with me through the final stages of this journey. I extend my deepest thanks to my Educational Leadership Department staff and mentors, Dr. Barbara Hill, Chair, Dr. Daniel Teodorescu and Dr. Darrell Groves.
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CHAPTER I

INTRODUCTION

Early learning experiences are critical in helping children reach and develop their full potential. Children begin to learn as babies during the prenatal and postnatal period. Learning in the early years of a child’s life does not mirror the standard educational environment seen in primary school and onward. However, effective early childhood learning begins with establishing nurturing relationships and building upon cognitive and social emotional cues. These experiences are the foundation for healthy development. The study conducted at Harvard University’s child development program explored the biology of stress and its effects on early childhood development. The study concluded that children who undergo chronic stress during their early years through poverty or forms of abuse can weaken brain development and increase chronic disease (Center on the Developing Child at Harvard University, 2010).

From the beginning of development in the womb, a child’s brain begins a process that continues well into adulthood. The construction of each child’s brain is highly impacted by the experiences and learning environment that children undergo from birth to five. During the first two to three years of growth, on average, about 700 neural connections start every second in a young child’s brain.
Following the synapses, the connections are reduced, so that the mind circuits can become effective and used as a resource. This process is identified as synaptic pruning. During the early stages of pruning, a rapid development occurs based upon experiences called synaptic overproduction. The connection between neurons strengthens and becomes multifaceted based on exposure and repetition. For example, an infant’s brain strengthens its connections for sounds in the language that are heard repeatedly. During the infant stage, the brain has connections that allow infants to hear sounds of all languages; this connection is only strengthened by the regularity of language use.

Exposure to additional languages has a significant correlation of enhancing children’s language development (National Early Literacy Panel, 2008). This has taken effect in quality preschool curriculum with the introduction of additional languages such as Spanish and Mandarin. Studies show that a child with a background of high quality early learning is better prepared for kindergarten and beyond. Children that attend a preschool program have a reoccurring positive effect that last throughout their education. Weighing the benefits of early learning programs is not based upon children who attend a program versus those who do not, but rather the quality of the program itself. Programs recognized by the National Association for the Education of Young Children follow standards that are aligned throughout the curriculum and adhere to requirements based on the association’s accreditation criteria to provide a quality education.

Children that do not attend preschool are often associated with limited or slow learning (Mongeau, 2016). The fundamental aspect of early learning is children begin learning
through self-taught lessons, exploration and activities. Preschool programs vary, however they are commonly centered around social development. The curriculum, *World at Their Fingertips*, used by Bright Horizons Early Education has developed an eight subject based program that allows exploration through social interactions, play and intellectual development. This curriculum focuses on differentiation in instruction with students, providing richer materials for learning and ongoing professional development for educators.

The positive effect of high quality preschool education has been continuously established through research of early learners. Under the Obama administration in 2014, a federal preschool grant was administered to provide 250 million dollars in funding. The Preschool Development Grants support states in the United States of America to expand high quality preschool programs in low or moderate income communities and enhance preschool programs that enable the deliverance of quality programs. The grants of preschool development are expected to provide the foundation that ensures that more states are ready to provide high quality preschool for all children. Each of the fifty states, including the District of Columbia and the Commonwealth of Puerto Rico, are eligible to apply for the grant under 14006(a) (2) of the ARRA. Section 14006 is the state incentive that outlines application criteria for grants and the specific program objectives required.

The Preschool Development Grant program has two components: a.) Development Grants support states that have little to no preschool programs provided by the state and b.) Expansion Grants support states that have a vigorous state funding preschool program or a program that has the Early Learning Challenge grant through
Race to the Top, another Obama administration initiative. Both grants were developed to enhance preschool programs for high quality learning. Each plan proposed by individual states must include a projection of funds for up to four years. Both grants have an eight part application section in which they must align their selection criteria; the executive summary, commitment to high quality preschool programs, ensuring quality in preschool programs, expanding high quality preschool programs in high need communities, collaborating with sub grantees and ensuring strong partnerships, aligning within a birth through third grade continuum, budget and sustainability.

Preschool programs in the United States of America come in various sizes and shapes. Differences in these programs exist across states based on how the programs are funded, eligibility of families enrolled, age of children in the program and how many days of the week the children attend. Funding for preschool programs has three sources: Head Start/Federal Funds, Special Education funds/Federal Funds and State funds. Head Start is a federal pre-kindergarten program for children who are victims of poverty. Under the Federal Fund, some programs also receive funds from Title I of the No Child Left Behind Act. Also affectionately known as junior kindergarten or preschool, prekindergarten is defined as a program that trains teachers to guide educational experiences in a classroom environment for children who are two years or less away from kindergarten. As a potential third funding source, many state funded prekindergarten programs are financed with state operated lottery programs.

Developmental gaps, between children from low income families and children from higher income families, start as young as nine months of age. This developmental
gap is based on cognitive and language skills. By the time these children are twenty-four months of age, the gap continues to grow. Little Apron Academy endorses high quality Early Childhood Education for children birth through five years by connecting quality educational practices and the most effective research. As an Early Childhood Education center, the research site prides itself on providing a learning climate that is both dynamic and diverse while exemplifying passion for the development and success of young children. The chain of early learning centers that this research site is affiliated with serves a demographic population that include a large majority of free and reduced lunch students with over sixty five percent of the children being from low income African American families.

The United States of America is one of the lowest ranking countries in providing quality public early childhood education. A study conducted by the United States Department of Health Services, collected the data that ranked United States in the bottom fifty countries that provide quality care and education for children prior to Pre-Kindergarten. Early learning lacks educational standards that measures learning progress across the board. This becomes a significant factor in assessing effectiveness and value.

**Statement of the Problem**

Over eighty percent of children between the ages of 2 and 4 have used a mobile device for media activity. Young children are moving towards spending more time with electronic devices than with human interactions (Raz, 2015). The Federal Communications Commission chairperson, Newton Minnow, declared television a “vast
“wasteland” in 1961 when only ten percent of children engaged in screen time. This low percentage could be a direct reflection of only having three television networks and an allotted time for television programming. In contrast to modern day, technology and television are accessible 24 hours a day with a much wider array of selections. Screen time does not further a child’s cognitive development and therefore according to the National Association for the Education of Young Children (2012) should not be utilized more than thirty minutes a week.

On average, children from birth to 23 months old are watching 55 minutes of television a day and 2- to 4-year olds are watching 90 minutes a day (Lerner & Barr, 2014). This trend has impacted everyday learning, as over 90% of early childhood educators reported using computers during social interactions, curriculum or as a teaching tool with their students (NAEYC, 2015).

**Purpose of Study**

The purpose of this study was to determine the impact screen time has on the cognitive and social development of children between the ages of four to five years at one early childcare education center. The early childcare education serves 278 children in a suburban high income area located outside of Atlanta, Georgia. The significance of the study will help determine how the amount of screen time affects children’s cognitive and social development. Children involved in this study were observed during school operation hours. Parents also were able to distinguish the types of screen time based off
the child’s interactions and curriculum guidelines. The results of this study will help educational leaders determine how to effectively use technology for learning.

**Research Questions**

These questions were designed to fully understand and interpret home and classroom factors that affect cognitive development based on screen time in one early childhood education center.

RQ1- How many hours of screen time does a child average with electronic devices throughout the school day?

RQ2- What is the relationship between screen time and a child’s cognitive development as measure by the TS Gold test?

RQ3-To what extent is the use of electronic devices used as a tool to modify child behavior?

RQ4- What is the relationship between screen time and social interactions as measured by TS Gold?

RQ5- What value does teacher Early Childhood Education training place on using electronic devices?

RQ6- How many hours of screen time does a child average with electronic devices at home?
RQ7- What are the teacher perceptions of using the HATCH learning program at school as a supplemental tool?

**Significance of the Study**

During a time when facets of early childhood education is still being researched on its significant impact on primary education, there is a need to distinguish the already researched importance of education for children five and younger. Often called preschool, nursery school or daycare, early education is the educational program from infants until kindergarten.

According to the American Academy of Pediatrics, quality care at the early learning stage benefits children in multiple ways. Research shows that children benefit in the areas of socioemotional, speech, coordination and cognitive development the greatest, while attending a quality early education program. However, technology has become a preferred mean of learning, yet children cannot fully comprehend images on screens until two years of age (NAEYC, 2015). In present day, television and screens have become a fixed part of the world around adults and children. According to a PBS study in 2015, 74% of children under the age of 2 engage in regular television time.

A child’s brain is at its peak for learning at the young age of 3 years (Lipina, 2009). During this age, children are able to maximize the possibility of learning new things. In comparison studies, numerous early childhood education funded research began to delve deeper into the types of television for young children, as educational programming reached an all-time high. The National Association for the Education of
Young children coined the phrase “screen time” to define all intervals spent with electronic devices including televisions, phones and iPads as they are used commonly for young children.

With little research available that focuses on how screen time effects or will effect cognitive development of young children, this study will serve as a guide to identifying clear guidelines for screen time in early education. Additionally, it identifies implications for use of technology and screen time outside of school.

**Summary**

The use of electronics is increasing both in the classroom and home base. With 74% of children by the age of 2 engaging in regular screen time, limiting screen time in the classroom can become a challenge. The National Association for the Education of Young children restricts all its accredited centers to limit screen time in the classroom to 30 minutes a week. The more early childhood education centers change their curriculum and become accredited, the more the level of governance will become prevalent for a clear and concise regulation for screen time.
CHAPTER II

REVIEW OF THE LITERATURE

This chapter focuses on the review of current and previous literature regarding screen time, early childhood education and cognitive development. Beginning in 1993, researcher Chiam Keng conducted a study that examined cognitive development in preschool aged children over the course of ten years. Keng found that cognitive development progresses into five daily tasks for early learners.

Prior studies have researched the benefits of using technology as an educational tool and defined all time involving screens as “screen time”. More recent research has further explored the behavior and interaction of screen time categorizing it into two classifications, interactive and non-interactive screen time. Incorporating these themes into early childhood education as well as following the accreditation guideline is where childcare centers have left their curriculum up to discretion.

Cognitive Development

In examining cognitive development in preschool aged children in Malaysia, researcher Chiam Keng, found that preschool education helps classify cognitive development into five daily task; conservation, problem solving, classifications, seriation and reasoning (Keng, 1993).
These tasks can be found in academic activities such as shapes and colors. By completing these tasks, the children are displaying identification tools and labeling. Once these children were able to classify objects by shape and form, the educators used differentiated instruction to revamp the lesson to create a “seriation” task such as ordering the objects by length, quantity and weight.

The areas of development are the framework of cognitive maturation in preschool education. A total of 30,329 children were tested on the studies five tasks in order to determine their level of cognitive development. All of the participants included in the study were from different economic backgrounds, such as rural and urban.

According to Georgia’s Department of Early Childcare and Learning, cognitive development is the construction of thought processing. Cognitive development begins in childhood, but continues through adulthood including problem solving skills, decision making and memory. In early childhood education, cognitive development skills are broken into curriculum areas including critical thinking proficiency.

Cognitive development occurs in stages. For example, a two year old begins to understand the relationship between objects. Shape sorting and puzzles is a representation of critical thinking and thought processing. As the child ages, his development will continue to create logical and educational progressions. The goal of effective childhood development is to create individuals who will use their experiences as building blocks for learning.
Screen Time

Many studies on the impact of television viewing suggest potential harmful effects on children’s attention, learning, sleep and obesity (Lerner & Barr, 2014). It is often overlooked how much time children actually spend in front of the television, furthermore other types of technology devices. The average amount of time spent in front of computers, tablets and cell phones is increasing in younger children. Due to recent studies, many childcare centers have reduced the amount of time children spend in front of screens of any type including watching programs that are deemed educational.

According to the National Association for the Education of Young Children, children between the ages of one and three years should only have about thirty minutes a week of screen time. Children between the ages of three and five should only have about an hour screen time per week. Their hypothesis is that children who are exposed to more screen time will suffer from higher body mass index, delayed language development and critical thinking skills (2015).

Parent Discipline

Discipline, in reference to children, is defined as the process of teaching acceptable behavior. Parent discipline can be defined as the system of teaching rules to follow. Although this system is used in different facets, parent discipline has the same goal of creating an understanding of what is acceptable.

The American Mental Health Association describes parental discipline in three styles of parenting: permissive, authoritarian and authoritative. Discipline is important in
the lives of young children because teaching acceptable and nonacceptable actions is a daily theme for children from the beginning of their development. Psychoanalyst, Sigmund Freud, referenced discipline in children as a connection to anxiety in adults based on their childhood experiences (Brooks, 2011). There are several theories of appropriate types of discipline, the majority of which conclude that discipline should be geared towards the individual characteristics of the child.

**Interactive Screen time**

Interactive screen time requires a user to interact or influence the direction of the technology (Lipina, 2015). For example, a child engaged in a computer game is directing the technology as an activity. Therefore this would be deemed as interactive. In contrast, passive screen time only requires a user to observe and not engage in any way. Television is a prime example of passive technology.

Based upon the child’s age, input or direction given into a particular activity may not be feasible. The images on a screen cannot be grasped and essentially the program is not effective (Lipina, 2015). Young children benefit from one on one and group interactions, therefore making it an important educational experience. Interactive screen time can be a beneficial adjunct resource to learning.

**Summary**
Cognitive development is dependent on numerous factors of the classroom dynamics. Some researchers believe interactive time with electronic devices is effective learning and should not fall under the category of screen time. In contrast, other researchers believe development at the early childhood education level will increase based on new designs of programs focused on early learners. The overall goal of this study is to provide a base line indicator of how screen time can affect cognitive and social development.
CHAPTER III

THEORETICAL FRAMEWORK

The theoretical framework examines the factors that contribute or undercut cognitive development in preschool education. These factors contribute to the resources and learning in early childhood education. Models of early childhood education examine the factors and framework of how cognitive development contributes to primary school readiness. These models include educators that observe the surrounding context and its impact on children.

This section examines the perspective of the theoretical framework that was utilized to study the means and amount of screen time and its influence on cognitive and social development of children between the ages of four and five. There were two educational theories that were used to further study this topic. One of the theories of cognitive development was derived by theorist Jean Piaget. His theory supports the belief that childhood plays a vital role in development (Piaget, 1936). Piaget’s theory outlines how humans gradually come to attain, construct and use our mental processes. Jean Piaget’s theory examined how fundamental concepts of education emerged through math, science and other academic areas. The goal of Piaget’s theory was to explain how infants develop into thinking adults who reason and test theories using hypotheses. There are three components of Piaget’s Theory: 1. Adaption from one stage to another, 2) Stages of
development and 3) Schemas. Piaget defined schema as a repeated action that is cohesive to “building blocks” of intelligent behavior (Barrouille, 2015).

Years later in 1984, theorist David Kolb published his model of learning style. He stated, “Learning is the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38). This theory focuses on the learning cycle that comes from knowledge. According to Kolb, a child must observe and explore his/her surrounding through interaction that then creates learning. According to Kolb, the learning cycle breaks down to four stages: active experimentation, reflective observation, concrete experience and abstract conceptualization.

**Research Design**

This study used a mixed method approach in order to understand how screen time affects the cognitive and social development of children between the ages of four to five years through their teacher’s perception. An analysis concentrated on how the independent variable influences the dependent variables. The conducted interviews served as a guide to organize results, based on the participants’ answers. Each participant received the same questions that were centered on the studies focus. The parent interviews were conducted in the conference room of the early childhood education center over a week’s span. Teacher one-on-one interviews were also conducted over a week’s span after the state regulated Georgia Prekindergarten school day was complete. On average, the researcher spent three hours a day over two months observing and conducting the research. Each question was aligned with a corresponding research question in order to achieve validity.
Table 1

*Teacher and Parent Interview Data of Screen Time*

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<td>11/24/17</td>
<td>Parent</td>
<td>8</td>
</tr>
<tr>
<td>39</td>
<td>11/24/17</td>
<td>Parent</td>
<td>10</td>
</tr>
</tbody>
</table>
Definition of Variables and Terms

Dependent Variables:

**Cognitive Development** - Information processing, reasoning, language development and memory (NAEYC, 2015). Survey and Observation

Independent Variables:

**Screen time** - The total amount of time spent in front of any and all screens (Common Sense Media, 2013). Survey and Observation

**Parent discipline** - The training or practice of teaching a child how to obey rules and code of conduct. Survey

**Teacher training for Early Childhood Education** - Professional development obtained by staff that focuses on educating on the early learning stage. Survey

**Teacher Perception of electronic programs** - Teachers understanding of how any time spent on a computer, on a tablet, cell phone, etc. impacts the child's cognitive development. Survey

**HATCH Early Learning Program** - Technology tool geared towards creating thoughtful, innovative early learning solutions, fueled by research, so that every child is prepared for success in school. Survey and Observation

**Student Behavior during Screen Time** - Student engagement and behavior during technology based activities and programs. Observation
**Parent Engagement** - Parent engagement involves parents that work with school staff to improve and support the learning environment, development and overall health of the children.

**Appropriate School behavior** – Children follow classroom rules that outline asking permission, cooperating with classmates/group members, abiding by safety regulations, engaging in learning/play and follow directions.

**Parents use of technology tools at home** - Time children engage in technology based activities outside of their early learning center. (Survey and Advisory Group/ Small Group of Survey Parents)
Relationship of Variables

Cognitive Development

- Screen Time
- Parent Discipline
- Teacher Training for Early Childhood Education
- Teacher Perception of electronic programs
- HATCH early learning program
- Student Behavior during Screen Time
- Parent Engagement
- Appropriate School behavior
- Parents use of technology tools at home
Definition of Terms

**DECAL (Bright from the Start)** is the Georgia Department of Early Care and Learning that is in control of licensing child care centers to ensure all centers are meeting the needs of Georgia families.

**Early learners** are defined as preschool aged children between the ages of birth to five.

**Early childhood education center** is defined as the educational program that serves preschool aged children from six weeks to five.

**Early childhood education** is the branch of education that serves young children from infancy to prekindergarten.

**Parents** are defined as the guardian that has a preschool aged child enrolled in the early childhood education center

**NAEYC** is the National Association for the Education of Young Children. NAEYC is an early learning education accreditation non-profit association.

**Teachers** are defined as the instructors for the preschoolers currently working for the early childhood education center.

**Teaching Strategy Gold (TSG)** is a comprehensive assessment of curriculum and training for early childhood education. The program serves as an observation based assessment system to focus on academic achievement.
The World at their Fingertips is the curriculum guideline used in the early childhood education center that focuses on child development through creative learning.

Limitations of the Study

This study involves thirty four parents of prekindergarten children and six teachers from one early childhood education center. The following limitations were considered during the data collection and recommendations.

- Data was collected for only thirty four children, which limited conclusions of the study.
- Participants consisted of several coworkers of the researcher of the study.
- The researcher is an employee of the early education center used in the study.
- The responses collected were the perception of the teachers and parents for the children due to the age of the children.
- Participants may not have provided full disclosure while participating.

Assumptions

While conducting this study, the following assumptions were made:

1. The parents and teachers who volunteered to participate in this study served as representatives for students within the early childhood education center.
2. Participants responded without coaxing and with honesty.
3. The questions used in the survey instrument properly addressed factors that could affect cognitive and social development.

Summary
This study was conducted to identify perceptions associated with teacher perception of screen time. The selected theoretical framework helped examine the perception of home and classroom experiences in order to provide a better understanding of the independent variable. The correspondence between the research and theory allowed the researcher to analyze the data collected to define the association of factors contributing to screen time’s effect on cognitive and social development within one early childhood education center.
CHAPTER IV

RESEARCH METHODOLOGY

In 1999, the American Academy of Pediatrics recommended that parents avoid television viewing for young children. The stipulations were revisited in 2013 when parents were advised to avoid using screen with children younger than 2 years of age and limit total screen time for children ages 2 years and older. This recommendation is based upon the concern that parents will substitute watching for real world interactions. Interactions and social emotional relationships are defined in the framework of teaching young children in early childhood education.

On average, children between the ages of three and five years old are watching 90 minutes a day (Lerner & Barr, 2015). Overall, the time spent in front of a screen is not deemed intentional or appropriate based on its ineffective tool to support learning and cognitive development (NAEYC, 2015). Technology tools cannot replace “building blocks” for active play. The effectiveness of technology is based on how media is used and under which circumstances. Effective use of screens and technology must be hands on and empowering to a child. Technology should never be used in a way that is intimidating to children or harmful.
Screen time has been linked to disruptive cognitive processing indirectly from focusing on exploration and play. This same exposure has been found to be a risk for obesity in young children, due a reduction of physical activity connected to play and exploration. In 2012, a study showed results that infants exposed to television were linked to delayed language and kindergarten readiness skills (Siegler, DeLoaches & Eisenberg, 2003). Further, how does the effect of screen time continue throughout childhood development?

**Mixed Method Approach**

This research was conducted through a mixed method approach in which data was collected, then analyzed. The use of a mixed method approach is to gather data from parents and teachers through interviews and surveys in order to better understand how screen time affects cognitive and social development for prekindergarten children. The researcher collected data, conducted interviews, analyzed data, reported data results and utilized Likert scale surveys.

Research was not conducted until the researcher received approval from the Institutional Review Board of Clark Atlanta University and the instruments were revised based on the suggestions of the dissertation research committee. All items used for the research were created based on the review of literature. The parent and teacher surveys were developed and created for a gauge by the researcher.
Description of the Setting

The school in which the research was conducted is an early childhood education center in the Atlanta/suburban area. The center enrollment is exclusive to its onsite Fortune 500 corporation employees. The demographics of the center consist of 75% Caucasian American, 15% Foreign Internationals and less than 10% African Americans. The employees of the corporation on average have six figure income level salaries.

At full capacity, the center has 278 children and 100 staff members. Tuition at School A averages 1200 a month including the corporation’s recurrent subsidy. School A is also deemed a mega childcare center, based on its full time enrollment. Although the school serves as an onsite facility, parents are able to view their children live engaged in playtime or activities through an online phone application. They have full time access via technology to monitor their child’s progress throughout the day.

Sampling Procedures/Participants

All participants were students, parents and staff of School A. For the purpose of this study, thirty four student participants were selected based on age and enrollment. These children were required to be enrolled full time at the center which consists of approximately thirty hours spent onsite weekly. The staff selected for this study consisted of six out of ninety-three members. All teacher participants were between the ages of twenty one and forty-five. In order to be qualified for this study, the teacher participants were required to be an employee of School A for at least one year. Teacher participants have also signed the study agreement attached (Appendix C).
Data Methods

The data collection method required individual teacher interviews, observations, data log and parent interviews in order for the findings to be accurate based on the small sample. The data method focused on sampling teacher perception of how screen time affects their student’s cognitive and social development. In order to obtain valid outcomes, the study only included teachers that have been employed with School A for tenure of one to five years. The goal of the data method was to gain the most accurate findings.

Data Collection Procedures

The data collection was conducted during the Fall 2017 academic school year. The early childhood education center is a part of the Cobb County School system based on the three Georgia funded Prekindergarten classrooms. After approval from the center’s Executive Director, dissertation committee and Clark Atlanta University IRB, sixty six parents were contacted to participate in this study. Each parent was provided with a consent letter and survey. Instruments used and interview rules are located in the Appendices.

During a two month span observations were conducted. The researcher recorded screen time, once in guardian care, during pick up times through the center monitoring system. During departure times, the researcher recorded if the child participants were given any type of electronic device once signed out of care. The electronic devices included iPads, tablets, cellular phones or gaming devices.
Working with Human Subjects

Study participants were notified that their responses and interview documents were going to be collected to participate in research regarding cognitive development of young children. This research was conducted at an early childhood education center located in Atlanta, Georgia. The study surveys were distributed to current employees of School A. There were no risks or cost to participants of this study. All of the information collected is geared towards helping educators of early childhood education. No information given during the time of survey or interview influenced any participant’s employment.

Data Analysis

The studies data analysis includes: data coding, transcribing (Interview) and categorizing. Data coding is the identification of concepts and themes included in the data. These codes were then categorized based on the participants, whom they included. The categories consist of students, parents and staff.

Validity and Reliability

Instruments used to collect data for this study were approved by a professor in the Educational Leadership Department at Clark Atlanta University. The collected quantitative data were coded and analyzed using SPSS. Data collected for the purpose of this study were not altered, but were used as recorded. Collecting data from various members of the school body allowed the researcher to identify incipient themes in order
to establish reliability. To ensure validity, the researcher avoided persuading or encouraging any answers or replies.

**Summary**

This chapter consisted of the information regarding the methods and procedure used in data collection. By using the mixed method design, the study tested the independent factors: screen time, parent discipline, teacher training for early childhood education, teacher perception of electronic tools, Hatch early learning program, student behavior during screen time, parent engagement, appropriate school behavior and home electronic tools. Both the teacher and parent surveys were utilized as a data collection method. Credibility was practiced to ensure privacy and cogency of the study.
CHAPTER V

ANALYSIS OF THE DATA

Introduction

The purpose of this study was to examine the teacher’s perception of how screen time effects cognitive and social development of their prekindergarten aged students. The identified variables included cognitive development, screen time, parent discipline, HATCH learning program and parent engagement. The data collected provided evidence to an affiliation between the identified variables. Once the themes were established, a comprehensive analysis was performed by the researcher. The following information outlines the results of this analysis.

Background

The researcher sought to examine the teacher perception of how screen time effects the cognitive development of children between the ages of four and five at one early childhood education center. The researcher conducted 33 parent interviews, 6 teacher interviews and observations of the 33 children of the parent participants. All teacher participants have been affiliated with the early childhood education center for at least one year. The center hosts monthly parent partnership meetings to discuss early childhood education, child development, center happenings, Georgia licensing and
curriculum. As research delves deeper into effective quality learning tools for early learners, it is vital that child care centers meet student’s needs.

**Description of the Quantitative Data**

Parent surveys were given to a total of 62 parents during quarterly academic conferences. 34 surveys were returned to the conductor. During the interview phase, the researcher also conducted six teacher interviews where each participant was asked a total of 14 questions. Eight of the questions asked the teachers to give their opinion of screen time used in education and their classrooms using the Likert scale.

The intent of the teacher interview was a huge component in determining the level of satisfaction and effectiveness of screen time, as an educational tool. The research was conducted over a two month time frame during the outlined Georgia Prekindergarten day according to Department of Early Care and Learning regulations. The conductor used paper surveys and a recorder as tools throughout the research. Throughout the research analysis, the themes that became evident including parent discipline, amount of screen time and gender.

**Analysis of Interview Questions**

The responses from the parent and teacher interviews helped validate the questions used in this case study. The parent interviews consisted of parents from Prekindergarten classes 1, 2 and 3. The early childhood center has three Georgia funded Prekindergarten classes that are sectioned off by the NAEYC accreditation ratios of
twenty-two children to two teachers. In contrast, the teacher interviews consisted of all six teachers from the corresponding classrooms. The following table outlines the dates of the interviews and participants.

Results of the Qualitative Data Analysis

Teacher Perceptions of how Screen Time affects Cognitive development. Six research question were developed to examine the teacher perception of how electronic classroom tools and screen time affects cognitive development of children in their classroom. The results of the analysis are presented in this section.

RQ1: What is your level of satisfaction with the school’s screen time and policy?

According to responses from the teachers interviewed, they felt the limited time with the HATCH learning program and other electronic devices are important component of 21st century learning. However, the NAYEC regulation that limits the children to 30 minutes a week, five minutes per day, does not allow the children to fully engage in an activity. The repetitive theme from the teacher’s responses suggested the desire to see more electronic tools and interactive games be added to the allotted screen time daily for children in prekindergarten.

RQ5- What value does teacher Early Childhood Education training place on using electronic devices?
Teacher 1: I am satisfied with the rules and regulations of DECAL as they help outline the technology use in the classrooms versus the limited training directly about incorporating technology into the classroom.

Teacher 3: I am very satisfied with rules and regs [sic] of DECAL about technology, however incorporating technology to meet the expectations of our company, NAEYC and DECAL becomes a challenge.

Teacher 4: I am not satisfied with the way the technology training for using electronic tools in the classroom. The DECAL regulations have numerous clear and concise rules, yet we lack training on how to incorporate different technology into everyday lessons.

Teacher 5: I am not satisfied with the overall training for technology in early childhood education. The accrediting institution for our program includes a lot of “cannot” versus how to stimulate children involved in technology heavy society.

RQ7- What are the teacher perceptions of using the HATCH learning program at school as a supplemental tool?

Teacher 2: I believe technology enhances the learning environment. HATCH keeps the children engaged. However, the limited time creates the children to often become very frustrated.

Teacher 3: I do not think technology impacts children’s learning a lot at this age. Social emotional development is heavy impactor and that cannot be achieved with technology
based teaching tools only. Limiting technology use is a huge benefit of school considering technology is often the replacement of social interactions at home.

Teacher 6: Technology programs such as HATCH are a great supplemental tool for learning. In order for students to truly learn we must limit learning with an electronic device because it does not provide the social interactions or emotion support that is imperative on the early education level.

**Results of the Quantitative Data Analysis**

**RQ1- How many hours of screen time does a child average with electronic devices throughout the school day?**

On average children in the study spend approximately 63 minutes per day ($M = 62.94$, $SD = 13.99$). The range of on screen time varies between 30 and 80 minutes per day. (see Table 3).

The researcher also compared screen time between boys and girls in the sample (see Table 4). Boys ($M = 65.28$, $SD = 14.50$) appear to spend more time with electronic devices throughout the school day than girls do ($M = 60.31$, $SD = 13.35$).
### Table 2

**Descriptive Statistics for Total Screen Time – All Children**

<table>
<thead>
<tr>
<th>Total Screen Time</th>
<th>Statistic</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>62.94</td>
</tr>
</tbody>
</table>
|                   | 95% Confidence Interval for Mean | 58.06 | \[
|                   | Lower Bound   | 58.06          |               |
|                   | Upper Bound   | 67.82          |               |
|                   | 5% Trimmed Mean | 63.32        |               |
|                   | Median        | 65.00          |               |
|                   | Variance      | 195.63         |               |
|                   | Std. Deviation| 13.99          |               |
|                   | Minimum       | 30.00          |               |
|                   | Maximum       | 85.00          |               |
|                   | Range         | 55.00          |               |
|                   | Interquartile Range | 16.25        |               |
|                   | Skewness      | -.31           | .40            |
|                   | Kurtosis      | -.41           | .79            |
### Descriptive Statistics for Total Screen Time by Gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Statistic</th>
<th>Mean</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total Screen Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f</td>
<td>60.31</td>
<td>3.34</td>
</tr>
<tr>
<td></td>
<td>95% Confidence Interval for Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower Bound</td>
<td>53.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Bound</td>
<td>67.43</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5% Trimmed Mean</td>
<td>60.07</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>57.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variance</td>
<td>178.23</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>13.35</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>40.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>85.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>45.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interquartile Range</td>
<td>13.75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skewness</td>
<td>.36</td>
<td>.56</td>
</tr>
<tr>
<td></td>
<td>Kurtosis</td>
<td>-.07</td>
<td>1.09</td>
</tr>
<tr>
<td></td>
<td>m</td>
<td>65.28</td>
<td>3.42</td>
</tr>
<tr>
<td></td>
<td>95% Confidence Interval for Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lower Bound</td>
<td>58.07</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upper Bound</td>
<td>72.49</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5% Trimmed Mean</td>
<td>66.14</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Median</td>
<td>70.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Variance</td>
<td>210.21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>14.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimum</td>
<td>30.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum</td>
<td>85.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Range</td>
<td>55.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interquartile Range</td>
<td>22.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skewness</td>
<td>-.89</td>
<td>.54</td>
</tr>
<tr>
<td></td>
<td>Kurtosis</td>
<td>.47</td>
<td>1.04</td>
</tr>
</tbody>
</table>

**RQ2** - What is the relationship between screen time and a child’s cognitive development as measured by the TS Gold Cognitive Scale?
A Pearson correlation coefficient was calculated to determine whether there is a significant correlation between screen time and child’s cognitive development (see Table 1). Screen time was measured in minutes per day, while the child’s cognitive development was assessed using the Cognitive Development scale of the TS Gold test. The results indicate that there is no significant relationship between the two variables, \( r(34) = -.17, p = .326 \).

Table 4

Correlation between Total Screen Time and TSG Cognitive Score

<table>
<thead>
<tr>
<th></th>
<th>Total Screen Time</th>
<th>TSG Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Screen Time</strong></td>
<td><strong>Pearson Correlation</strong></td>
<td><strong>1.00</strong></td>
</tr>
<tr>
<td><strong>Significance (2-tailed)</strong></td>
<td><strong>34</strong></td>
<td><strong>34</strong></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>34</td>
<td>34</td>
</tr>
<tr>
<td><strong>TSG Cognitive</strong></td>
<td><strong>Pearson Correlation</strong></td>
<td><strong>-.17</strong></td>
</tr>
<tr>
<td><strong>Significance (2-tailed)</strong></td>
<td><strong>.326</strong></td>
<td><strong>34</strong></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>34</td>
<td>34</td>
</tr>
</tbody>
</table>

RQ3-To what extent is the use of electronic devices used as a tool to modify child behavior?
Overall, 65% of the parents in this study indicated in the Parents Survey that they used electronic devices as a reward for ensuring discipline. Parents of boys are more likely than parents of girls to use electronic devices as reward for discipline (67% compared to 63%). However, the results of a Chi-Square test indicate that this difference is not statistically significant (\( \chi^2(2, n=34) = .80, p = .800 \)).

Table 5

Use of Electronic Devices as a tool by Child’s Gender

<table>
<thead>
<tr>
<th>Reward</th>
<th>Gender</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>f</td>
<td>m</td>
</tr>
<tr>
<td>No Use</td>
<td></td>
<td>6.00</td>
<td>6.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37.50%</td>
<td>33.33%</td>
</tr>
<tr>
<td>Use</td>
<td></td>
<td>10.00</td>
<td>12.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>62.50%</td>
<td>66.67%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>16.00</td>
<td>18.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Table 6

Use of Electronic Devices as a tool by Child’s Gender: Chi Square Results

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
<th>df</th>
<th>Asymp. Sig. (2-tailed)</th>
<th>Exact Significance (2-tailed)</th>
<th>Exact Significance (1-tailed)</th>
</tr>
</thead>
</table>
RQ4- What is the relationship between screen time and social interactions as measured by the TS Gold Social Scale?

A Pearson correlation coefficient was calculated to determine whether there is a significant correlation between screen time and child’s social interactions (see Table 1). Screen time was measured in minutes per day while the child’s social interactions was assessed using the Social Emotional scale of the TS Gold test. The results indicate that there is no significant relationship between the two variables, \( r(34) = .07, p = .706 \). This correlation coefficient was also not statistically significant, \( r (34) = .07, p = .706 \).

Table 7

<table>
<thead>
<tr>
<th></th>
<th>Total Screen Time</th>
<th>TSG Social</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pearson Chi-Square</strong></td>
<td>.06</td>
<td>.800</td>
</tr>
<tr>
<td><strong>Likelihood Ratio</strong></td>
<td>.06</td>
<td>.800</td>
</tr>
<tr>
<td><strong>Fisher's Exact Test</strong></td>
<td></td>
<td>1.000</td>
</tr>
<tr>
<td><strong>Continuity Correction</strong></td>
<td>.00</td>
<td>1.000</td>
</tr>
<tr>
<td><strong>N of Valid Cases</strong></td>
<td>34</td>
<td></td>
</tr>
</tbody>
</table>
### RQ6- What are the parent perceptions of using the HATCH learning program at school as a supplemental tool?

Parent perceptions regarding the use of the HATCH software at school were measured across seven items in the Parent Survey:

1. Electronic tools are beneficial as an education tool?
   - a. Strongly Agree
   - b. Agree
   - c. Disagree
   - d. Strongly Disagree

2. I am familiar with the NAEYC screen time policy and implement it in my classroom?
   - a. Strongly Agree
   - b. Agree
   - c. Disagree
   - d. Strongly Disagree

3. I agree with the school’s policy on electronic devices used in the classroom?
   - a. Strongly Agree
   - b. Agree
   - c. Disagree
   - d. Strongly Disagree

4. I am satisfied with the educational activities incorporated in Georgia Prek curriculum through screen time?

<table>
<thead>
<tr>
<th>Total Screen Time</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.00</td>
<td>.706</td>
<td>34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TSG Social</th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.07</td>
<td>.706</td>
<td>34</td>
</tr>
</tbody>
</table>
5. I am satisfied with the quality of learning at LAA?
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

6. I am satisfied with the quality of teaching at LAA?
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

7. I believe the teachers of LAA are well trained on incorporating electronic tools into the classroom?
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

For each question, the researcher examined the percentage of responses “Agree” and “Strongly Agree” as well as the average rating (see Table 7). Overall, there was strong agreement with each of the seven items as the percentage of agreement ranges from 94% for item 1 to 100% for items 3 through 7. One exception from these high levels of agreement is item 2 of the questionnaire, where only 38% of the respondents indicated agreement (I am familiar with the NAEYC screen time policy and implement it in my classroom?). The response ratings for the parent questionnaire items ranged from 2.26 (item 2) to 3.79 (item 6). With the exception of item 2, all average ratings were above 3.50, indicating again strong agreement.

Table 8

*Descriptive Statistics for Parent Survey Items*
<table>
<thead>
<tr>
<th>Question</th>
<th>% Agree and Strongly Agree</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic tools are beneficial as an education tool?</td>
<td>94%</td>
<td>3.47</td>
<td>.71</td>
<td>34</td>
</tr>
<tr>
<td>I am familiar with the NAEYC screen time policy and implement it in my classroom</td>
<td>38%</td>
<td>2.26</td>
<td>.83</td>
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<td>100%</td>
<td>3.71</td>
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When asked about (Electronic tools are beneficial as an education tool?) 56% of the parents surveyed indicated that they strongly agree with this statement and 38% indicated that they agree. The average rating for this question was 3.47.

**Summary**
The analysis of the data collected during this case study justified the independent variables of screen time, parent discipline, teacher training for Early Childhood Education, teacher perception of electronic programs, HATCH early learning program, student behavior during screen time, parent engagement, appropriate school behavior and parent use of technology tools at home. The researcher was able to conduct child observations over the course of a month, 6 teacher interviews and survey 39 participants (6 teachers and 34 parents). The reoccurring themes that emerged from the case study include parent discipline, screen time, parent engagement and teacher training for early childhood education. Overall, this chapter displayed the research strategies used during data collection endorsed the relationship to the research questions.
CHAPTER VI

FINDINGS, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

Purpose of the Study

This chapter focuses on the major findings from the case study that focused on the impact of electronic screen time on prekindergarten students enrolled in one suburban early childhood daycare center. The dependent variable for this study was cognitive development and independent variables were screen time, parent discipline, teacher training, teacher perception of electronic programs, HATCH early learning program, student behavior during screen time, parent engagement, appropriate school behavior, and parent use of technology tools at home.

The purpose of this chapter is to disclose the findings, implications and recommendations based on the study conducted. After analyzing the data, the researcher was able to establish parent discipline, screen time, parent engagement and teacher training for early childhood education as major themes in the student’s development. This chapter outlines the major findings and the conclusion was highly based on parent and teacher satisfaction.
Findings

The researcher collected data from numerous participants. The data collection method included observations of all three Prekindergarten classrooms during academic choice center time. During the forty-five minute choice time, the children were able to utilize an activity selection system of the curriculum centers around the classroom.

The second method of data collection included surveying 6 teachers and 34 parents. Throughout the course of the study, common themes occurred related to the research questions.

RQ1: What is your level of satisfaction with the school’s screen time and electronic device policy?

- Teachers were overall satisfied with the school’s policy on electronic devices and screen time. Their training included regulations detailing how electronic devices were to be used as instructional tools, which clearly defined a specific amount of daily screen time for pre-kindergarten.

- During the interviews, six out of five teachers stated that five to six minutes a day using the HATCH program is sufficient.

RQ2: How do you feel screen time has impacted student performance?

- Four of the teachers surveyed stated they believed screen time limits students communication and social interactions. They were adamant that electronic tools assist with comprehension of some concepts.
• One teacher stated screen time affects the overall diversity of activities for the students to engage in screen time. Allowing students to learn in different ways.

**RQ5: What value does Early Childhood Training have on teacher performance in the classroom?**

• Early Childhood training from DECAL did provide direction for teachers in the program. Teachers generally agreed that the training was helpful.

**RQ 6 -7: These research questions focused on the effectiveness of the HATCH Screen Time instructional program from both the teachers’ and parents’ perception.**

• Both the teachers and parents were in agreement as to the effectiveness of the HATCH instructional screen time program. They 94-100% generally agreed that the content was age appropriate, as well as the screen time. Some teachers felt that amount of time allotted was sometimes frustrating to the children, as they desired additional time.

**Limitations**

The following limitations occurred during data collection.

• The case study took place in only one early childhood education center.

• The researcher only collected data from a small number of parents of said early childhood education center.
• The researcher could have provided more detail in screen time policies, as it relates to the interview questions.
• The researcher is an employee of the early childhood education.

Although there a few limitations, the researcher believes these factors did not in any way affect the findings of the study.

Recommendations

Recommendations for School Leaders:

• The school leaders should encourage parents to attend monthly parent representative meetings to learn more about the impact of technology tools on children during their early developmental stages.

• School leaders should provide teacher and parent trainings on the HATCH learning program as an instructional strategy that has been implemented successfully for early childhood by trained teachers in the profession.

• School leaders should provide professional development opportunities with hands on training for incorporating innovative educational tools to impact the learning outcomes of children in early childhood programs.

Recommendation for Teachers:

• Teachers should utilize resources of early childhood educational training on technology and the impact on children in their early stages of learning.
• Teachers should ensure and monitor screen time activities to ensure that they are interactive for learning purposes when working with students.

• Teachers must stay abreast of research that focuses on early learner’s cognitive and social development.

Recommendations for Parents:

• Parents should not replace social interactions with technology and therefore should be mindful of the amount of screen time activities for their children in their formative years of growth.

• Create a list of interactive screen time activities that serve as educational tools and use them to supplement parent instructional engagement strategies.

• Parents should attend onsite trainings for early childhood education development in the use and selection of positive technology tools and instructional applications.

Recommendations for Future Research

Further research should be conducted to determine the affect screen time has on the development of preschool aged children beginning at two years of age. The impact screen time has on early learner’s development should be compared from both the social emotional aspect and cognitively. Further research can be conducted to determine the different types of screen time and how effective these activities are for learning. The following themes are additional suggestions for research conductors determining screen time effects on cognitive development:
• Examine how early childhood educators need continuous professional development opportunities in order to provide quality learning with electronic tools.

• Conduct research with controlled experimental designs on early childhood use of technology and the impact on social and cognitive growth.

• Conduct the current research on a larger scale with a large sample size and over a vast span of time.

• Study quality of the types of screen time for early childhood education and the impact of early childhood development.

• Determine how early childhood education accreditation programs can effectively improve early learning curriculum by infusing instructional technology.

**Conclusion**

Due to the commitment to learning and adherence of rules and regulations at the early childhood education center, the school is an example of creating quality care for preschool aged children. This study was able to influence school leaders, parents, teachers and children by outlining the impact cognitive development has on overall student learning. The reemerging themes of parent discipline, amount of screen time, parent engagement, teacher training and gender indicate that the school must take these factors into consideration while outlining curriculum and educational tools.

Taking this research into consideration is important for stakeholders of the early childhood education field. Educating early learners includes taking into consideration
how society affects education. Technology and screen time have increased in daily use both in school and homes. Knowing how and the amount of screen time should be incorporated into early education is beneficial to the stakeholders of this community. Success of early childhood education is the beginning of creating a valuable public education realm.
APPENDIX A

Parent Questionnaire Results

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APPENDIX B

Parent Questionnaire

The purpose of this survey is to examine the parent’s perception of how screen time impacts cognitive development on the prekindergarten level. Your involvement in this study will provide helpful information to Early Childhood Education leaders and administrators. Your identity will be anonymous.

Directions: Answer the following questions by selecting the response that best answers the question.

1. Electronic Tools are beneficial as an education tool?
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

2. I am familiar with the NAEYC screen time policy and implement it in my classroom?
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

3. I agree with the school’s policy on electronic devices used in the classroom?
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree
4. I am satisfied with the educational activities incorporated in Georgia Prek curriculum through screen time?
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

5. I am satisfied with the quality of learning at LAA?
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

6. I am satisfied with the quality of teaching at LAA?
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

7. I believe the teachers of LAA are well trained on incorporating electronic tools into the classroom?
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree
APPENDIX C

Teacher Interview Questions

The purpose of this survey is to examine the teacher’s perception of how screen time impacts cognitive development on the prekindergarten level. Your involvement in this study will provide helpful information to Early Childhood Education leaders and administrators. Your identity will be anonymous.

Directions: Answer the following questions by selecting the response that best answers the question.

1. Electronic tools are beneficial as an education tool.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

2. I am familiar with the NAEYC screen time policy and implement it in my classroom.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

3. I agree with the school’s policy on electronic devices used in the classroom.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree
4. I am satisfied with the educational activities incorporated in Georgia Prek curriculum through screen time.

a. Strongly Agree      b. Agree       c. Disagree       d. Strongly Disagree

5. I am satisfied with the quality of learning at LAA.

a. Strongly Agree      b. Agree       c. Disagree       d. Strongly Disagree

6. I am satisfied with the quality of teaching at LAA.

a. Strongly Agree      b. Agree       c. Disagree       d. Strongly Disagree

7. I believe the teachers of LAA are well trained on incorporating electronic tools into the classroom.

a. Strongly Agree      b. Agree       c. Disagree       d. Strongly Disagree

8. I am satisfied with my classroom’s parent involvement.

a. Strongly Agree      b. Agree       c. Disagree       d. Strongly Disagree
APPENDIX D

Teacher Interview Questions (Personal Interviews)

1. What is your level of satisfaction with the school’s screen time and electronic device policy?

2. How do you feel screen time has impacted student performance?

3. What is your level of satisfaction with the school’s training on incorporating technology into the curriculum?

4. What is your level of satisfaction with the rules and regulations of DECAL that outline technology use in the classroom?

5. What is your level of satisfaction with parent involvement and how do you think it affects child development of your students?

6. What is your level of satisfaction with limited screen time at school and how do you feel it had impacted student learning?
APPENDIX E

Parent Informed Consent

Clark Atlanta University
Department of Educational Leadership

A Case Study of Teacher Perception of how Screen Time affects Cognitive Development of children between the ages of four and five at one school.

You are being invited to participate in a research study conducted by Angelique Thomas, a doctoral student in the Department of Educational Leadership at Clark Atlanta University.

Your participation will involve the completion of the attached survey. You are one among many parents, teachers, and administrators asked to participate. By completing the survey you acknowledging the following:

• I understand my participation is voluntary.

• I understand there are no risks involved.

• I understand that participation will not have an impact on my child's enrollment or education, and there will be no consequences for not participating.

• I understand that I will not be compensated for participation.

Please sign and return this letter and survey to your child’s classroom teacher. If you have any questions regarding this study, please contact me (Angelique Thomas) at 504-261-6335 or by e-mail at angeliquethomas08@gmail.com. You can also contact my dissertation chairperson, Dr. Barbara Hill at 404-880-6015 or e-mail BHill@cau.edu.
Dear Clark Atlanta University Review Board:

The purpose of this letter is to inform you that I give Angelique Thomas permission to conduct the research titled A Case Study of Teacher Perception of how Screen Time affects Cognitive Development of children between the ages of three and five at Little Apron Academy. Angelique has permission to observe classes starting the 10th day of July until the 31st day of December 2017.

Kimiko Johnson,
Executive Director
APPENDIX G

Institutional Review Board Approval

CLARK ATLANTA UNIVERSITY
Institutional Review Board
Office of Sponsored Programs

November 10, 2017

Ms. Angolique Thomas <angoliquethomas03@gmail.com>
Educational Leadership Department
School of Education
318 Clement Hall
Clark Atlanta University
Atlanta, GA 30314

RE: A Case Study of Teacher Perception of how Screen Time affects Cognitive Development of children between the ages of four and five.

Principal Investigator(s): Angolique Thomas

Human Subjects Code Number: HR2017-10-752-1

Dear Ms. Thomas:
The Human Subjects Committee of the Institutional Review Board (IRB) has reviewed your protocol and approved of it as exempt in accordance with 45 CFR 46.101(b)(2).

Your Protocol Approval Code is HR2017-10-752-11A

Type of Review: Expedited

This permit will expire on November 10, 2018. Thereafter, continued approval is contingent upon the annual submission of a renewal form to this office.

The CAU IRB acknowledges your timely completion of the CITI IRB Training in Protection of Human Subjects—"Social and Behavioral Sciences Track".

Your CITI certification expires on October 10, 2019.

If you have any questions, please contact the IRB Office or Dr. Paul I. Musey, (404) 680-6337.

Sincerely:

Paul I. Musey, Ph.D.
Chair, IRB
Human Subjects Committee

223 James P. Bricey Drive, S.W. * ATLANTA, GA 30314-4391 * (404) 880-8000

Touche in 1868 by consolidation of Atlanta University, 1881 and Clark College, 1888

64
REFERENCES


*Developmental Review*, 38, 1-12.


