Instructional Technology Usage in Early Learning Environments: The Influence on Environmental Access, Training, Parental Use and Education

Nadia J. Jones

Clark Atlanta University, nadia.payne@students.cau.edu

Follow this and additional works at: http://digitalcommons.auctr.edu/cauetds

Part of the Curriculum and Instruction Commons, Other Teacher Education and Professional Development Commons, and the Pre-Elementary, Early Childhood, Kindergarten Teacher Education Commons

Recommended Citation

The life of a child has completely transitioned from analogue to digital in the past 20 years. The use of digital devices and media has tripled among children between the ages of 0-8 years old since 2011. With the increasing amount of internet access in places that children and families frequent, it is almost impossible to go anywhere without the Wi-Fi access information being made available to consumers to enjoy while they patronize the business. Educators are in a unique position to find creative ways to incorporate technology into their instruction; however, this nuance is not without its challenges. Many early learning programs have not incorporated technology into their programs for a variety of reasons such as, but not limited to: lack of funding, fear, and the belief that it is not developmentally appropriate. The National Association for the Education of Young Children (NAEYC) and The Fred Rogers Center drafted a joint statement that provided a framework for early childhood educators to use as they
introduced technology and digital media into their learning environments. The researcher of this study conducted a mixed methods study with three diverse early learning programs in the southeastern part of the United States. After examining the aforementioned variables, the researcher found there to be no difference in the technology usage rate among the three schools. The findings also indicated that two out of the three schools were better equipped than the other with technology and access to digital media. Despite several of the survey participants having said that they had not received training on how to use digital devices for instructional purposes, an overwhelming 92% of them admitted to using technology for daily task completion. The researcher was not able to collect sufficient data to answer the question about parental influence. However, the researcher has identified this variable as an area for future research and believes that further examination will yield thought-provoking results regarding parental influence.
INSTRUCTIONAL TECHNOLOGY USAGE IN EARLY LEARNING ENVIRONMENTS: THE INFLUENCE ON ENVIRONMENTAL ACCESS, TRAINING, PARENTAL USE, AND EDUCATION

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

BY

NADIA J. JONES

DEPARTMENT OF EDUCATIONAL LEADERSHIP

ATLANTA, GEORGIA

JULY 2015
ACKNOWLEDGMENTS

This dissertation is dedicated to my amazing family who believed in me, even when I did not believe in myself. Thank you for pushing me and never giving up on me as I pursued this degree to become the first person in our family to earn a doctoral degree. I love you and I hope that I have made you proud. Lastly, I want to thank my guardian angels, Rev. Dr. B. J. Wilcher and Vivian Brooks; we did it.

This process has been very long, but I have learned a great deal about myself and I have the Education Leadership Department to thank for that. I would like to thank my dissertation committee: Dr. Barbara Hill, Dr. Trevor Turner, and Dr. Darrell Groves. I sincerely appreciate all of the encouragement and support that you have given me as I matriculated through this program. The experience that I have gained over the past 4 years is exactly why I wanted to attend an HBCU to earn my doctoral degree. I would also like to thank Mrs. Betty Cooke because, had it not been for her positive and supportive disposition when I called the department to inquire, I would have never had the courage to apply. I am proud to be a Clark Atlanta University Panther and love to see the look on people’s faces when I tell them I am pursuing a doctoral degree at CAU. The looks on their faces are not of disappointment but of excitement to learn more since many of them have no idea HBCUs offer doctoral degrees. Lastly, I would like to thank Clark Atlanta University for investing and believing in me. I promise to be an active alumnus and help others “Find a Way of Make One.” Go Panthers.
# TABLE OF CONTENTS

ACKNOWLEDGMENTS ........................................................................................................ iii

LIST OF FIGURES ........................................................................................................ vi

LIST OF TABLES .......................................................................................................... vii

CHAPTER

I. INTRODUCTION ........................................................................................................... 1
   Statement of the Problem .......................................................................................... 3
   Purpose of the Study ............................................................................................... 4
   Research Questions ............................................................................................... 6
   Significance of the Study .............................................................. .......................... 7
   Summary ............................................................................................................... 7

II. REVIEW OF THE LITERATURE ........................................................................... 9
   Instructional Technology Usage ........................................................................... 9
   Environmental Access ......................................................................................... 10
   Teacher Training ................................................................................................. 14
   Parental Influence ............................................................................................... 16
   Summary ............................................................................................................... 17

III. THEORETICAL FRAMEWORK ........................................................................... 18
   Research Design ................................................................................................. 18
   Theory of Variables .......................................................................................... 18
   Definition of Variables and Other Terms ......................................................... 21
   Limitations of the Study ................................................................................. 24
   Summary ............................................................................................................. 24
IV. RESEARCH METHODOLOGY

Research Design

Description of the Setting

Sampling Procedures

Working with Human Subjects

Instrumentation

Participants/Location of Research

Data Collection Procedures

Application (Quantitative)

Description of Data Analysis Methods (Qualitative)

Summary

V. ANALYSIS OF THE DATA

Introduction

Quantitative Data Analysis

Qualitative Data Analysis

Summary

VI. FINDINGS, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

Findings

Conclusions and Implications

Recommendations for Administrators and Teachers

Limitations
LIST OF FIGURES

Figure 1. Internet Access of Students in Grades 3-12 from Title 1 and Non-Title 1 Schools, 2014 .................................................................14

Figure 2. Relationship among the Variables ................................................................24

Figure 3. Emergent Themes .........................................................................................47
LIST OF TABLES

Table 1. Internet and Mobile Media Access, by Income, 2013 .....................................12

Table 2. Access to and Use of Mobile Media among Lower-Income Families, Over Time ........................................................................................13

Table 3. Age of Participants ..........................................................................................37

Table 4. Ethnicity of Participants...................................................................................37

Table 5. Teaching Experience of Participants ...............................................................38

Table 6. Correlations: Data Analysis ............................................................................39

Table 7. Instructional Use of Technology by Ethnicity.................................................40

Table 8. Instructional Use of Technology by Age .........................................................41

Table 9. Instructional Use of Technology by Years of Experience ...............................41

Table 10. Instructional Use of Technology by School..................................................43
CHAPTER I
INTRODUCTION

The sounds of the world have changed. The new sounds are electronic in nature. All around us, we hear various ring tones, beeps, bells, and even whistles indicating incoming messages of some type. These message alerts are created to keep us informed of emails, text messages, meeting alerts, appointments, and other important daily activities of which we need to keep track. The newest Apple and Android phones all keep track of the weather, receipts, bank account information, and can pay for products and services that are purchased, eliminating the need to exchange currency.

A study conducted by the Kaiser Family Foundation (2010) revealed that children spend 7.5 hours per day using entertainment media on digital devices. Technology is used to conduct meetings, conferences, and court proceedings which in years prior were never done in that way. The analogue world is becoming a thing of the past and digital applications are replacing personal reminders and human interaction. These are but a few of the ways in which technology is used to help us manage our responsibilities, but it is obvious that technology is here to stay (Simon & Nemeth, 2012).

This study examines three schools from three very different demographics. One of the schools is private, another is public, and the last school being examined is located in a homeless shelter. There are roughly 2,000 days between the time a child is born and their first day of kindergarten. When children have access to high quality early childhood
education, graduation rates increase by as much as 44% (First 2000 Days, 2013). In 1962, the High-Scope-Perry Preschool Study observed 123 African-American children who were born in poverty. Some of these children were exposed to high quality early childhood education while others were not. Researchers observed the children over time and later conducted interviews with them as adults at age 40. The group that was placed in high quality early learning environments had lower arrest rates, earned higher salaries, and yielded higher graduation rates (Belfield, Barrett, Montie, Norris, Schweinhart, et al., 2005). This groundbreaking research primed the field to address one of the hottest topics in early childhood education: technology.

Early childhood educators agree that technology integration is important; however, it is not widely used in the classrooms (Fred Rogers Center for Early Learning and Children’s Media, 2012). The most common forms of technology utilized in early learning environments are digital cameras and computers according to a 2012 survey conducted by the Fred Rogers Center. Digital cameras have been particularly useful for teachers to depict children’s social-emotional development over time. Survey participants with digital access also report using whiteboards and computers as tools to enhance curriculum instruction. Some programs have begun to explore the use of digital media to communicate with parents rather than the traditional hand-written daily progress note. This may seem like an obvious progression, but early learning environments have been a lot slower to move into the digital age.
Statement of the Problem

Many children are indeed fascinated by technology and in some cases prefer digital devices over other more interactive learning activities, but at what cost? There are a variety of technological devices being used by children in early learning environments, but the best practices are not as plentiful. Although some early childhood educators are aware that technology is here to stay, it is not widely used due to a lack of technical assistance and access (Fred Rogers Center, 2013). The fear and resistance that change often incites can be challenging for teachers and administrators alike (Simon & Nemeth, 2012).

Access to computers spiked in the 1970s and more and more people had begun to use them in various businesses, schools, and institutions (Donahue, 2003). Many educators struggled with identifying ways to use computers in their classrooms while making sure their lessons were still developmentally appropriate. Now, it is not uncommon to find computers in classrooms, nor is it uncommon to find smartphones or tablets in the hands of very small children. There is even educational software that accompanies children’s textbooks allowing them to access additional lessons on a website or compact disc (CD). Despite the variety of educational software available for children, Simon and Nemeth’s (2012) study research indicated that much of it seemed to lack opportunities for interaction, focused on rote memorization, and very few seemed to encourage divergent thinking and higher order thinking skills. Although some early childhood educators see the value in instructional technology, many are not convinced that it is developmentally appropriate for young children.
Simon and Nemeth’s (2012) study noted that the inappropriate use of the technology by the teacher is the reason children are fidgety and uninspired: “. . . the problem was not necessarily the use of the interactive whiteboard technology; the problem was that the teacher’s use of interactive whiteboards was just a replication of traditional didactic and boring practices, using technology as the medium” (p. 19). Therefore, it is necessary to examine what influences the ways in which teachers use technology for instructional purposes compared to technology being used as a behavior modification tool.

In 2012, the National Association for the Education of Young Children (NAEYC) released a joint statement with the Fred Rogers Center that provided the field with technology implementation and usage best practices for the first time. The release of this joint statement has elevated the expectations for educators of young children to be “digitally-literate-technology-mediators” (Simon & Nemeth, 2012, p. 9). Educators will also need access to additional training and equipment in order to successfully implement technology into early learning environments. The question is not if we use technology, but how and why we use technology to improve program quality in early childhood environments (Donohue, 2003).

**Purpose of the Study**

Early childhood education has evolved from bottles and babysitting to high-tech, high-quality early learning environments. Gone are the days of preschool teachers being employed with little to no credentials or training. In the state of Georgia, the minimum education requirement for a teacher at this level is a Child Development Associates.
Degree (CDA). Employees who aspire to hold any leadership position such as, but not
limited to, Instructional Lead Teacher, Assistant Director, or Director, need to have at
least an associate’s degree, but preferably a bachelor’s degree (Department of Early Care
and Learning [DECAL], 2014). The minimal training requirements for teachers have long
been a topic of discussion in early learning environments. In order for program staff to be
compliant with the Department of Early Care and Learning’s professional development
standards, the teachers must only complete 10 hours of training each year, none of which
are focused on technology integration (DECAL, 2014).

Twenty-first century learners or digital natives as they are being called, are
entering preschool with a wealth of knowledge about technology. It is very common to
still see children coloring and reading books, except now these traditional past-times are
performed digitally. Children are swiping textbooks and tapping every screen they come
across, because that is what they are used to. Sarah Jackson of Common Sense Media
found that teachers of young children who have so much access to technology are fearful
that this overexposure will diminish the experiential learning opportunities and
interaction with caregivers (Common Sense Media, 2013). The American Academy of
Pediatrics (AAP) still recommends no screen-time for children under the age of 2 years
old and modified their statement in 2011 to distinguish between active and passive media
(Simon & Nemeth, 2012).

The purpose of this study was to identify the ways in which instructional
technology was being utilized in early learning environments while informing early
childhood educators about ways to intentionally incorporate technology into their
programs and classrooms. Instructional technology usage is the dependent variable that will be studied while examining the independent variables of environmental access, teacher education, teacher training, and parental influence. The researcher will examine how teachers and parents influence children’s technology usage.

**Research Questions**

RQ1: Is there a significant relationship between instructional technology usage and the type of formal training a teacher received?

RQ2: Is there a significant difference between instructional technology usage in the early learning setting and the environmental access that a teacher has to technology?

RQ3: Is there a significant difference between a teacher’s personal use of technology and their instructional technology usage at school?

RQ4: Does the technology usage of parents affect their child’s usage of technology in the classroom?

RQ5: Is there a significant relationship between a teacher’s technology usage and student instructional engagement?

RQ6: Is there a significant relationship between a teacher’s use of instructional technology and student use of technology?

RQ7: Is there a significant relationship between a teacher’s technology usage to support curriculum instruction and its use as a behavior modification tool?
Significance of the Study

The findings in this study will add to the growing body of research being developed about instructional technology usage in early learning environments. This research also expounds on the best practices outlined in the joint statement drafted by the NAEYC and the Fred Rogers Center regarding technology use and implementation by young children and early childhood educators. This research intends to add to the body of knowledge Simon and Nemeth (2012) began collecting regarding the importance of incorporating technology into early learning environments. The researcher intends to use Simon and Nemeth’s findings regarding the reasons why early childhood educators do not or are afraid to use technology to identify the variables that influence their usage or lack thereof.

As a result of technology implementation being new to early learning environments, there is little research that exists about its implementation or its usage in the classroom. With little to no guidelines, classroom usage patterns by educators are very inconsistent and may be influenced by their own usage patterns at home. Therefore, this study has been designed to examine variables such as education, training, and environmental access to define the most significant usage influences.

Summary

This research study was designed to determine if there is a significant relationship between instructional technology usage in early learning environments and how teachers use it to improve program quality. During the study, the researcher identified commonalities between variables that might influence the way in which teachers use and
implement instructional technology. The literature suggests that there is little research in existence to provide the field with best practices. The literature also identifies some concerns of educators in early learning environments around the implementation of instructional technology. Therefore, the researcher intends to develop a body of work that will help to inform the digital decisions of teachers and administrators in early learning environments. The researcher will also contribute tangible, realistic and measurable goals and outcomes that early childhood educators can utilize to better inform their digital decisions and implementation practices.
CHAPTER II

REVIEW OF THE LITERATURE

This chapter consists of educational literature related to technology usage by teachers, parents and children in early learning environments. Each piece of literature provides additional information to support the relationship between the variables and technology usage. The study will focus on the variations of the use of technology in the classroom by teachers as it relates to parental influence, teacher training, environmental access, and instructional technology use.

Instructional Technology Usage

Instructional technology usage in early learning environments has increased significantly over the past decade. The Self-Monitoring Analysis and Reporting Technology (SMART) report, “Instructional Technology and Collaborative Learning Best Practices” (2012), concluded that instructional technology expands the breadth of a program. Given the various learning styles present in any classroom, the use of instructional technology removes instructional barriers by creating new opportunities for students, teachers and parents to stay connected. One of the most significant value propositions is the immediate feedback students can receive about their performance. Instructional technology allows teachers to facilitate one-to-one small group and group learning experiences.
Simon and Nemeth (2012) co-authored the groundbreaking book Digital Decisions. Recognizing that many educators disagree with them, the author clearly articulated her support of technology usage in Early Childhood Education (ECE) environments. She indicated that the technology is not the problem; it is the implementation. To amplify the point, the author retells the observation experience of an educator who was not in support of technology in the ECE classrooms. The ECE professional expressed her discontent with the children being fidgety, uninspired and bored with the lesson after the first 20 minutes of the teacher doing the lesson on the white board. Simon and Nemeth quickly noted the inappropriate use of the technology by the teacher as the reason for the children being fidgety and uninspired: “. . . the problem was not necessarily the use of the interactive whiteboard technology; the problem was that the teacher’s use of interactive whiteboards was just a replication of traditional didactic and boring practices, using technology as the medium” (p. 9).

Environmental Access

The ever changing need for more advanced technical tools has significantly impacted the Millennial Generation. The Millennial Generation consists of 80 million people who are between the ages of 18 and 33 years old. By the year 2020, they will be the largest generation of people in the world (Brunstein, 2013). The necessity for and access to technology has increased drastically over the years and is even more apparent in technical equipment sales. The Palm Pilot debuted in 1997 and 18 months later one million units were sold (Burnstein, 2013). As the need for environmental access increased and the demand for more technology grew, manufactures worked tirelessly to meet the
need. In 2010, Apple released the iPad and one million units were sold in 24 hours (Burnsteins, 2013). Millennials have not only used technology to start businesses while still in school such as Facebook, Twitter, and Instagram, they have also used technology to exercise their political preferences. The 2008 election was impacted by Millennials’ access to technology and their astronomically high levels of connectivity. This has proven to be the most connected generation to date and the trend predicts future generations to have an even greater influence on society and the way we communicate and interact with one another (Burnstein, 2013).

Common Sense Media (2012) is a nonprofit research organization that educates parents and community stakeholders about how to make appropriate media choices for children. Television shows, movies, video games and various other types of media content are reviewed, rated and posted on the website with the recommended viewing age beside it. The report was first published in 2011 and is updated biannually. Digital access has increased significantly among families with children ages 0-8 years of age since 2011. More and more children are using iPads or Smartphones with roughly 40% of households having one or more of the aforementioned devices. In addition to digital media becoming more accessible to children, their daily usage has tripled since 2011 (Common Sense Media, 2013). Despite 8 out of 10 children having the internet in the homes, the newly coined “app gap” still exists according to the 2013 Common Sense Media report. Tables 1 and 2 outline how children ages 0-8 years of age access mobile media overall and as it relates to the family’s income.
Table 1

*Internet and Mobile Media Access, by Income, 2013*

<table>
<thead>
<tr>
<th>Percent who have each of the following in their households:</th>
<th>Parent Income</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td>High-speed Internet access</td>
<td>69%</td>
</tr>
<tr>
<td>Smartphone</td>
<td>63%</td>
</tr>
<tr>
<td>iPod Touch or similar device</td>
<td>27%</td>
</tr>
<tr>
<td>Tablet</td>
<td>40%</td>
</tr>
<tr>
<td>Any Internet-enabled mobile device</td>
<td>75%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percent whose parents have downloaded:</th>
<th></th>
<th>Lower (&lt;$30K)</th>
<th>Medium ($30-75K)</th>
<th>Higher (&gt;75K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any apps for child to Smartphone, iPod Touch, or tablet</td>
<td>58%</td>
<td>41%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>54%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>79%&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Any educational apps for child to Smartphone, iPod Touch, or tablet</td>
<td>53%</td>
<td>35%&lt;sup&gt;a&lt;/sup&gt;</td>
<td>49%&lt;sup&gt;b&lt;/sup&gt;</td>
<td>75%&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

*Among those who own a mobile device, percent who have downloaded*

| Any educational apps for their child                      | 69%    | 57%<sup>a</sup> | 64%<sup>b</sup> | 80%<sup>c</sup> |
Table 2

Access to and Use of Mobile Media among Lower-Income Families, Over Time

Among 0 to 8-year olds in families earning under $30,000 a year,

<table>
<thead>
<tr>
<th>Who have mobile devices in their home</th>
<th>2011</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smartphone</td>
<td>27%(^a)</td>
<td>51%(^b)</td>
</tr>
<tr>
<td>Tablet device</td>
<td>2%(^a)</td>
<td>20%(^b)</td>
</tr>
<tr>
<td>Whose parents have downloaded any apps to a Smartphone for them</td>
<td>14%(^a)</td>
<td>31%(^b)</td>
</tr>
<tr>
<td>Who have ever used a Smartphone, tablet, or similar device</td>
<td>22%(^a)</td>
<td>65%(^b)</td>
</tr>
</tbody>
</table>

Students have long complained about the work that has been assigned that requires access to technology and in response, many Title 1 schools have purchased mobile devices for students to use both inside and outside of school (Project Tomorrow, 2014). Title 1 school administrators seem to understand the importance of programs that allow students to take the devices home to complete their schoolwork. The Project Tomorrow research indicates that a quarter of non-Title 1 schools have issued mobile devices for their students to use, but less than half of those students can take the devices home. However, in the 22% of Title 1 schools that have furnished students with a mobile device, half of the students are allowed to use it at home.

Online classes and digital textbook usage continue to increase while internet access continues to be an issue for many students across the country. Figure 1 depicts the internet access of students in grades 3-12 from Title 1 and non-Title 1 schools.
Figure 1. Internet Access of Students in Grades 3-12 from Title 1 and Non-Title 1 Schools, 2014

Teacher Training

China is the global leader in instructional technology usage along with the United States and Germany, respectively. Dell surveyed more than 1,575 students, teachers, and
parents from the aforementioned countries to find that 82% of the participants believed that technology needs to be made more of a priority in the classroom (Lytle, 2012). Fifty-three percent of Chinese students indicated that technology has been integrated into the curriculum in contrast to 29% of U.S. students and 27% of German students according to Lytle. The SMART Technologies report summates organizations that make teacher training and professional development a priority yield strong outcomes. Technology implementation can be overwhelming and people generally fear what they do not understand (Simon & Nemeth, 2012). Although teachers are aware that technology is here to stay, many of them (at the ECE level) are afraid to explore its use in their classrooms. The fear and resistance that change often incites can be challenging for teachers and administrators alike. If teachers cannot see the benefit of implementing the technology while learning how to leverage it, they will likely not willingly embrace it. The lack of teacher training is creating a new digital divide between teachers who have and have not been trained on how to effectively incorporate technology into their daily instruction (Chariston, 2013). Chariston goes on to note the concerns teachers have expressed about losing credibility with students if they are not as knowledgeable about some of the technology being used. Without the proper training and preparation, technology integration can seem more like a hindrance and less like help to support instruction.

The Pew Research Internet Project (2013) surveyed 2,462 teachers and found that an overwhelming 76% strongly believed that search engines have conditioned students to expect to access information quickly. Without having to physically search for
information, many students are overwhelmed by the abundance of information they find online and are they aware of other ways to research a topic other than to “Google” it.

**Parental Influence**

Parents depend on technology just as much as their children do (Barna Group, 2011). The Institute for Family Studies (2014) concludes that parents believe that at times, technology has a bigger influence on their children than they do. These families also expressed their concern with the lack of censorship and overexposure their children are subject to. The study names social media giant, Facebook, as one of the channels that introduce children to sex, drugs, foul language, and other topics that parents may not be ready to discuss with their children. It is critical for parents to select limits for their children and themselves when it comes to technology usage at home.

Some of the smallest children have some of the most expensive electronic devices (Common Sense Media, 2012). Parents are supplying children of very young ages with the latest technology for a myriad of reasons ranging from, “…so that I can keep up with them,” to “…all of the other kids have it,” as referenced by internet safety advocate Lynette Owens (Common Sense Media, 2012, para. 2). Owens believes that the parent’s digital usage patterns are indicative of what the child’s usage patterns or expectations will be. Common Sense Media (2012) created a curriculum that focuses on teaching children digital citizenship. Tools like this can be used to educate the family and inform the child about being a responsible digital citizen while enjoying the internet.
Summary

This chapter provided context to support the researcher’s choice of variables. The literature review consisted of research that supported the need for each variable to be examined. The researcher also included relevant statistics in the literature review to further validate the need for the aforementioned variables to be examined as it related to teacher’s instructional technology usage.
CHAPTER III
THEORETICAL FRAMEWORK

Research Design

The researcher conducted a mixed methods research study to determine the relationship between the technology usage habits of teachers and the influences that their technology usage had on instruction, teacher training, parental influence, and environmental access.

Theory of Variables

Instructional Technology Usage

According to the Department of Education (2013),
Technology has the power to transform teaching by ushering in a new model of connected teaching. This model links teachers to their students and to professional content, resources, and systems to help them improve their own instruction and personalize learning. (para. 1)

Making learning personal to students will keep them engaged. Teacher’s instructional usage of technology has been impacted by the presence and increased use of technology in society. Bandura’s (1971) Social Learning Theory suggests that people learn from one another. Adults and children will absorb significant amounts of information through observing those around them use technology whether the usage is productive or not.
Eighty percent of K-12 teachers use social media for personal or professional reasons (Bolkan, 2014).

Seventy-five percent of teachers agree that the internet and digital tools have added demands to their lives that did not exist in previous years (Pew Research Internet Project, 2013). As a result of these demands, there is content, terminology, and tools that teachers must be familiar with in order to instruct the students. Digital communication resources such as Go To Meeting, Google Hangout, and FaceTime have all become popular tools to conduct activities that used to be done in person, such as parent-teacher conferences and study groups. Despite the increased need to use technology for instructional purposes, only 39% of teachers are doing so (Burns, 2010).

**Teacher Training**

Novice teachers are entering the classroom with advanced technology skills that their counterparts simply do not have (Burns, 2010). What teachers want more than new technology is to be trained on how to use it (Schwartz, 2013). Technology can be intimidating for some teachers to incorporate into their instructional plans if they are not familiar with the appropriate tools to use. Being forced to make a pivot of this magnitude without preparation can significantly disrupt the staff morale and productivity. Kurt Lewin’s (1947) Change Model highlights three steps to effectively initiate and implement change.

Before change can be made, the initial step of step of unfreezing must take place. Based on Lewin’s (1947) theory, if teachers are not currently using technology to participate in professional development opportunities, they are not likely to start simply
because the suggestion is made. The unfreezing process must happen in order for the educators to understand why technology is a necessary part of professional development training and that maintaining the status quo is no longer enough. Once the teachers have been unfrozen as Lewin suggests, the change can begin to take place (Lewin, 1947). The last stage of Lewin’s Change Model is refreezing.

**Environmental Access**

During the past 10 years, internet usage among African American’s has increased; however, they still remain less likely to log on to the internet (Smith, 2010). Teachers in urban environments are more likely to say that their students have access to sufficient digital tools at school, while students in more rural environments say their students need more sufficient digital tools at home (Pew Research Internet Project, 2013). Fifty-six percent of teachers of students from higher income households say they or their students use tablet computers in the learning process, compared with 37% of teachers of the lowest income students (Pew Research Internet Project, 2013).

**Parental Influence**

If parent’s digital media usage affects their child’s usage patterns as Lynette Owens suggests, Bandura’s (1971) Social Learning Theory also supports this argument. With the increased use of technology and digital media among children at home, many children expect that same type of access and usage in educational settings (Common Sense Media, 2012). Parents have equipped children with expensive digital equipment that they are used to operating on a regular basis and teachers are feeling the impact in the classroom (Common Sense Media, 2012).
Definition of Variables and Other Terms

**App Gap** is the digital juxtaposition that exists between children in urban environments compared to children in rural environments and their access to educational applications and equipment.

**Bandura’s Social Learning Theory (1971)** suggests that people learn from one another.

**Department of Early Care and Learning/Bright From the Start** is the state agency that partners with local legislators to create the rules and regulations for licensed child care facilities.

**Digital Communication Resource** refers to software and applications that can be downloaded to cell-phones, laptops and tablets that are used to conduct real time discussions with people all over the world.

**Digital Divide** is the disparity that exists among children who have access to computers and technological instructional software compared to those who have limited to no access.

**Digital Equipment** refers to electronic devices such as cellphones, laptops, tablets, and whiteboards that children come in contact with on a daily basis.

**Digital Native** refers to children who have grown up in an era where the vast majority of processes have been digitized, computerized, or automated.

**Early Childhood Education (ECE)** refers to theories, strategies, and best practices that focus on the social, emotional, physical, and cognitive development of children ages 0-8 years old.
**Early Learning Program** is defined as high quality educational environments that engage children ages 0-5 in developmentally appropriate activities.

**Environmental Access** refers to children’s access to technology and digital equipment inside and outside of school.

**FaceTime** is a software/application created by Apple that allows participants to visually and audibly communicate with one another.

**Google** is a digital search engine participants use to search for answers to questions, research topics, watch videos, and locate pictures.

**Google Hangout** is a software/application created by Google that allows participants to visually and audibly communicate with one another.

**GoTo Meeting** is a software/application created by a private company that allows participants to visually and audibly communicate with one another.

**High Quality** refers to programs that have credentialed teachers, invest time and money in targeted professional development, and are licensed and/or accredited that provide a safe place for children to learn and grow.

**Information Technology Specialist** is a computer technician who is contracted to troubleshoot problems that arise with digital equipment.

**Instructional Technology** refers to digital learning tools used to lead and support student engagement and learning.

**Instructional Technology Usage** is the way in which the teacher implements digital media or digital devices to teach in a classroom setting.

**K-12** refers to kindergarten through 12th grade.
Kurt Lewin’s Change Model (1947) is a three-step change management model that consists of (a) unfreezing - reducing the forces that want to maintain the status quo, (b) transitioning - developing new behaviors, values and attitudes, and (c) freezing - embracing and adapting to the new normal.

Millennial Generation is the demographic cohort made up of men and women born in the mid to late 1970s through the 1990s.

National Association for the Education of Young Children (NAEYC) is the nation’s leading voice for high-quality early childhood education for children ages birth through age 8.

Relationship among the Variables refers to the identification by the researcher of a connection between a teacher’s technology usage and the ways in which it is used in the classroom; this connection was based on the results of the literature review. (See Figure 2.)

Social Media refers to networking websites and applications that allow people to interact with one another by sharing personal information with a targeted population over the internet using digital media devices.

Technology refers to machines, equipment, programs, devices, and software used to make a process faster and more efficient.
Limitations of the Study

The limitations of this study reflect circumstances that could have impacted the outcomes of the research. The population of teachers in School A was much smaller compared to that of Schools B and C. The researcher also worked at School A. As an employee at School A, the researcher estimated that this bias may have been the reason that the participation rate was so high. There could also be self-reporting bias among the survey participants as they could have answered the questions in a way that does not accurately reflect their technology usage as it relates to the aforementioned variables.

Summary

This chapter defined the key terms used throughout the dissertation that would be helpful to the reader. The theory of the variables was also discussed and additional
research was provided to further support the validity of the variables chosen to be examined. The researcher cited Bandura’s (1971) Social Learning Theory as the framework for the research and also to further explain the selection of the independent variables. The limitations of the study were noted and the researcher explained why there may have been a reporting bias.
CHAPTER IV
RESEARCH METHODOLOGY

Research Design

This study investigated the relationship between teachers technology usage compared to the use of technology for the independent variables of instructional technology, environmental access, teacher training and parental influence. The researcher chose a mixed methods research design to investigate the dependent variable of teacher technology usage and independent variables of instruction technology usage, environmental access, teacher training, and parental influence. Combining statistics and stories give us with a greater understanding of our research questions (Creswell, 2013). A mixed methods approach is the most appropriate research design for this study due to the nature of information being collected. This method allowed the researcher to ascertain the influence that specific variables have on a teacher’s technology usage in the classroom. Using a quantitative approach, the researcher distributed surveys to teachers to determine how teachers used personal technology usage influenced their technology use for instructional purposes. The researcher also took a qualitative approach by conducting focus groups and interviews to collect more in-depth information about the relationship amongst the variables. By combining both sets of data, the researcher was able to identify causations that exist among the variables in totality having examined both qualitative and quantitative data. Lastly, using a mixed methods approach also identified additional
topics of interest or data that may need to be further examined in order to more accurately answer the research questions.

**Description of the Setting**

The researcher conducted a mixed methods study. Surveys, observations, and interviews were administered in early learning environments that educate children ages 0-5 years old. Each of the three schools was located in one of the fastest growing metropolitan cities in the United States, but serve very different populations of children. Each of the programs is licensed by Bright from the Start/Georgia Department Early Care and Learning. Each program is also nationally accredited by the National Association for the Education of Young Children. Three school sites were examined during this study: School A, School B, and School C.

School A was located in the downtown area of a metropolitan city. The median household income in this part of the city was $61,642 (U. S. Census Bureau, 2013). However, the estimated median household income of the families who brought their children to this school was between zero and $23,000 (Atlanta Children’s Shelter, 2014). The tuition at school A was free since the families and children in the program were homeless or in transition. The facility was open from 7 a.m. to 6 p.m., Monday through Friday. All of the children who attended School A had to be dropped off no later than 8:30 a.m. each day, otherwise the child could not be admitted into the program for the day. Each classroom started the day at 8:30 a.m. and teachers experienced a great deal of disruption before the drop-off time policy was enforced. The majority of the parents whose children attended this school used public transportation. The school was not
affiliated with a religious institution, but was housed on the same campus as a historic church. There were 40 students between the ages of 6 weeks and 5 years old who attended the school each day. The school had a total of 10 teachers and 2 administrators. One-hundred percent of the students that attended the school were homeless and living in shelters with their families. School A used the Creative Curriculum, in addition to Brigance Developmental Screening Tools, which were also used by Head Start Programs in the metro Atlanta area to collect developmental data.

School B was located in an affluent suburb of the metropolitan city. The tuition was billed monthly and cost $1,400 per month for a child to attend in any classroom. The facility was open from 7 a.m. to 6 p.m., Monday through Friday. There was no cutoff time for parents to bring their children to school each day. The majority of the parents drove their children to school each day. The school was accessible to public transportation, but the stop was not that close to the physical location of the school. There were multi-million dollar homes that surrounded this school which was also surrounded by green space and trees. The median household income was $131,138 (U. S. Census Bureau, 2013). School B was a Christian school that was affiliated with a church. The staff at the school consisted of 25 teachers, 3 administrators, and 87 children. The school also used the Teaching Strategies Creative Curriculum as the foundation for its pedagogical instruction and to collect developmental data. School B had a very active parent’s group that provided support to the facility in a variety of ways from fulfilling equipment needs to supporting school events.
Lastly, School C was located inside of a Title 1 elementary school in a low-income neighborhood. The tuition in this program varied based on the classroom that the child was in. This school also accepted government subsidies to offset the cost of the tuition. The facility was open from 7 a.m. to 6 p.m., Monday through Friday. There was no cutoff time for parents to bring children to school each day. There were three groups of families who attended this school: those who lived in the neighborhood and walked to school, the families that drove their children to school, and the families that used public transportation. The school was conveniently located near public transportation stops and was also nestled in between several apartment buildings and single-family homes. The neighborhood was less than one mile from the state capitol and city hall. The median household income in the area was $38,755 (U. S. Census Bureau, 2013). The staff consisted of 30 teachers, 4 administrators, and 457 students. Unlike School A and School B, School C had two private state-funded Georgia PreK classes and two private pay PreK programs. The teachers from the elementary school where School C was housed collaborated with the teachers from School C to ensure that the entire program’s curriculum was aligned from infants through fifth grade. This collaboration ensured that there was consistency in the service delivery model and also provided consistency for parents who had children of various ages at the school.

**Sampling Procedures**

Due to the researcher’s personal access to each facility used in the study, convenience sampling was used to conduct the surveys. The surveys were administered to directors and teachers who interact with children between the ages of 0 to 5 years old.
at three schools in Atlanta, Georgia. A total of 50 surveys were distributed to the educators. In order to prepare for the interviews, observations, and distribution of surveys, the researcher scheduled meetings with the administrators of each school. During this meeting, a research outline and timeline of the project were shared. The researcher also reviewed the purpose and intent of the research. The administrators identified all of the teachers at each school that interacted with children ages 0 to 5 years of age. After each of these teachers had been identified, the researcher discussed the way in which they surveys would be distributed to the participants. The researcher used purposeful sampling to determine which educators would be observed and interviewed. There were four teachers and two administrators interviewed from each school. The consent forms were reviewed with the administrators and distributed to the teachers after being approved by the administration. Four classrooms from each school were also observed.

**Working with Human Subjects**

Participation in this process was completely voluntary. Each participant was given a consent form to review, sign and return to the researcher within a specific timeframe. Outlined on the consent form was the purpose of the study, the expectations of the participants, the benefits of the study, and lastly the risks associated with the study. The researcher reviewed the anonymity clause on the form with the participants and ensured them that their information would be protected and kept confidential. The survey was administered online to the participants in order to maintain their anonymity. Lastly, the researcher submitted a proposal to the Office of Research and Sponsored Programs at
Clark Atlanta University. Once the proposal was approved, the researcher was able to proceed with the Institutional Review Board process.

**Instrumentation**

The instruments used in this research study included a survey, interviews, and classroom observations. The survey instrument was developed with the help of the research committee after reviewing the literature and identifying significant relationships that existed between the teacher’s instructional technology usage compared to the dependent variables of parental influence, teacher training, education, and environmental access. The classroom observation tool was created by the Pennsylvania Digital Media Literacy Project and was used to assess technology integration, engagement, and intentionality in early learning environments.

Each survey item was written as a statement that inquired about the teacher’s technology usage as it related to the independent variables. The survey questions were measured according to a Likert 5-point scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, and 5 = Strongly Agree. The survey was comprised of 20 questions that highlighted the independent variables as referenced in the independent variable matrix.

The researcher developed an interview protocol which was made up of 10 questions that were developed to examine the independent variables of instructional technology usage, environmental access, teacher training, and parental influence. There were no observation tools in existence that would provide the researcher with the information needed for the study. As a result, the researcher created an observation tool
that was used during visits to the classroom by using the Fred Rogers and NAEYC Technology Joint Statement as a framework.

**Participants/Location of Research**

The participants were selected by the administrators of each school in the study. All of the participants were educators who interacted with children between the ages of 0 to 5. Once the group was identified, the researcher met with teachers to review the purpose of the study in addition to reviewing the consent forms with them.

**Data Collection Procedures**

The researcher began by developing and distributing 20 questions to the participants via Survey Monkey to 50 teachers. The researcher collected all of the email addresses from the participants after the consent forms had been returned. Secondly, the researcher interviewed four teachers from each of the three early learning programs for a total of 12 interviews. Third, the researcher conducted four classroom observations at each school. Each classroom was observed once for 90 minutes and once for 30 minutes. An observation form was completed by the researcher each time the classroom was visited. At the end of the observation period, the researcher accumulated a total of 24 observation hours. The researcher met with the teachers whose classes were being observed following the initial visit to conduct the interviews using the interview protocol created by the researcher.

The researcher observed 10 classrooms that consisted of 10 lead teachers. In order to be a lead teacher, one must have earned the Child Development Associate Credential (CDA) or higher degree. Twenty percent of the teachers have master’s degrees, 60% have
bachelor’s degrees, and 20% of the lead teachers have a CDA. Out of the 39 teachers who completed the survey, 97% of them have a CDA or higher, which in turn makes the majority of them lead-teacher qualified.

**Application (Quantitative)**

The data collected from the surveys were used to quantify the amount of time teachers spent using technology both inside and outside of the classroom. The researcher also quantified the amount of time teachers spent using technology for instructional purposes, training, and parent engagement. Once the data trends were identified, the researcher made generalizations about the population in addition to providing implications for further research.

**Description of Data Analysis Methods (Qualitative)**

In order to interpret and articulate the data, the researcher reviewed the literature in addition to the information collected from the interviews and observations. During this review process, the researcher identified themes between the independent and dependent variables. Once the themes are identified, they were used to make generalizations about the population in addition to providing implications for future research.

**Summary**

The research design was reviewed in this chapter. The researcher used a mixed methods approach and sought out the existence of significant relationships that existed between the independent variables (instructional technology usage, environmental access,
teacher training, and parental influence) and the dependent variable of teacher technology usage.
CHAPTER V

ANALYSIS OF THE DATA

Introduction

The purpose of this study was to identify a relationship between teacher’s instructional technology usage and the following variables: training, environmental access, parental influence, and education. The data were collected from three metro Atlanta preschools. A data analysis was also conducted based on the research questions and any relationships that existed between the independent variable: instructional technology usage, and the dependent variables: training, environmental access, parental influence, and education. The results of the qualitative and quantitative data analysis are presented in this chapter.

Quantitative Data Analysis

After visiting each school and speaking with the school administrators about the research to be conducted, the researcher distributed surveys to each site. Each administrator distributed the surveys to their staff which consisted of 17 questions. The researcher gave each program one week to complete the surveys before retrieving them from each program. A total of 45 surveys were distributed to teachers and 39 surveys were returned for a response rate of 87%. In addition to the variables mentioned, the last four surveys provided demographic data (14, 15, 16, and 17) that yielded information
regarding the age, gender, years of experience, and ethnicity of each teacher. This survey consisted of seven questions related to the independent variables: training (questions 7 and 8), professional development (question 10), parental influence (questions 11, 12, and 13), and environmental access (question 1). The dependent variable, teacher’s instructional technology usage, is represented by survey questions 3, 5, and 6. The survey questions were developed using a 7-point Likert Scale with the following response choices: disagree (1, 2, and 3), undecided (4 and 5), and agree (6 and 7). The Statistical Package for the Social Sciences (SPSS) software was used to generate the summary analysis. While using the SPSS software, the following procedures were utilized: Pearson Correlation, ANOVA, t-Test, and Frequency.

The researcher noted the following demographic factors: age, ethnicity, experience, and gender. Out of the 39 participants, the researcher documented the following factors:

- **Age:** The researcher found that 6 of the respondents were between the ages of 21-27 years old, 17 were 28-35 years old, 7 were 36-45 years old, 1 was 46+, and 7 did not provide an answer to that question. Table 3 outlines the analysis of the data according to the ages of participants.

- **Ethnicity:** Based on the data collected, the majority of the participants (82%) self-identified as being black and 5% self-identified as white. The remainder of the participants self-identified as other (2.5%) or N/A (7.6%) (see Table 4).
Table 3

**Age of Participants**

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
<th>Total Respondents</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 – 27 years old</td>
<td>6</td>
<td>18.7</td>
<td>15.3</td>
</tr>
<tr>
<td>28 – 35 years old</td>
<td>18</td>
<td>56.2</td>
<td>46.1</td>
</tr>
<tr>
<td>36 – 45 years old</td>
<td>7</td>
<td>21.8</td>
<td>17.9</td>
</tr>
<tr>
<td>46+ years old</td>
<td>1</td>
<td>3.1</td>
<td>2.5</td>
</tr>
<tr>
<td>No response</td>
<td>7</td>
<td>21.8</td>
<td>17.9</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>82.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4

**Ethnicity of Participants**

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>32</td>
<td>82.0</td>
</tr>
<tr>
<td>White</td>
<td>2</td>
<td>5.0</td>
</tr>
<tr>
<td>Latino</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Asian</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>2 or more Races</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>N/A</td>
<td>3</td>
<td>7.6</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>100.0</td>
</tr>
</tbody>
</table>
• **Teaching Experience**: The researcher noted that the teachers’ years of experience varied from 1 to over 10 years. Of the 39 respondents, 20 indicated that they had been teaching for 5-10 years, 11 had taught for 10 years or more, and the remaining 8 had taught for 1-3 years (see Table 5).

Table 5

*Teaching Experience of Participants*

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
<th>Percentage of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3 years</td>
<td>8</td>
<td>20.5</td>
</tr>
<tr>
<td>5-10 years</td>
<td>20</td>
<td>52.2</td>
</tr>
<tr>
<td>10+ years</td>
<td>11</td>
<td>28.2</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>100.0</td>
</tr>
</tbody>
</table>

RQ1: Is there a significant difference between instructional technology usage and the type of formal training a teacher has received?

Eighty-two percent of the teachers surveyed indicated they use instructional technology to conduct and complete their lessons. The data in Table 6 show that there is a significant relationship between professional development and a teacher’s use of instructional technology in the classroom. The correlation between a teacher’s instructional use of technology as it relates to personal use, parental use, and professional development is shown in Table 6. As shown in the table, Professional Development is the only variable that had a significant relationship to the way in which teachers utilized instructional technology in the classroom with a coefficient of .531.
Table 6

*Correlations: Data Analysis*

<table>
<thead>
<tr>
<th>InstructUsedTech</th>
<th>ProfDev</th>
<th>PersUseofTech</th>
<th>ParentUseofTech</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td>.531**</td>
<td>-.104</td>
<td>.038</td>
</tr>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.000</td>
<td>.529</td>
<td>.820</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>39</td>
<td>39</td>
<td>39</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ProfDev</th>
<th><strong>Pearson Correlation</strong></th>
<th>1</th>
<th>.076</th>
<th>.227</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.000</td>
<td>.645</td>
<td>.166</td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>39</td>
<td>39</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PersUseofTech</th>
<th><strong>Pearson Correlation</strong></th>
<th>-.104</th>
<th>.076</th>
<th>1</th>
<th>-.200</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.529</td>
<td>.645</td>
<td>.064</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>39</td>
<td>39</td>
<td>39</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ParentUseofTech</th>
<th><strong>Pearson Correlation</strong></th>
<th>.038</th>
<th>.227</th>
<th>-.299</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sig. (2-tailed)</strong></td>
<td>.820</td>
<td>.166</td>
<td>.064</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>39</td>
<td>39</td>
<td>39</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6 also shows that the level of significance between the teacher’s instructional usage and their personal usage has a coefficient of -.104 and a significance level of .529 which does not meet the acceptance level. Parental usage also has no significant relationship with a coefficient of .038 and a significance level of .820 which also does not meet the acceptance level. The data were analyzed further using the...
Analysis of Variance testing to see if there was a significant difference between the demographics of ethnicity, age and experience.

The researcher used this analysis to determine if a significant variance exists in the instructional technology usage based on the ethnicity of the participants as shown in Table 7. The data show that there is no significant difference between the ethnicity of the participants who identified a race on the surveys. The table shows a significance of .586 which is above the acceptable significance level of .05 indicating that no relationship exists between teachers’ ethnicity and their instructional usage of technology in the classroom.

Table 7

*Instructional Use of Technology by Ethnicity*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>5.312</td>
<td>2</td>
<td>2.656</td>
<td>.542</td>
<td>.586</td>
</tr>
<tr>
<td>Within Groups</td>
<td>176.431</td>
<td>36</td>
<td>4.901</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>181.744</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8 indicates that there was no significant relationship between a teacher’s age among the three groups in relation to their usage of instructional technology in the classroom. The table reveals a significance of .081 which meets the acceptable level of .05 meaning that all programs used instructional technology at the same rate.
Table 8

*Instructional Use of Technology by Age*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>45.010</td>
<td>5</td>
<td>9.022</td>
<td>2.173</td>
<td>.081</td>
</tr>
<tr>
<td>Within Groups</td>
<td>136.733</td>
<td>33</td>
<td>4.143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>181.744</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The analysis in Table 9 shows that there was no significant relationship between a teacher’s years of experience and their use of instructional technology in the classroom. The table shows a significance of .624 which is above the acceptable level of .05.

Table 9

*Instructional Use of Technology by Years of Experience*

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>17.528</td>
<td>5</td>
<td>3.506</td>
<td>.704</td>
<td>.624</td>
</tr>
<tr>
<td>Within Groups</td>
<td>164.216</td>
<td>33</td>
<td>4.976</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>181.744</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

RQ2: Is there a significant relationship between a teacher’s instructional technology usage in the early learning setting and the environmental access that a teacher has to technology?
Teachers were asked Research Question 2 as a part of the survey they completed. The findings revealed that Parental Usage did not have a significant effect on the way in which teachers used instructional technology in the classroom. Eighty-four percent of the teachers stated that the parents communicated with them primarily via email or by using other forms of digital media. Although parents were engaged in the use of digital media and devices to communicate with teachers, 53% of teachers felt confident in reporting that their classroom parents do not utilize digital devices while picking up and dropping off their child, which are peak instructional times during the school day.

RQ3: Is there a significant relationship between a teacher’s personal use of technology and their instructional technology usage at school?

The survey data indicate that 82% of teachers used technology tools such as whiteboards, laptops, tablets and/or Smartphones for instructional purposes in their classrooms. Therefore, there is no significant relationship between these two variables as shown in Table 10. When asked about their usage of social media in their personal lives, 92% of teachers surveyed indicate that they used technology outside of school. Although there does not appear to be a direct correlation between the two variables, it is very clear that technology usage is high among teachers both inside and outside of school. The analysis indicates in that there is no significant difference among the participating schools which means that teachers in all three of the schools relatively use instructional technology to the same degree.
### Table 10

**Instructional Use of Technology by School**

<table>
<thead>
<tr>
<th></th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>3.744</td>
<td>2</td>
<td>1.872</td>
<td>.379</td>
<td>.688</td>
</tr>
<tr>
<td>Within Groups</td>
<td>178.000</td>
<td>36</td>
<td>4.944</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>181.744</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Qualitative Data Analysis

The data for this portion of the study were collected using interviews, observations, and the review of lesson plans. The interview protocol consisted of 18 questions that were answered by each school administrator. The questions asked specifically about the administrator’s personal use of technology both personally and professionally. The questions also asked about the use of technology in their schools in terms of software used and data collection systems. The interview questions follow.

**Professional Use**

- How would you rate your computer skills: emerging, beginner, intermediate or advanced? Why?
- What software have you used for instructional or classroom management purposes?
- What types of technology do you use in the classroom?
  - What do you use it for?
- How do you incorporate technology into your instruction?
• Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for instructional purposes?

• Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for professional development?

• Is the technology in the classroom meeting your needs and the needs of the students?

• What barriers (if any) have you encountered using technology in the classroom?

• Should young children utilize technology in the classroom? Why? Why not?

• How you communicate with parents using technology and/or digital media?

• How do parents communicate with you?

**Personal Use**

• Do you have access to the internet outside of school?

• Do you own a computer or any other mobile devices? If so which ones?

• What types of technology or digital media do you use outside of school?
  
  o What is it used for?

• About how many hours each day do you spend using digital media devices?

• How did you learn how to use digital media devices?

• What software or devices have you used for your own lifestyle management or recreation?

• Do you have a social media account? If so how many?
  
  o How active are you on social media? Very active, Somewhat active, Not active at all.

The interviews were transcribed and the observation notes were typed.
The researcher conducted classroom observations that took place over a 4-week period for a total of 10 classroom observations spanning more than 23 hours. The researcher reviewed the classroom lesson plans, in addition to the Fred Rogers and NAEYC Principles to Guide the Appropriate Use of Technology and Interactive Media Tools in Early Childhood Programs Serving Children from Birth through Age 8. The principles are as follows:

- The use of technology tools and interactive media should not harm children.
- Developmentally appropriate practices must guide decisions about whether and when to integrate technology and interactive media into early childhood programs.
- Professional judgment is required to determine if and when a specific use of technology media’s age appropriate, individually appropriate, and culturally and linguistically appropriate.
- Developmentally appropriate teaching practices must always guide the selection of classroom materials, including technology and interactive media.
- Appropriate use of technology and media depends on the age, developmental level, needs, interests, linguistic background and abilities of each child.
- Effective uses of technology and media are active, hands on, engaging, and empowering give the child control; provide adaptive scaffolds to ease the accomplishment of tasks, and are used as one of many options to support children’s learning.
• When used appropriately, technology and media can enhance children’s cognitive and social abilities.

• Interaction with technology and media should be playful and support creativity, exploration, pretend play, active play and outdoor activities.

• Technology tools can help educators make and strengthen home-school connections.

• Technology and media can enhance early childhood practices when integrated into the environment, curriculum and daily routines.

• Assistive technology must be available as needed to provide adequate access for children with special needs.

• Digital literacy is essential to guiding early childhood educators and parents in the selection, use, integration and evaluation of technology and interactive media.

• Technology tools can be effective for dual language learners by providing access to a family’s home language and culture while supporting English language learning.

• Early childhood educators need training, professional development opportunities and examples of successful practice to develop the technology and media knowledge.

Once all of the surveys, observation and interview data were compiled, the researcher pinpointed several emergent themes. The themes that emerge from the surveys were teacher ethnicity (82% black), age of teachers (56% ages 28-35), experience (52%
taught 5-10 years), female (94%), schools have technical tools available for teachers to use in the classroom (66%), frequent personal use of technology (92%), use of technology to complete tasks (92%), personal use of social media (89%), use of instructional technology (82%), parent communication (84%), not intimidated by technology (76%), have received training on technology in their classroom (56%), majority of professional development done online (58%) (see Figure 3).

**Figure 3.** Emergent Themes

RQ5: Is there a significant relationship between a teachers technology usage and student instructional engagement?

**School A: Teacher 9 stated the following:**

I enjoy using technology in my classroom. Although we have had a few formal trainings about how we should use our iPads or other devices in the classrooms, we were shown how the children can use them. I mean, I already knew how to use most of the equipment as do most of us. I would say that my technology usage and understanding is pretty advanced. I try to incorporate technology into my classroom with every opportunity that I have. My students are very interested in
technology and always want to lead the lessons when I’m using the iPad or Leap Pads. They know a lot more about technology than I thought, so I make it a point to take note of their interests in technology and create lessons that will allow them to exercise those skills, while I collect the developmental information that I need. I have noticed that when I do not incorporate technology at all into my lessons, the children don’t seem to be as interested. They complete the tasks, but not with the same level of enthusiasm or focus. So yes, I think my interest in and use of technology in my class is related to their instructional engagement in my class (Personal Communication, February 4, 2015).

**RQ6:** Is there a significant relationship between a teacher’s use of instructional technology and student use of technology?

**School B: Teacher 30 stated the following:**

These children came into my room already knowing how to do several things that I didn’t on computers, so I guess you could say they taught me. There are some children who you can tell may have limited access to technology outside of school, because they look very scared and lost when I ask them to complete a lesson using the computer or tablet. I had one child who used to cry and call himself dumb, because he didn’t know how to do it. In his case I made an effort as I do with all of my children to teach them about the parts of the computer, you know the basics. We start learning sight words and symbols related to technology and build from there. This approach helped the little boy who was frustrated. Easing him into using technology with my guidance really helped him feel
comfortable with it. He now teaches other children in the class new things they may not know and I think that’s kind of cool. (Personal Communication, February 10, 2015).

RQ7: Is there a significant relationship between a teacher’s technology usage to support curriculum instruction and its use as a behavior modification tool?

School C: Teacher 38 said the following:

Our school uses the Creative Curriculum Gold which has an online component for us to use to enter notes, observations, and other data about the children in our classes. There is even an iPad app for it and I enjoy using that. I honestly don’t allow my class to use the iPad unless I need a few extra minutes to get the next lesson together. Children hate to wait, so rather than having them sitting idle, I may let 2 of them use my iPad and a few more get on the computer while the rest are in the library. Usually I’ll have transition activities ready, but sometimes I just don’t have the time, so I have a few go to activities that I can pull up. (Personal Communication, February 17, 2015).

Summary

This chapter revealed the findings of the data that were collected from the surveys, interviews, and classroom observations conducted by the researcher. The researcher closely analyzed the data in an effort to identify any significant relationships or themes that were apparent in the findings. After identifying the themes the researcher organized the information into charts that depicted the relationships more clearly. The
researcher restated each of the research questions and answered them using the information collected from the data analysis.
CHAPTER VI
FINDINGS, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

The purpose of this study was to identify the ways in which instructional technology was being utilized in early learning environments while informing Early Childhood Educators about ways to intentionally incorporate technology into their programs and classrooms. Instructional technology usage is the dependent variable that will be studied while examining the independent variables of environmental access, teacher education, teacher training and parental influence. This chapter discusses the findings of the study and the researcher communicates the conclusions, implications, and recommendations of the study.

Findings

The researcher examined the findings of this study to determine if the dependent variables of education, environmental access, training, and parental influence affected a teacher’s instructional usage of technology in the classroom. By conducting a quantitative study, the researcher examined whether or not relationships existed between the dependent and independent variables. There researcher distributed 45 surveys and received 39 surveys back for a return rate of 86%. Ninety-seven percent of all teachers have a Child Development Associate Credential (CDA) or higher. Twenty-seven percent of the lead teachers had master’s degrees and 60% of them had bachelor’s degrees. Half
of the teachers who completed the survey have taught for 5-10 years and 56% of them are between the ages of 38-35 years old. Twenty-one percent of the sample was between the ages of 36-45, 3.1% were 46+, and 20% did not respond to that survey question. Eighty-two percent of the teachers self-identified as being black, 5% white, 2.5% marked other, and the remaining 2.5% selected 2 or more ethnicities.

When asked whether their school has technical tools available for teachers to use in the classroom, 66% responded yes and 82% use whiteboards, laptops, tablets and Smartphone for instructional purposes in the classroom. Ninety-two percent of the sample utilizes technology in their personal life and 92% of the teachers also use technology to complete tasks such as, but not limited to paying bills and shopping. Eighty-nine percent of the sample uses Social Media in their personal lives and all three schools have active Facebook pages that are used to communicate with parents, donors, volunteers, and the community at large. Despite the lack of evidence to support the parental influence on a teacher’s technology usage, 84% of parents communicate with the teachers via email and by using other forms of digital media. The majority of the professional development trainings that the teachers participate in were done online (58%). However, the researcher was informed by the lead teachers that their schools did offer face-to-face training opportunities primarily on the weekend, in addition to the opportunity to attend conferences and workshops. One school in particular noted that their school sends their teachers to the Georgia Association for Young Children (GAYC) Conference each year. The GAYC Conference is the local affiliate organization of the National Association for the Education of Young Children (NAEYC) and hosts an annual conference for early
childhood educators in Georgia. The conference spans over the course of three days and offers a myriad of workshops, panel discussions and opportunities to network and engage other ECE professionals at various levels of leadership. Participants can earn up to six hours of *Bright From The Start*-approved training towards the required 10 training hours the state requires early childhood educators to have each year.

Using a mixed methods approach, the researcher observed 10 classrooms, interviewed 10 Lead Teachers, and 3 administrators. This body of work focused on identifying whether or not a relationship existed between a teachers instructional usage of technology in the classroom and the way in which their usage is affected by parental influence, teacher education, teacher training, and environmental access. After collecting and analyzing the data, the researcher found there to be a significant relationship between a teachers instructional usage of technology as it relates to the environmental access they have to technology and their participation in professional development experiences. During the interviews, each administrator expressed the importance of technology in their programs. Each program used the same curriculum—The Creative Curriculum: Teaching Strategies Gold, and each program administrator also expressed their commitment to professional development training and instructional support for their teaching staff. All three of the programs were licensed by *Bright From the Start* and accredited by the National Association for the Education of Young Children. The interviews clearly defined for the researcher the importance that technology played in the lives of the administrators. Whether using a digital device to complete a classroom observation, collecting tuition payments or on-boarding a new teacher; each administrator felt
confident in their programs use of and need for technology in their programs. The researcher did note that while each administrator felt that technology was very accessible to them, 34% of the survey participants disagreed. Some teachers noted that they have access to the technology when it is working which suggested to the researcher that there could be periods of time when the digital equipment is not functioning properly.

Through the classroom observations, the researcher noticed an abundance of technology usage in each program. The researcher observed computer towers opened in one program which were being used to discuss the parts of the computer. Another program utilized Leap Pads to reinforce sight words that they had reviewed previously and handheld digital devices were used in another program to introduce children to piñatas and the supplies needed to make one. The qualitative data collected from the classroom observations supported the researcher’s quantitative findings using the Pearson correlation regarding the relationship between environmental access and professional development and a teacher’s instructional usage of technology in the classroom. The research question that was not able to be assessed or documented was RQ4: Does the technology usage of parents affect their child’s usage of technology in the classroom? Unfortunately there was no data collected that supported or identified a relationship between the independent and dependent variables being examined.

Conclusions and Implications

The purpose of this study was to identify the relationship between a teacher’s instructional technology usage in the classroom and the ways in which parent influence, training, education and environmental access influence their usage. The researcher
examined the impact that each variable had on the teacher’s instructional use of technology in the classroom. The findings of this study indicated that there was significant relationship between teacher’s instructional use of technology and professional development. Fifty-six percent of teachers received training on how to appropriately use and implement technology in addition to 82% of them reporting the usage of technology for instructional purposes. With that said, the researcher concluded that although the entire participant sample did not indicate that they received training, an overwhelming number of teachers (82%) still used instructional technology in their classrooms. The researcher also concluded, based on the interviews, that many of the teachers already knew how to use much of the technology that they used in their classrooms, but welcomed the training nevertheless.

The majority of the participant sample was between the ages of 28 and 35. The data analysis revealed that there was a strong relationship between professional development and age. The teachers surveyed indicated that 58% of their training was administered online. These findings were validated by administrates who agreed that online training can be very cost effective, while providing their teachers with a rich array of training courses to participate in. Although 76% of the survey participants did not feel intimidated by technology, there were teachers who admitted to being too afraid to ask about certain things regarding technology, so they simply did not use it for tasks that were unfamiliar to them. As a result of these findings, the researcher concluded that with the majority of the teachers being members of the millennial generation, technology has always been a way of life for this particular demographic group. Aside from the
affordability and convenience of online training, the researcher also concluded that this method of delivering professional development was chosen in response to the makeup of the teachers in each program. The rate at which teachers used technology in their personal lives to complete tasks (92%), allowed the researcher to conclude that the majority of teachers came into the learning environment with extensive technology usage patterns. The researcher also concluded that these usage patterns would not decrease significantly as a result of being employed in an educational setting; thus 82% of teachers surveyed used technology tools for instructional purposes in their classrooms.

The researcher concluded that interviews with parents did not reveal any indication that parent’s technology usage affected their children’s technology usage in the classroom (RQ4). Although the findings produced no results to support or dispute RQ4, the researcher found that that 84% of parents communicated with teachers via email or other forms of digital media devices. As a result of these findings, the researcher concluded that the parent group was technologically savvy and thus their children would inherently express similar interests in and uses for technology and have been exposed to technology at very early ages. Through the classroom observations, the researcher noted the extensive vocabulary of the children when referencing digital devices. This observation also led the researcher to conclude that parents were likely allowing their children to use technology at home and had also taught them about various types of digital devices in addition to what they are used for.

The researcher planned to host parent focus groups, but was unsuccessful in organizing them due to scheduling conflicts of the families and schools. The researcher
was able to speak informally with parents about their technology usage, but was not able to collect enough data to produce an acceptable sample size. Given the technology usage patterns of parents for communication purposes, the researcher strongly believes that a separate study focused on constructivism as it relates to the parents use of technology and its effects on their child’s usage would be informative. Children enter into the classroom with a wealth of knowledge about technology and the researcher is interested to see where this knowledge came from in addition to what influences the child has that have supported this usage.

**Recommendations for Administrators and Teachers**

- School administrators can ensure that instructional technology is made available to teachers in the classroom.
- School administrators can provide hands-on training and support that will allow teachers to implement instructional technology effectively and efficiently.
- School administrators and/or information technology specialists can provide the necessary training to an additional staff person who will serve as the point of contact when issues arise with the instructional technology devices.
- If the funds are available, program administrators can contract the services of an information technology specialist agency that will troubleshoot issues that arise with the programs in instructional technology.
- School administrators, teachers, and families could benefit from reviewing the NAEYC and Fred Rogers Center joint statement: Technology and Interactive Media as Tools in Early Childhood Programs Serving Children from Birth.
through Age 8. This statement serves as a framework that can be used to promote the intentional use of technology in educational and home environments.

- All staff should subscribe to the Fred Rogers and Technology in Early Childhood (TEC) Center newsletters to stay abreast on trainings, webinars and legislation related to instructional technology in early childhood education.
- All staff should attend NAEYC and GAYC sponsored trainings and conferences, specifically those related to ECE and instructional technology.
- School administrators should create a peer support group that consists of teachers who are technologically savvy and willing to provide additional support to teachers who might be experiencing issues using the instructional technology.
- Teachers should introduce the children to site words that are related to technology and digital media.
- Teachers should monitor the amount of screen-time that children have in the classroom setting and use the Common Sense Media resources, curriculum/guidelines as a resource to engage children in technology and the use of digital media.
- School administrators should encourage families, teachers, and community members to participate in fundraisers that will help fund the purchase of instructional technology and/or training.
• Teachers should reinforce the technology and digital media site words being learned in the classroom at home with the children.

• School administrators and teachers should facilitate internet safety and digital media integration workshops for parents using the guidelines provided by Childnet International.

Limitations

While the researcher collected and analyzed the data, there were limitations that arose. The study took place at three early learning centers that educate children ages 6 weeks to 5 years old. Although the researcher was conveniently able to collect the necessary data, adding additional schools to the study would have created a larger participant sample. After closely analyzing the survey questions and data, the researcher realized that adding more specific questions could have been beneficial to the study and allowed for deeper analysis of the variables.

The researcher used a 7-point Likert Scale to collect the survey data, rather than a 5-point Likert Scale which made the survey analysis slightly challenging. The scale oftentimes had to be inverted to pull out the positive or negative data depending on the question that was being asked. Ultimately, the researcher was indeed able to collect the appropriate data, but had to be extremely careful while reading and coding the responses. The researcher works at one of the participating schools and the teachers at this school may have responded in a way that they knew would be favored by the researcher. Despite the aforementioned limitations, the researcher is confident that they will not have an adverse effect on the outcome of the study should be noted.
Summary

This study identified significant findings related to teacher’s instructional use of technology in early learning environments and the impact that environmental access, education, training, and parental influence have on this variable. The researcher used a mixed methods approach and found that a relationship existed between instructional technology usage and age as well as professional development and environmental access. From the findings, the researcher concluded that the parent group was very technologically savvy and thus their children might inherently be just as interested in technology, which based on the classroom observations, they appeared to be. The children were very engaged with teachers about technology and actively used technological tools with little to no teacher guidance. The research also concluded that teacher’s personal technology usage was indicative of the frequency in which they used technology at to complete work related tasks. Lastly, the findings led the researcher to conclude that the vast majority of the teachers in the participant sample were of the millennial generation which means that technology has always been a part of their lives. With that said, the researcher felt confident in concluding that the most of the teachers in this study already knew how to use most of the instructional technology being used in their classrooms. Based on the findings and conclusions, the researcher created recommendations addressed to administrators, teachers and parents in an effort to add to outline the next steps that need to be taken to support the effective implantation of instructional technology into early learning environments by using a collaborative approach. The researcher will continue to study the instructional use of technology in
early learning environments in an effort to add to the body of research that continues to evolve and identify other variables that could potentially affect its use.
APPENDIX A

TEACHER TECH USAGE SURVEY

<table>
<thead>
<tr>
<th>Question</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 My school has technical tools available for teachers to use in the classroom.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 I use technology frequently in my personal life.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 I use my personal technology to complete tasks such as: paying bills and/or shopping.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 I use Social Media in my personal life.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 I only use social media for instructional purposes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 I use technology tools such as whiteboards, laptops, tablets and/or smartphones for instructional purposes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 I have received training on how to operate the technology in my classroom.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 I have not received training on the technology in my classroom, therefore I don’t use it.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 I am intimidated by technology.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 The majority of my professional development training is offered online.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Parents communicate with me via email and by using other forms of digital media/tools.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Parent’s drop-off and pick-up children while engaged in the usage of digital devices.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Parents utilize digital devices during parent teacher conferences.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 I am a new teacher 1-3 years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Disagree</td>
<td>Undecided</td>
<td>Agree</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------</td>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>15 I have taught for 5-10 years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 I have taught for 10+ years.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17 I am 21-27 years of age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 I am 28-35 years of age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 I am 36-45 years of age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 I am 46+ years of age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 I am male/female</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22 I am</td>
<td>Black</td>
<td>White</td>
<td>Latino/a</td>
</tr>
</tbody>
</table>


APPENDIX B

LETTER OF CONSENT

To Whom It May Concern:

My name is Nadia Jones and I am a doctoral degree student at Clark Atlanta University in Atlanta, Georgia. I work at the Atlanta Children’s Shelter as the Director of Early Childhood Education and have served in that position for 4 years. My career in early childhood education began in 2003 and I have had the pleasure of working with diverse groups of families and children from all walks of life. I also currently serve on the Board of the Georgia Child Care Association and as the Early Childhood Education Advocate for The Junior League of Atlanta.

Technology usage has increased amongst adults over the past 20 year. Its usage by children has also increased, especially amongst young children. Children are indeed fascinated by technology and in some ways prefer digital devices over other interactive devices, but at what cost?

By conducting this research, I will examine the instructional technology usage by teachers in 3 Metro Atlanta preschool programs. The surveys, classroom observations and interviews that I will do will let me know if a relationship exists between a teachers instructional technology usage and a teachers education, training, parental influence and environmental access.

The survey is brief and will take between 10-15 minutes to complete. The survey is completely anonymous; and can be completed by using a link to Survey Monkey that I will provide, once I have been given consent to move forward. Before I launch the survey I am required to obtain permission from program directors/administrators in order to survey and interview with their teaching staff and parents.

It is my hope that you will join me in this effort and allow me to conduct research with your current teaching staff. Please note that teachers have the choice to participate or not even if you (the program director/administration) have granted me permission. If you are interested in participating in the study please email me at nadia.jones08@gmail.com with the following:

A letter signed by the program director on your school's official letter head stating the following:

(Your school's name) grants Nadia Jones permission to survey our teaching staff, speak with parents in a focus group setting and observe classrooms as a part of her dissertation research "Instructional Technology Usage by Teachers in Early Learning Environments: A Mixed Methods Case Study on 3 Greater Atlanta Area Preschools."

The name of your facility will not go beyond the permission granted in the signed document as it is purely for the purpose of ensuring ethical conduct with human subjects. The name of your facility will not appear on the survey or final report. Furthermore, your teachers, students and parents will not be identifiable as a result of this document.

If you have any questions about the project you should feel welcome to email me back with those questions. Thank you for your consideration in partaking in this research project and I wish you my best.

Nadia J. Jones
APPENDIX C

INTERVIEW PROTOCOL

Background Information

School: ____________________________________________________________

Interviewee (Title and Name): ______________________________________

Interviewer: ______________________________________________________

Professional Use

• How would you rate your computer skills: emerging, beginner, intermediate or advanced? Why?

• What software have you used for instructional or classroom management purposes?

• What types of technology do you use in the classroom?
  o What do you use it for?

• How do you incorporate technology into your instruction?

• Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for instructional purposes?

• Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for professional development?

• Is the technology in the classroom meeting your needs and the needs of the students?

• What barriers (if any) have you encountered using technology in the classroom?

• Should young children utilize technology in the classroom? Why? Why not?
• How you communicate with parents using technology and/or digital media?

• How do parents communicate with you?

**Personal Use**

• Do you have access to the internet outside of school?

• Do you own a computer or any other mobile devices? If so which ones?

• What types of technology or digital media do you use outside of school?
  
  o What is it used for?

• About how many hours each day do you spend using digital media devices?

• How did you learn how to use digital media devices?

• What software or devices have you used for your own lifestyle management or recreation?

• Do you have a social media account? If so how many?
  
  o How active are you on social media? Very active, Somewhat active, Not active at all.
Professional Use

• **How would you rate your computer skills: emerging, beginner, intermediate or advanced? Why?**

  They’re intermediate. They’ve gotten much better over the years I guess as things have changed in the field.

• **What software have you used for instructional or classroom management purposes?**

  We use Teaching Strategies Gold which is a program through the curriculum that we use and we use the Creative Curriculum.

• **What types of technology do you use in the classroom? What do you use it for?**

  Yes we do, all the time. Each of the classrooms has iPads that the teachers use to collect observation notes on. They also use them to take video and pictures of the children doing various activities for their observation notes. Our Preschool class has used Skype to talk to a Preschool class in Russia and that was pretty cool. One of our Preschool teachers used to live and work over there, so she set up the meeting and the kids loved it.

• **How do you incorporate technology into your instruction?**

  We might use the LeapPads for a reading lesson or a writing lesson. We didn’t used to in the past, but we now include when we will use any type of technology on our lesson plans as well as the amount of time that it will be used for that particular activity.
• **Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for instructional purposes?**

It’s very accessible in our program. As I said, every classroom has an iPad. Each classroom also has laptops, digital cameras with video capability and LeapPad equipment.

• **Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for professional development?**

We are able to use the iPads and laptops to complete our online training through CCEI which is the system we use to take some of our state approved trainings through. So yes, it is very accessible.

• **Is the technology in the classroom meeting your needs and the needs of the students?**

Yes it does. It did not always though. Over time and after a lot of research, we've made that better and now we have exactly what we need which is a great thing.

• **What barriers (if any) have you encountered using technology in the classroom?**

Good question. So teachers were resistant when we first began this journey of introducing technology. Many of them used email and other forms of technology very little (except for a cellphone). We also had to get our board of directors to understand why incorporating technology into the classrooms was important. That wasn’t as hard of a sell as the teacher part of it (chuckle). All in all, it worked out and I can certainly tell how it has improved our program in addition to parent communication and access to information.

• **Should young children utilize technology in the classroom? Why? Why not?**

Of course they should, but with supervision of course. I don't think there is any harm in it as long as there is meaning and their learning can be measured or assessed.

• **How do you communicate with parents using technology and/or digital media?**

The curriculum that we use allows parents to login and access the classroom observation notes for their child. They can also access the classroom newsletters and lesson plans each week. Every teacher also has an email address that parents can email them on. One more thing about the curriculum that I forgot to mention.
There is also a message component that parents can use to send and receive messages. It’s really cool.

- **How do parents communicate with you?**

  Primarily though verbal communication and telephone believe it or not. That’s probably due to the fact that our families are in transition and spend a lot of time at the school (those who don’t work), so I see them very often. We are also a small school so that probably has something to do with it to I guess.

**Personal Use**

- **Do you have access to the internet outside of school?**

  Yes. I use the internet at home and on my phone.

- **Do you own a computer or any other mobile devices? If so which ones?**

  Yes. I have a laptop, tablet and cellphone.

- **What types of technology or digital media do you use outside of school?**

  What is it used for? I use my laptop every day and I always use my cellphone. I use my laptop to watch movies and TV, shoes. My cellphone is used a lot to check my email and stay in touch with family and friends.

- **About how many hours each day do you spend using digital media devices?**

  (chuckle) Probably 17 hours a day. The hours I’m not using it, I’m sleeping. (chuckle)

- **How did you learn how to use digital media devices?**

  Trial and error initially, but now I usually Google or YouTube things that I want to know. That’s kind of scary. (chuckle)

- **What software or devices have you used for your own lifestyle management or recreation?**

  I use online banking with my credit union. That’s really helpful. I don’t really do auto pay for bills. I don't really trust that. I also use accounting software to do my taxes every year.
• **Do you have a social media account? If so how many?**

I have a Facebook account and an Instagram account.

  o **How active are you on social media?** Very active, Somewhat active, Not active at all. I am very active on social media so that I can monitor my younger family member’s activities. (chuckle) I also use it to stay in touch with family and friends which I find it very helpful for.

**School B**

• **How would you rate your computer skills: emerging, beginner, intermediate or advanced? Why?**

Advanced. I don’t like to waste paper, so we’ve tried to go paperless for the most part and do many things electronically.

• **What software have you used for instructional or classroom management purposes?**

Right now we are using ProCare to sign the kids in and out each day, we also use the Creative Curriculum and Teaching Strategies Gold to complete lesson plans and assessments on the children.

• **What types of technology do you use in the classroom? What do you use it for?**

When we were completing the NAEYC classroom portfolios a few years ago, we learned that all of the portfolios will be submitted electronically in the future. That’s great! So to prepare for reaccreditation, we will be uploading our documents this time rather than having paper copies of evidence. There are children’s computers in the Preschool and PreK classrooms. This year’s 5K race funds will be used to purchase more technological equipment for all of the classrooms.

• **How do you incorporate technology into your instruction?**

I use it for staff trainings during meetings sometimes. I primarily use it for email communication with teachers and parents. I also use it to create newsletters, finances, performance evaluations, and flyers or other memos.

• **Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for instructional purposes?**

It’s not as accessible as I’d like, but again that is what I will be using a portion of the 5K funds for.
• **Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for professional development?**

Not as much as I’d like it to be which I also hope to address with the 5K funds. There aren’t enough computers or laptops for teachers to share.

• **Is the technology in the classroom meeting your needs and the needs of the students?**

Moderately. It’s not terrible, but this is also another area.

• **What barriers (if any) have you encountered using technology in the classroom?**

Sometimes teachers resist, so it has been a little challenging trying to get them to stay engaged and on board at times.

• **Should young children utilize technology in the classroom? Why? Why not?**

Absolutely. It’s the way of the world, as long as it’s done in an instructional way. When there’s no instruction, it can become a babysitter.

• **How do you communicate with parents using technology and/or digital media?**

We use newsletters, email and Teaching Strategies Gold.

• **How do parents communicate with you?**

Our parents primarily use email to communicate with us. It’s a lot easier for them it seems.

**Personal Use**

• **Do you have access to the internet outside of school?**

Yes all the time.

• **Do you own a computer or any other mobile devices? If so which ones?**

Yes. I own an iPad, smartphone and laptop.
• What types of technology or digital media do you use outside of school? What is it used for?

I use social media a lot for school and personally.

• About how many hours each day do you spend using digital media devices?

Hmmmm about 10-12 personally and about 15-20 professionally. (chuckle)

• How did you learn how to use digital media devices?

I taught myself and researched other things. I did learn how to do a few things in some training courses/classes/webinars that I’ve taken in the past.

• What software or devices have you used for your own lifestyle management or recreation?

I pay bills online and I use online banking. I also text, email and use FaceTime a lot.

• Do you have a social media account? If so how many?

Yes. I have 4 personal accounts and 1 school account.

  o How active are you on social media? Very active, somewhat active, Not active at all. I’d say I’m very active and use it every day both personally and professionally.

School C

• How would you rate your computer skills: emerging, beginner, intermediate or advanced? Why?

Excellent. I have more than 20 years’ experience.

• What software have you used for instructional or classroom management purposes?

We use Work Sampling Online and Teaching Strategies Gold.

• What types of technology do you use in the classroom? What do you use it for?

We use Work Sampling Online and Teaching Strategies Gold here too. WSO is a tool used to authentically assess children’s development and TSG does that also, but also has other features that are helpful to the teacher in the classroom.
• How do you incorporate technology into your instruction?
  
  I use it to collect data, provide feedback and for monitoring purposes.

• Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for instructional purposes?
  
  It’s very accessible in my program.

• Is technology very accessible, somewhat accessible, rarely accessible or never accessible to you for professional development?
  
  It’s very accessible for that also.

• Is the technology in the classroom meeting your needs and the needs of the students?
  
  Absolutely. Yes.

• What barriers (if any) have you encountered using technology in the classroom?
  
  There are none.

• Should young children utilize technology in the classroom? Why? Why not?
  
  Yes. It’s very much a part of the world that they live in.

• How do you communicate with parents using technology and/or digital media?
  
  I communicate with them using email and text messaging.

• How do parents communicate with you?
  
  They find it easier to have conversations with me.

Personal Use

• Do you have access to the internet outside of school?
  
  Yes I do.
• **Do you own a computer or any other mobile devices? If so which ones?**

Yes. I use both computer and mobile devices (laptops, tables, cellphones).

• **What types of technology or digital media do you use outside of school? What is it used for?**

I use everything for personal and professional use (chuckle). I use it a lot professionally for marketing, communication and data collection. Personally use it for email, communication family related tasks.

• **About how many hours each day do you spend using digital media devices?**

Honestly 2-4 hours each day.

• **How did you learn how to use digital media devices?**

I did have some training, but I also had some trial and error.

• **What software or devices have you used for your own lifestyle management or recreation?**

(YNAB) better known as You Need A Budget.

• **Do you have a social media account? If so how many?**

Yes, just 1.

  • How active are you on social media? Very active, somewhat active, Not active at all. I’m somewhat active on social media.
APPENDIX E

TEACHER INTERVIEW QUESTIONS

1. Do you believe there to be a relationship between a teacher’s technology usage and student instructional engagement? Please give an example.

2. Do you believe there to be a relationship between a teacher’s use of technology and student’s use of technology? Please give an example.

3. Do you believe there to be a relationship between a teacher’s technology usage to support curriculum instruction and its use as a behavior modification tool?
1. **Do you believe there to be a relationship between a teacher’s technology usage and student instructional engagement? Please give an example.**

   “I enjoy using technology in my classroom. Although we have had a few formal trainings about how we should use our iPads or other devices in the classrooms, we were shown how the children can use them. I mean, I already knew how to use most of the equipment as do most of us. I would say that my technology usage and understanding is pretty advanced. I try to incorporate technology into my classroom with every opportunity that I have. My students are very interested in technology and always want to lead the lessons when I’m using the iPad or Leap Pads. They know a lot more about technology than I thought, so I make it a point to take note of their interests in technology and create lessons that will allow them to exercise those skills, while I collect the developmental information that I need. I have noticed that when I do not incorporate technology at all into my lessons, the children don’t seem to be as interested. They complete the tasks, but not with the same level of enthusiasm or focus. So yes, I think my interest in and use of technology in my class is related to their instructional engagement in my class.”

2. **Do you believe there to be a relationship between a teacher’s use of technology and student’s use of technology? Please give an example.**

   “No I don’t think so at all. I think that using it at school is a bonus. Most kids are using so many types of devices outside of school anyway so they will already be knowledgeable about it and interested in it.”

3. **Do you believe there to be a relationship between a teacher’s technology usage to support curriculum instruction and its use as a behavior modification tool?**

   “I could see that being the case. I mean, when cable got better and there were more programming options, I can remember there being a real big concern with parents (mine included) about the amount of time kids were watching TV. I also remember my parents letting us watch TV. while they would be preparing for certain things, so I guess I grew up with TV being my behavior modification tool compared to today’s
iPads and iEverything else. I try to come up with transitional activities that are more cognitively stimulating, but sometimes, it’s easier to allow the child to play a computer game for a few minutes while I’m prepping the next activity. That usually only happens when my lesson may have taken an unexpected turn in which case I always try to update the lesson plan to include the activity for the most part.”

School B

1. **Do you believe there to be a relationship between a teacher’s technology usage and student instructional engagement? Please give an example.**

   “Most definitely I do. Technology is a huge part of my life both inside and outside of my classroom. I’ve found that my students prioritize and value the very things in our classroom that I prioritize and value oddly enough. When teaching them about the parts of the computer, I also teach them about how to take care of a computer. Why we should keep liquids away of computers like milk, juice and water. They can relate to that and are very engaged when we have conversations like that. They understand that if they spill liquid on a computer, it may become damaged which will prevent them from using it.”

2. **Do you believe there to be a relationship between a teacher’s use of technology and student’s use of technology? Please give an example.**

   “These children came into my room already knowing how to do several things that I didn’t on computers, so I guess you could say they taught me. There are some children who you can tell may have limited access to technology outside of school, because they look very scared and lost when I ask them to complete a lesson using the computer or tablet. I had one child who used to cry and call himself dumb, because he didn’t know how to do it. In his case I made an effort as I do with all of my children to teach them about the parts of the computer, you know the basics. We start learning sight words and symbols related to technology and build from there. This approach helped the little boy who was frustrated. Easing him into using technology with my guidance really helped him feel comfortable with it. He now teaches other children in the class new things they may not know and I think that’s kind of cool”

3. **Do you believe there to be a relationship between a teacher’s technology usage to support curriculum instruction and its use as a behavior modification tool?**

   “Oh yea! I certainly won’t throw anyone under the bus, that’s not my style. However, I do know that some of us have used technology as a babysitter to keep a “busy” child quiet. Before I learned how to use technology to support my teaching practices, I did it too. I guess it’s one of those things that you do better when you know better.”
School C

1. **Do you believe there to be a relationship between a teacher’s technology usage and student instructional engagement? Please give an example.**

   “Not really. I’m from the old school and have been doing this for a long time; long before we had screens and things. Whether or not your class is engaged in the lesson has everything to do with my technique and delivery. It’s important for me to identify the ways in which the children learn best and exploit that to their benefit.

2. **Do you believe there to be a relationship between a teacher’s use of technology and student’s use of technology? Please give an example.**

   “Well, yes and no. I think that the kids nowadays are so tech savvy that they are going to be interested regardless of whether or not we use it in class. Their interest may even force us to use it I guess. That’s not an issue for me, but could be for my colleagues who don’t really like to use technology for anything at all.”

3. **Do you believe there to be a relationship between a teacher’s technology usage to support curriculum instruction and its use as a behavior modification tool? Please give an example.**

   “Our school uses the Creative Curriculum Gold which has an online component for us to use to enter notes, observations, and other data about the children in our classes. There is even an iPad app for it and I enjoy using that. I honestly don’t allow my class to use the iPad unless I need a few extra minutes to get the next lesson together. Children hate to wait, so rather than having them sitting idle, I may let 2 of them use my iPad and a few more get on the computer while the rest are in the library. Usually I’ll have transition activities ready, but sometimes I just don’t have the time, so I have a few go to activities that I can pull up.”
Checklist for identifying exemplary uses of technology and interactive media for early learning

The Pennsylvania Digital Media Literacy Project

Michael Robb, Rita Catalano, Tanya Smith – Fred Rogers Center for Early Learning and Children’s Media at Saint Vincent College
Sue Polojar, Michelle Figlar – Pittsburgh Association for the Education of Young Children
Barbara Minzenberg - Pennsylvania Office of Child Development and Early Learning
Roberta Schomburg – Carlow University, Fred Rogers Center

The influx of new technologies and digital media has raised questions about how early childhood educators can best integrate new tools into their practice in ways that support developmentally appropriate practice. In 2012, the National Association for the Education of Young Children (NAEYC) and the Fred Rogers Center for Early Learning and Children’s Media at Saint Vincent College (FRC) released a joint position statement to provide guidance to early childhood programs, with recommendations on developmentally appropriate practice in the selection, use, integration, and evaluation of technology and interactive media. Other researchers, educators, and advocates also are providing positive guidance in this rapidly changing environment. This checklist developed for the Pennsylvania Digital Media Literacy Project synthesizes recommendations from the NAEYC-FRC position statement and several of these other sources We borrow the definition of technology tools from the NAEYC-FRC position statement to include a broad range of digital and analog materials “designed to facilitate active and creative uses by young children and to encourage social engagement with other children and adults.” These tools include, for example, computers, tablets, multitouch screens, interactive whiteboards, mobile devices, cameras, DVD and music players, audio recorders, electronic toys, games, e-book readers, and older analog devices still being used such as tape recorders, VCRs, VHS tapes, record and cassette players, light tables, projectors, and microscopes.

NOTE: Educators should use this checklist to guide their thinking when integrating technology and interactive media into their programs and classrooms. Many of the statements below will be more applicable to specific instances of technology and interactive media use in early childhood education than others. Therefore, it is not essential to check “yes” in every box.
<table>
<thead>
<tr>
<th><strong>SELECTION (Intentionality, Developmental Appropriateness, Planning)</strong></th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The use of interactive media and technology tools is intentional.¹,²,⁷</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Supports the goals, early learning standards, or curricular areas of focus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- A need is identified first, then an appropriate resource is selected</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Selected interactive media and technology tools are developmentally appropriate.¹,⁶</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Selected tools are age-appropriate, stereotype-free, provide clear instructions and prompts, are well-produced, and are free of commercial messaging</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Technology features are deliberately chosen to meet instructional goals for the developmental needs of the child, including distinct cognitive abilities, motor skills, social-emotional needs, and interests of the child</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Interactions with technology are playful and open-ended, encourage creativity, pretend play, active play, and outdoor activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Gives children control of the medium; may offer scaffolding and reinforcement to children of different abilities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Technology use is well planned.¹,⁷,⁸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cost effectiveness is considered, including resource allocation, initial costs, costs of updating, upgrading, or replacing software and hardware, and durability for active use by young children</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>USE (Physical Environment, Collaboration, Connection to Non-Digital World, Family Engagement, Digital Equity)</strong></th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. The physical environment is configured to accommodate the specific technology tool.¹,²,⁵,⁷</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Hardware availability and placement accommodate individual, small group, and whole group instruction so the physical environment is configured appropriately for usage by children (i.e. tablets, computers, and digital cameras are better suited for individuals and small groups, while light tables and interactive whiteboards are better for whole groups)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Technology is infused into multiple learning areas of the classroom alongside traditional materials</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Technology and interactive media offer opportunities for joint engagement, collaboration, information sharing, and conversation with peers, educators, parents, or other caregivers.¹,⁴,⁶,⁷</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- May offer ability to access experts and peers in other locations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Interactive media and technology tools are connected to the non-digital world.¹,³,⁶</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Educator uses technology tools to connect to the lives of students and world beyond the classroom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Technology is used to explore real-world issues</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Technology supports learning and expands access to new content by complementing and supplementing current activities such as creative play, physical activity, outdoor experiences, conversation, or social interactions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Technology tools and interactive media are used to strengthen home-school connections.⁴,⁸</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Educator models appropriate interactive media and technology tool usage and creates opportunities to educate parents about home use; technology is used to connect and communicate with family members; educators and families share learning resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. All children, including dual language learners, children with special needs, and others, have opportunities to use and learn from available technologies.⁶</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### INTEGRATION (Professional Development, Support)

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
</table>
| 9.  | The educator has access to online or offline communities of learning around digital media literacy that may include formal courses, mentors, webinars, online courses, or in-service. 2,3,5,6  
University technology, professional development offers opportunities to explore, create, and play with interactive media and technology tools. |     |    |          |
| 10. | Senior leadership support use of technology in classroom and programs, and allocate staff, equipment, financial resources, and time appropriately. 3,5  
Funds has a clear technology policy that addresses appropriate selection of and access to technology, digital privacy and etiquette, and digital equity  
Technical and training assistance is available for maintaining and using digital resources  
Educators feel empowered by leadership to effect change in technology integration. |     |    |          |

### EVALUATION (Assessment, Reflection)

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
</table>
| 11. | Educator assesses whether learners are meeting expected objectives. 3,7  
Educator develops system to track the use and impact of technology  
Evaluation of technology in classrooms is integrated with ongoing assessments of learning and developmental outcomes  
Educator uses pictures, video, and other interactive media to provide meaningful documentation of classroom activity or child progress, which may be shared with parents or other caregivers |     |    |          |
| 12. | Educator reflects on activity, identifies areas of success and ideas for improvement. 4,8  
Educator identifies what planning helped the success of the activity and what changes should occur the next time |     |    |          |

---

8. NAEYC & Fred Rogers Center for Early Learning and Children’s Media. Technology and Interactive Media as Tools in Early Childhood Programs Serving Children from Birth through Age 8. (NAEYC, 2012).
APPENDIX H

OBSERVATION NOTES

School A

1. The use of interactive media and technology tools is intentional.

   Yes - Teachers include learning standards on the lesson plans that they’ve use technology devices to implement.

2. Selected interactive media and technology tools are developmentally appropriate.

   Yes - Technology is definitely incorporated into the lesson plans which is good to see. There are is also a certain amount of time allowed to use the equipment to make sure that there isn’t an overabundance of screen-time. Technology is used in the library area for reading and in the writing and math centers when the teacher has planned for these additions. This allows the children to have choices in the type of reading, math or writing activity they would like to do.

3. Technology use is well planned.

   Yes - The school administrator showed me the programs budget that included a line item for technology (that was great to see). All of the equipment is refreshed every 3-4 years. Protective cases were also purchased to cover the iPads and other equipment used by children and teachers.

4. The physical environment is configured to accommodate the specific technology tool.

   Yes - All of the technology used is mobile and all of the programs have WiFi access. This allows the teachers to have the flexibility to move from place to place while providing instruction or preparing lessons. Technology is used in all of the learning centers in each classroom.
5. Technology and interactive media offer opportunities for joint engagement, collaboration, information sharing and conversation with peers, educators, caregivers and parents.

Yes - Teachers use technology to communicate with parents and the children use it to communicate with other children in other countries. One of the teachers in the program used to teach in Russia and coordinated regular sessions for the two groups of children to video conference using the Ipads or laptops.

6. Interactive media and technology tools are connected to the non-digital world.

Yes - The children were learning about balls and the teacher showed them various types of balls/spherical things that are used in everyday life. They also examined everyday objects used in the classroom and at home. The class also went on a walking field trip to identify circular and spherical shaped objects.

7. Technology tools and interactive media are used to strengthen home-school connections.

Yes - Teachers communicate with the parents via email and through the curriculum tool. Each parent has a profile that they can log into to keep track of what lessons are being taught in class, read classroom newsletters, review the observation notes put into the system by the teacher each day and send/receive correspondence to/from the teacher.

8. All children, including dual language learners, children with special needs and others have opportunities to learn from available technologies.

Yes - There are a few children with special needs to whom the program provides all of the necessary accommodations needed for the child to participate in various activities using technology and digital media. Therapists are very impressed with the inclusion practices in the program.

9. The educator has access to online or offline communities of learning around digital media literacy that may include formal courses, mentors, webinars. Online courses, or in-service.

Yes - Every teacher is a member of NAEYC and is connected to the online communities that come with the membership. There are a variety of learning and professional communities that they can choose to be apart of based on their interests. The program also does face-to-face training and attends conferences annually as a team.
10. Senior leadership support use of technology in classroom and programs, and allocate staff, equipment, financial resources and time appropriately.

Yes - School leaders have raised over 20K to purchase technology equipment, training and maintenance tech support. Each classroom has an Ipad, digital cameras, laptops and a myriad of Leap Frog equipment appropriate for each age-group of children served.

11. Educator assesses whether learners are meeting expected objectives.

Yes, but teachers upload pictures and videos to the children’s online profiles to document their progress. This is shared with parents before and after parent teacher conferences. A portion of the assessment speaks to student engagement.

12. Educator reflects on activity, identifies areas of success and ideas for improvement.

Yes, But - This could be more consistently documented for training purposes. Not every class does this.

School B

1. The use of interactive media and technology tools is intentional.

Yes, But - It is used, but not always documented.

2. Selected interactive media and technology tools are developmentally appropriate.

Yes - The name of the unit is “Inventions” which the children were excited about. They made thinking caps that were used to think about new inventions that they wanted to create. They also explored existing inventions and their uses. During circle time they discussed inventions that they have at home and what they are used for.

3. Technology use is well planned.

Yes - The ED had a very clear vision about how technology was going to be fully integrated into the program. There is a fundraiser coming up (5K) and a large portion of the funds are going to purchase new technology for the program.

4. The physical environment is configured to accommodate the specific technology tool.

Yes - Each classroom has a color coded computer station that can accommodate 2-3 children at a time. There was also an open faced computer tower in the discovery
center with major parts labeled. The children were encouraged to touch the computer and familiarize themselves with the internal parts of a computer.

5. Technology and interactive media offer opportunities for joint engagement, collaboration, information sharing and conversation with peers, educators, caregivers and parents.

Yes - This was absolutely amazing! In every center there was an open-faced computer tower that was labeled for the children to see and interact with in the Discovery Center.

6. Interactive media and technology tools are connected to the non-digital world.

Yes - The class is learning about inventions and inventors. They made inventions that they believe are needed and that do not currently exist. They also had to justify why their invention is important/needed to solve a problem.

7. Technology tools and interactive media are used to strengthen home-school connections.

Yes. But - Teachers communicate with parents primarily via email. I didn’t observe modeling, but the teacher did explain the unit to a parent and offered her some tips about how to continue the conversation at home.

8. All children, including dual language learners, children with special needs and others have opportunities to learn from available technologies.

Yes - The classroom was a very inclusive from the books in the library to the equipment in the classroom itself. All of the equipment and activities were easily assessable by children and staff off varying abilities.

9. The educator has access to online or offline communities of learning around digital media literacy that may include formal courses, mentors, webinars, Online courses, or in-service.

No - The staff don’t have access to any formal or organized training around technology implementation. This is one of the additional to the program that the ED plans to make with the funds raised at the upcoming 5K.

10. Senior leadership support use of technology in classroom and programs, and allocate staff, equipment, financial resources and time appropriately.
Yes, once the additional resources are available, the entire staff will be able to be trained and additional materials can be purchased to assist the staff in the collection of data.

11. Educator assesses whether learners are meeting expected objectives.

Yes, But - This is not done consistently in all classrooms. There are some teachers who are not comfortable using the technology (email) available to provide the feedback. There are other teachers who do use the technology and offer help to those who don’t have consistent access or who might need some assistance. Teachers have come up with a system to collect the necessary data that they need to measure the children’s growth. They currently use Teaching Strategies Gold, but not everyone uses it.

12. Educator reflects on activity, identifies areas of success and ideas for improvement.

Yes, But-Teachers have planning time where this is done. The schedule is not consistent which means that this does not happen all of the time and some teachers feel like they never get time to do this.

School C

1. The use of interactive media and technology tools is intentional.

Somewhat - This was not documented on the lesson plan and seemed like an afterthought when it was used.

2. Selected interactive media and technology tools are developmentally appropriate.

Yes - Each classroom has a child-sized computer that was color-coded with instructions for the children that were easy to follow. The children were learning about parties and celebrations. The teacher was teaching the children how to make piñatas, but another child was unfamiliar with the term. Before the teacher could begin to explain, one of the children said to the teacher, “Let’s Google it.” The teacher laughed and immediately pulled out her smartphone that had a rather large screen so that she could do just that. This created a very rich dialogue.

3. Technology use is well planned.

Somewhat - There were some resources in the classroom that were available to children, but there were other classrooms that had little to no resources. Some classrooms had the equipment, but it didn’t work.
4. The physical environment is configured to accommodate the specific technology tool.

Somewhat - Aside from the large computer station the room was not really configured in any special way that included technology. All of the rooms had very standard/similar setups.

5. Technology and interactive media offer opportunities for joint engagement, collaboration, information sharing and conversation with peers, educators, caregivers and parents.

Yes - They use Youtube, Seussville and other online media programs/sites for instructional purposes. They also communicate with parents via email.

6. Interactive media and technology tools are connected to the non-digital world.

N/A - I didn’t observe this in any classroom unfortunately. Technology seemed to be its own activity all the time.

7. Technology tools and interactive media are used to strengthen home-school connections.

Yes, But - Beyond emailing parents, this was not observed. There is definitely room for improvement here.

8. All children, including dual language learners, children with special needs and others have opportunities to learn from available technologies.

Yes - The teachers ensure that all of the children are engaged and have a chance to interact with all of the equipment which is wonderful. The limited equipment is where the issue lies.

9. The educator has access to online or offline communities of learning around digital media literacy that may include formal courses, mentors, webinars. Online courses, or in-service.

The staff does take some online training, but the bulk of their trainings are done in person. The staff did express that they would like more training that shows them how to incorporate technology the right way.

10. Senior leadership support use of technology in classroom and programs, and allocate staff, equipment, financial resources and time appropriately.
Administrator is very supportive, but doesn’t appear to be aware that some of the equipment is not working. Some of the staff are excited about technology, but some are very indifferent about using it at work even though they all use it in their personal lives.

11. Educator assesses whether learners are meeting expected objectives.

Yes - The school uses the online assessment system available in the Creative Curriculum. All of the teachers use the program and upload videos, pictures and notes to the children’s profiles for the parents to review. All parties are able to assess the child’s growth and have open dialogue about it during conference time which is great.

12. Educator reflects on activity, identifies areas of success and ideas for improvement.

Yes, But - This is not done consistently. The teachers feel like they need a designated time to do this.
REFERENCES


