2017

The Impact of Technology Integration on the Engagement Levels of Ten Second Grade Students in an English Language Arts Classroom

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Submitted in Partial Fulfillment of the Requirements

For the Degree of Doctor of Education in

Curriculum and Instruction

College of Education

University of South Carolina

2017

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DEDICATION

This dissertation is dedicated to my supportive husband, Jerion Hankins, and our wonderful children, Taylor and Jacob. Each has served as a continuous source of support and encouragement. They believed in my abilities even when I had my doubts and they graciously sacrificed in order to allow me to accomplish this lifetime goal.

I also dedicate this dissertation in memory of my beloved nephew, Jaelen Isaiah Josey. Jaelen and I shared a sincere thirst for knowledge and love for learning. If time had only permitted, I am certain he would have embarked upon this same journey. I am eternally grateful for having had him as part of my life for the short time that he was.

ACKNOWLEDGEMENTS

I would like to acknowledge and extend gratitude to the faculty, staff, students, and parents at the school in which I am employed. Without them, this study would not have been possible. I am also extremely grateful to Dr. James D. Kirylo for helping me better understand how to properly conduct, analyze, and write a dissertation. His support and guidance, which came free of judgment, enabled me to create a product of which I am extremely proud. I am also very appreciative of Dr. Rhonda Jeffries, Dr. Richard R. Lussier, and Dr. Spencer C. Platt for serving as my dissertation committee members. I am thankful for your time and contributions. I would like to extend my sincere appreciation to Dr. Ivey Addison Mayo. Throughout this process, she has provided invaluable wisdom and guidance, while also serving as a wonderful supporter and friend. Last, I would like to acknowledge and say thank you to any friend, family member, Cohort B member, sorority sister, or colleague who provided a listening ear and/or guidance as I journeyed through this process. Please know that even though there are too many to name, your support did not go unnoticed or unappreciated.

ABSTRACT

This action research study examined the way in which integrating technology into a second grade ELA classroom impacted levels of student engagement. Research investigated utilizing various technological tools to meet learning goals and objectives in the classroom, and determined the impact on student engagement as perceived by the students and classroom teacher. The study employed a mixed-methods approach of data collecting. The researcher collected and recorded data twice a week for six weeks. In order to identify and validate the study's findings, the researcher used field notes, interviews, questionnaires, and checklists as the data collection sources to measure student engagement.

The action research study sought to determine whether incorporating the use of various technological tools to aid and assist the teacher in meeting the intended learning goals and objectives had an impact on levels of student engagement. The results revealed positive benefits between student engagement and instructional practices that integrated the use of educational technology. The study also outlined an action plan to further inform, improve, and build upon the knowledge gleaned from its findings. The results have the potential to benefit and inform the fields of education, instructional technology, educational technology, and professional growth and development programs for current educators and those enrolled in training programs.

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LIST OF ABBREVIATIONS

BIP ..... Behavior Intervention Plan

COR ..... Conservation of Resources

CRS ..... Class Response System

ELA ..... English Language Arts

ELL ..... English Language Learner

ESL ..... English as a Second Language

NETP ..... National Education Technology Plan

PoP ..... Problem of Practice

RTI ..... Response to Intervention

SE ..... Student Engagement

CHAPTER 1

ACTION RESEARCH OVERVIEW

Introduction

Technology has become an integral part of our daily lives. Not a single day passes that we do not witness at least one individual using a smartphone, tablet, or laptop computer. Thanks to these devices, finding answers to one's questioning and wondering is a seemingly instantaneous process. With so many technological advances and the easy access with which one can utilize resources from the World Wide Web to satisfy inquiries, many individuals are quick to say *Google it* rather than using more traditional forms of research. According to the online article, *What is successful technology integration* (2007), "Technology integration is the use of technology resources – computers, mobile devices like smartphones and tablets, digital cameras, social media platforms and networks, software applications, the internet, etc. in daily classroom practices, and in the management of a school" (para. 1) and its use is steadily increasing.

This almost instinctive use of technology crosses all racial, ethnic, religious, political, and gender boundaries and it is not limited to a specific age group. Individuals from as young as toddlers to those classified as senior citizens often use some form of technology on a daily basis. Technology is such a major part of our lives that it has become almost antiquated to manually record daily schedules and appointments on a calendar, write out shopping lists, clip coupons, use hard copy maps for directions, or check-off items on a handwritten to-do list.

Even though technology use is prevalent in all age categories, its use is most prominent among the younger generation (Hicks, 2011). A major contributing factor to this difference in usage is the fact that students currently in middle school or younger do not know a world without the Internet or computing devices. These students are commonly referred to as digital natives. A digital native is an individual born after the widespread adoption of digital technology. The term digital native has no specific reference to a certain generation, but rather, a catch-all category for those who have grown up using various technologies like the Internet, smartphones, computers, and other mobile devices. Exposure of this kind and magnitude during a child's early years provides digital natives with a greater familiarity with technology than people who were born before its widespread use (Janssen, n.d.).

Employed as an instructional technology specialist in an elementary school, the researcher has the responsibility of coaching and collaborating with classroom teachers to effectively use technology with classroom instruction to engage students and successfully meet learning goals and objectives. Increasing learner engagement is just one of many incentives for teachers to embrace teaching 21st century learners in 21st century classrooms (DiBlasi, 2013). As Hicks (2011) stated, "Technology in the classroom is a must-have attention keeper and ultimately meets the needs of digital natives" (p. 189). Liu (2011) found that, along with enhancing student engagement, other student benefits exist, such as expanded opportunities to extend learning beyond the four classroom walls, the flexibility and adaptability of differentiating instruction, and improved opportunities for meaningful and relevant learning that connects to real-world events that arise as a result of teachers using technology in their classrooms. The researcher, therefore,

explored the following: What impact will technology integration in a 2nd grade elementary classroom have on levels of student engagement in an English Language Arts classroom.

Statement of the Problem of Practice

For years, research has confirmed that higher levels of learner engagement equate to higher levels of student performance (Reeve, 2012). In that light, therefore, Fredricks, Blumenfeld, and Paris (2004) claimed it was mandatory that students actively engaged in the curriculum if expected to achieve. Moreover, however, and unfortunately, they also found that, as students increased in age and progressed through the upper elementary grades and middle school, their levels of engagement decreased. The result of this disengagement negatively impacts motivation, which can contribute to student underachievement (Goodenow, 1992; OECD, 2003). Therefore, teachers must undertake an ongoing journey of discovery, acquiring new knowledge that, deliberately and effectively, aids them in embracing a pedagogy that motivates and engages students (Lumley & Bailey, 1991).

Technology has significantly changed the ways in which people think, go about gaining new knowledge, communicate, collaborate, and problem-solve. As a teacher researcher working in a variety of elementary classroom settings for the past 18 years, the researcher has observed several of those changes. For example, students readily express their needs for engagement and even entertainment. They often inform teachers when they consider something boring, and it is rarely difficult to determine when students have lost interest in the content being delivered by the classroom teacher. Students of today are very tech savvy. Many express that they have multiple opportunities to interact with

various forms of technology while at home, but not school. In addition, the researcher has even observed eager students demonstrating an almost natural ability to manipulate and navigate current technologies in several kindergarten and pre-K classrooms. However, instructional practices do not encompass frequent provisions for them to do so. Prensky (2005), therefore, purported that a discrepancy or disconnect existed between students' technology use at home and at school. Kilfoye (2013) concurred, arguing that the Internet was one of the "most valuable tools available for developing critical thinking, self-discovery, collaboration, and presentation" (p. 54). Because of this, he advocated that schools should not limit student access and urged educators to design learning opportunities that combined technology use with classroom instruction to better engage students and meet learner needs.

Parsons, Nuland, and Parsons (2014) claimed that "teachers have the ability to increase student engagement if they understand its importance, know the types of tasks that encourage it, and have tools for assessing it" (p. 24). Having this level of understanding of ways to enhance levels of student engagement can prove beneficial for teachers and students, especially considering many of today's students are accustomed to entertaining themselves through various technological avenues. It has become common practice for students not only to communicate via technology, but also to use it frequently to express likes and dislikes, how they feel, who they are, and what they believe.

According to the American Library Association (2012), Americans spent in excess of 18 times more money on home video games than they did on school library materials and resources for their children. This is a strong implication of the current interest of today's students and their parents. Therefore, it should also serve as a strong

indication of how things must evolve and change in regard to the processes of teaching and learning within the classroom. Teachers must deliberately work to create learning experiences specifically designed to actively engage today's 21st century learners, while embodying the set standards they are professionally obligated to address.

As stated previously, school age young people from around the country have varying needs: however, they have a few things in common from which educators can design instruction in order to engage students and better meet their needs. That is, all learners share the common need to receive meaningful learning experiences that capitalize on their strengths and engage them in efforts to be the best they can (Lumley & Bailey, 1991). Because many of today's students occupy a world where technological advances are parts of their everyday lives, it seems logical for educators to acquire skills that create collaborative and productive learning environments conducive for all to learn.

Therefore, and more specifically, the identified Problem of Practice (PoP) for the current study was a second grade classroom wherein it was becoming increasingly difficult to gain and keep the attention of students. A majority of the students engaged in behaviors that not only impeded classroom instruction, but also prevented students from having enough time to complete the academic assignments given to them by their homeroom teacher. As a result, the classroom teacher sought ways to develop and implement learning experiences specifically designed to engage her students at higher levels. This study, therefore, examined the ways in which technology integration might potentially have a positive impact on levels of student engagement and provide positive outcomes for students and teachers.

Research Question

The following research question was used to guide the data collection strategies employed during implementation of the action research study:

> What impact will technology integration have on the engagement levels of ten second grade students in an English/Language Arts classroom located in the southeastern part of the United States?

Purpose of the Study

The purpose of this study was to examine the impact technology integration had on the engagement levels of ten second grade students in an English/Language Arts classroom. The study explored whether effectively using various technological tools to aid and assist meeting learning goals and objectives would produce an impact on levels of student engagement.

Action Research Methodology

The researcher documented and recorded the steps of inquiry and collected, recorded, and analyzed data to make informed decisions related to effectively using technology to produce the desired outcome of enhancing levels of student engagement. Action research was an appropriate methodology because the researcher was an active and vested participant in conducting the research. According to Mertler (2014), "Action research is participative, since educators are integral members-not disinterested outsiders-of the research process" (p. 20).

Action Research Philosophy

Action research is a process that allows educators to connect theory to practice, while providing the opportunity for the practitioner to design the study, conduct the

study, and analyze the data collected in order to inform and improve instructional practices (Butin, 2010; Corey, 1953). Action research is an appropriate methodological approach to use when the researcher conducts research at his or her own site. According to Ferrance (2000), action research is "not problem-solving in the sense of trying to find out what is wrong, but rather a quest for knowledge about how to improve" (p. 2).

Participant Selection

The study participants included elementary aged students attending the school in which the researcher is currently employed. The participants consisted of a second grade class of students and the classroom teacher. This particular elementary school serves slightly more than 710 students in child development through grade five. Greater detail regarding the specific demographic make-up of the study participants is provided in Chapter 3. A primary goal of the researcher was to protect and maintain the privacy of all participants. Students, their parents, and the teacher received non-negotiable guarantees of confidentiality and anonymity. Participants understood the study's purpose, and had options to opt out before or during the study without fear of penalties, ill will, or reprimands for doing so. Parents of the study participants signed parental consent forms, and study participants also signed assent forms consenting to participate.

Research Site

The research occurred in an elementary school located in the southeastern part of the United States. The research site is one of 20 elementary schools in an urban school district that includes a total of 41 schools and centers. The school district serves slightly more than 28,500 students in Pre-K through 12th grade. The research setting was a public school located in the city, serving students in child development through grade five, with

a student population exceeding 710. According to the school's *2016-2017 School Improvement Council Report* to parents, the student population included 47% African American, 29% Latino, 14% Caucasian, 6% Asian, and 4% other. The school also served 15.1% active duty military families and had 16 different native languages spoken among the student population. Approximately 51% of the student population received free or reduced lunch, and 26% of the students qualified for English Language Learner (ELL) services. (See Figure 1.1)

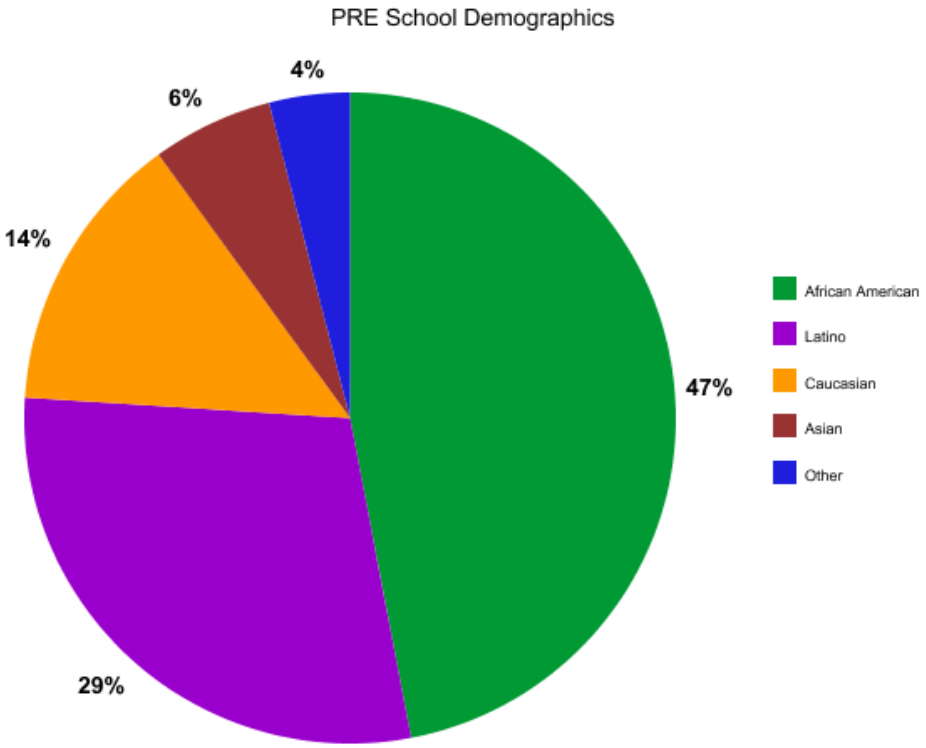

***Figure 1*.1 School demographics.**

Data Sources

The researcher collected data from the students and from the homeroom teacher. The instruments used to collect data were as follows: the Semi-Structured Focus Group Pre Interview (Appendix C), Student Engagement Checklist (Appendix D), Student

Engagement Questionnaire (Appendix E), Post Focus Group Interviews (Appendix F), Post Interview with the homeroom teacher (Appendix G), and Observation Field Notes.

Data Collection Methods

The researcher collected quantitative data through checklists and questionnaires. Qualitative data derived from focus group interviews, observation field notes, and post-interviews. Data collection occurred at the beginning and at the end of the study when students participated in semi-structured focus group interviews. The semi-structured focus group instrument found in Appendix C served to record student data. The researcher also gathered data from the study participants and the classroom teacher immediately following the instructional activities integrating technology. The data collection instruments included the Student Engagement Checklist in Appendix D and the Student Engagement Questionnaire found in Appendix E. The instruments measure factors such as time on task, levels of participation, levels of completion, and degree or level of student satisfaction, among other things.

Data Collection Strategies

The researcher collected data from students and the homeroom teacher at the beginning of the action research study in the form of interviews, and employed the same strategy at the end of the action research study for comparison. Students and the teacher also supplied data after integration of various forms of technology with classroom instruction during the implementation period of the action research study.

Significance of the Study

As an instructional technology specialist working in an elementary school that serves more than 710 students in child development through grade five, the researcher

views this study as significant because it has the potential to provide classroom teachers with additional information to enhance the effectiveness of their instructional practices. The information produced by this study can help classroom teachers make informed decisions regarding the ways in which they design and implement instructional activities within their classrooms. The study can assist elementary educators in expanding their instructional practices to include using a multitude of technological tools available to classroom teachers. Doing so could potentially improve levels of student interest and engagement, while also positively impacting student achievement directly or indirectly. The information will also benefit the researcher, an instructional technology specialist, because one of her primary responsibilities is coaching classroom teachers and assisting them with identifying ways in which to effectively utilize technology with students to meet set learning goals and objectives. The information gleaned from this study can positively contribute to this process.

Limitations of the Study

One potential limitation of the current study is that data collection involved only participants attending the same elementary school. Therefore, generalizations regarding the study's findings cannot necessarily be made to other elementary schools. The study also included a single group of ten students from a single second grade classroom. Last, the focus of the study related to technology integration and student engagement and it did not seek to document a correlation between student engagement and actual student achievement.

Dissertation Overview

Chapter 1 of the current Dissertation in Practice (DiP) provided readers with an overview of the proposed action research study. The chapter introduces the topic, the problem of practice (PoP), the study's purpose, the research question, and provides insight into the action research methodology and design. The chapter also includes a glossary of key terms associated with the PoP topic. Chapter 2 contains a review of the relevant literature. Chapter 3 provides an explanation of the methodology undertaken in order to construct the study as well as information regarding the study participants and setting, the researcher's positionality, and data collection and analysis strategies. Chapter 4 reviews pertinent information about the action research study and presents the study's findings. Chapter 5 summarizes the study and its results, provides implications from the study, and offers suggestions for future research to further the study and construct new knowledge. The chapter concludes by outlining an action plan, including phases of implementation for proposed subsequent strategies employing the findings from the current study (Mertler, 2014).

Definition of Terms

21st century skills. This term is generally refers to certain core competencies, such as collaboration, digital literacy, critical thinking, and problem-solving, that educators, school reformers, college professors, employers, and other advocates believe schools need to teach in order to help students thrive in today's world. These components of knowledge, skills, work habits, and character traits can apply across all content areas and in all educational, career, and civic settings throughout a lifetime (Allington, 2010).

Behavioral engagement. Behavioral Engagement refers to a student's observable positive conduct. It demonstrates the student actively participating in and in compliance with school and classroom rules and procedures. The student exhibits on-task attention and focus with high levels of effort and persistence. In addition to the student's involvement in academics, behavioral engagement also includes the student's participation in socially acceptable norms and extracurricular activities without the presence of troublesome behavior (Connell & Wellborn, 1991; Finn, 1989; Fredricks & McColskey, 2012; Reeve, 2012).

Cognitive engagement. Cognitive engagement refers to the level to which the student invests time, energy, and effort into learning. It entails the use of complex, higher order thinking skills to seek deeper understanding of the content taught. Cognitive engagement involves the student's willingness to go the extra mile in using self-regulatory strategies to approach the completion of tasks with a desire for mastery (Fredricks, Blumenfeld & Paris, 2004; Fredricks et al., 2011; Reeve, 2012).

Constructionism. Constructionism is both a theory of learning and a strategy for education. It derives from the constructivist theory and maintains that knowledge is not simply transmitted from the teacher to learners, but rather actively constructed in the minds of the learners. It advocates learning by design and suggests that knowledge is actively constructed and reconstructed based on one's experiences (Driscoll, 2005).

Digital divide. Digital divide refers to the increasing gap between the marginalized or underprivileged members of society, especially the poor, elderly, rural, and handicapped population, who may not have equal access to computers, the Internet,

or other information technologies as do the upper-class, middle-class, and young Americans living in urban and suburban areas (stanford.edu).

Digital footprint. Digital footprint incorporates one's unique set of digital activities, actions, and communications that leave a data trace on the Internet or on a computer or other digital device and can identify the particular user or the particular device (dictionary.com).

Digital natives. Digital natives refer to children who have grown up using technology like the Internet, computers, and mobile devices. This exposure to technology in the early years offers digital natives a greater familiarity with understanding technology than do people who were born before it was widespread (Janssen, n.d.).

Digital immigrants. Digital immigrants are individuals born before the widespread adoption of digital technology. Digital immigrants can adopt and embrace many aspects of the new technology, but they are still immigrants compared to those with familiarity during their entire lifetime. Some digital immigrants, much like all immigrants, are better than others at adapting to their environments. However, immigrants always retain their *accent* to some degree, that is, their foot in the past. The *digital immigrant accent* is evident in such things as turning to the Internet for information second rather than first, or in reading the manual for a program rather than assuming that the program itself will teach us to use it. Today's older generation had different socialization than their children, and must learn a new language. Unfortunately, language learned later in life, scientists tell us, goes into a different part of the brain (Prensky, 2001).

Educational technology/instructional technology. Educational technology/instructional technology is a term referring to the effective use of technological tools in learning. As concepts, it includes an array of tools, such as media, machines and networking hardware, as well as underlying theoretical perspectives for their effective application. Educational technology is not restricted to high technology. It includes numerous types of media that deliver text, audio, images, animation, and streaming video, and incorporates technology applications and processes, such as audio or video tape, satellite TV, CD-ROM, computer-based learning, the Internet, and Web-based learning (Prensky, 2001).

Emotional/affective engagement. Emotional or affective engagement refers to the degree to which students demonstrate positive and negative reactions to school, learning, teachers, and peers. Conceptualization of emotional/affective engagement includes a sense of belonging and feeling like a valued member of the school and class community. The student demonstrates positive emotions and appreciation toward successfully completing school-related tasks and assignments. The student demonstrates enthusiasm, curiosity, interest, and a willingness to complete tasks. It also involves the absence of task withdrawing emotions, such as fear, frustration, anger, anxiety, or distress (Connell & Wellborn, 1991; Finn, 1989; Reeve, 2012; Voelkl, 1996, 1997).

Engagement theory. Engagement Theory states that learners must be collaborative participants in meaningful and relevant learning experiences and engaged in tasks that extend beyond the classroom if student engagement and authentic learning are the intended goals. The theory has three primary principles of focus to increase student engagement. It suggests a focus on collaboration, project-based tasks and assignments,

and an authentic and relevant focus on meaningful work that extends beyond the classroom. These three core components are summarized as relate, create, and donate (Kearsley & Shneiderman, 1998).

Media multi-tasking. Media multi-tasking uses more than one technological device or medium simultaneously.

One-to-one (1:1). One-to-one refers to programs that provide each student in a district, school, or on a grade-level with some sort of computing device, such as a laptop, netbook, Chromebook, tablet computer, or other mobile device. One-to-one refers to one computing device for every one student (The glossary of education reform).

Instruction. Instruction is any intentional arrangement or organization of events that facilitates a learner's achievement or acquisition of a specific goal. The goal can be that of knowledge, strategies, skills, attitudes, etc. Sound theories of learning should inform effective instruction (Driscoll, 2005).

Pedagogy. Pedagogy refers to the art, science, or profession of teaching (Merriam-Webster.com).

Project based learning. Project based learning is a student-centered instructional method that promotes in-depth study and investigation of topics worthy of study. Learners are active participants in the constructing of new knowledge (Driscoll, 2005).

SAMR model. The SAMR (SAMR = Substitution, Augmentation, Modification, Redefinition) model is a framework that allows educators to assess and evaluate various levels of technology use. The model, created by Puentedura, enables educators to develop, design, and infuse digital learning experiences that capitalize on the effective

utilization of technology in the classroom. The goal is to design transformative learning experiences that will promote higher levels of student achievement (Schrock, 2011).

Situated learning theory. The Situated Learning Theory states that learning is social and a situated activity wherein one learns by doing what subject matter experts in the field do. It suggests that knowledge remains inert and unused if it is taught in isolation or contexts separate from doing (Driscoll, 2005).

Social constructivist theory. The Social Constructivist Theory states that learning is a social negotiation of new information wherein the learner constructs meaning and collaborates with others to test and expand one's knowledge and understanding. It asserts that collaboration and social interaction are key components for increasing one's knowledge and understanding. Proponents of social constructivism propose that play is an important part of the learning process and advocate scaffolding to enhance learner knowledge (Driscoll, 2005).

Student engagement. Student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education. Generally speaking, the concept of student engagement is predicated on the belief that learning improves when students are inquisitive, interested, or inspired, and that learning tends to suffer when students are bored, dispassionate, disaffected, or otherwise *disengaged*. Stronger student engagement or improved student engagement are common instructional objectives expressed by educators (The glossary of education reform). For the purpose of this study, student engagement is defined as the level or

degree of attention, interest, effort, and completion students demonstrate when involved in learning activities.

Technology integration. Technology integration is the use of technology resources—computers, mobile devices like smartphones and tablets, digital cameras, social media platforms and networks, software applications, the Internet, etc.—in daily classroom practices, and in the management of a school (*What is successful technology integration,* 2007, para. 1). For the purpose of this study, technology integration includes the use of computing devices, Google Classroom, software and Web-based applications, and the Internet with classroom instructional practices.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

This literature review includes an extensive analysis and review of published literature related to student engagement and effective utilization of technology in classrooms to advance and enhance learning experiences. This body of literature ensured that the current study was theoretically rooted and aided in the development of an appropriate research design. The chapter begins with an in depth look at literature related to student engagement and the various types and classifications of student engagement. Thereafter, the concentration of interest transitions to technology integration on the elementary, middle, high, and collegiate levels.

Conceptual and Theoretical Framework

Student Engagement

There is general consensus among educational experts concerning the relationship between student engagement, motivation, and performance. Researchers agree that there is a positive correlation between a student's level of engagement and that of his or her levels of performance and achievement (Willms, Friesen, & Milton, 2009). One potential way in which educators can address academic concerns and work toward closing achievement gaps is by making a conscious effort to employ strategies that will increase student engagement. Engaged students more likely perform better academically and earn higher grades. Conversely, the consequences for disengaged students can be detrimental

(Friedel, 2011; Prensky, 2005; Taylor & Parsons, 2011; Willms, Friesen, & Milton, 2009).

Within the past two decades, educational researchers expressed an increased interest in learning more about student engagement. Questions arose regarding the benefits of increased student engagement, strategies to promote or deplete levels of engagement, and the correlation between engagement and student achievement. However, there still exists a great deal of variation regarding how to define and measure this construct. Some definitions of student engagement include types, such as affective engagement, cognitive engagement, behavioral engagement, academic engagement, social engagement, and intellectual engagement (Fredricks et al., 2011; Parsons, Nuland, & Parsons, 2014).

As indicated in the types of engagement, the various forms have different primary foci. Fredricks, Blumenfeld, and Paris (2004) suggested that student engagement was indeed multi-dimensional with cognitive, behavioral, and emotional components. Finn (1989) posited a participation-identification model, one of the earliest theories of engagement. Finn's theory defined engagement in school as having both a behavioral component or participation and an emotional component or identification (Fredricks et al., 2011).

Another influential engagement theory model developed and introduced thereafter by Connell and Wellborn (1991) distinguished two ends of the spectrum regarding engagement—engaged students and disengaged or disaffected students. The researchers defined an engaged student as a student who had behavioral involvement in the learning process while also demonstrating a positive affective aura. At the other end of the

spectrum was the disengaged or disaffected student. The actions of the disengaged student included passivity, lack of effort, seeming boredom, and negative emotions, such as anger or denial. In addition, the disengaged student would not persevere through challenges, while, in contrast, the engaged student would surmount those difficulties (Fredricks et al., 2011).

Kuh (2001) created another commonly used definition of student engagement for the National Survey of Student Engagement (NSSE). According to Kuh, Cruce, Shoup, Kinzie, & Gonyea (2008), "Student engagement represents both the time and energy students invest in educationally purposeful activities and the effort institutions devote to using effective educational practices" (p. 542).

Although there is agreement regarding the relationship between student engagement and learner outcomes and researchers agree that the construct of engagement is multi-dimensional, there is varied opinion on both the numbers and types of student engagement that exists (Fredricks, Blumenfeld, & Paris, 2004; Fredricks et al., 2011; Reeve, 2012; Willms, 2003). Behavioral, cognitive, and emotional engagement are types of engagement primarily discussed in most of the literature.

Behavioral engagement. Behavioral engagement refers to a student's observable positive conduct. It is a demonstration of the student actively participating in and complying with school and classroom rules and procedures. The student exhibits on-task attention and focus with high levels of effort and persistence. In addition to student involvement in academics, behavioral engagement includes participation in socially acceptable norms and extracurricular activities without the presence of troublesome

behavior (Connell & Wellborn, 1991; Finn, 1989; Fredricks & McColskey, 2012; Reeve, 2012).

Cognitive engagement. Cognitive engagement refers to the level to which the student invests time, energy, and effort into learning. It entails using complex, higher order thinking skills to seek deeper understanding of the content being taught. Cognitive engagement involves student willingness to go an extra mile in using self-regulatory strategies to approach the completion of tasks with a desire for mastery (Fredricks, Blumenfeld & Paris, 2004; Fredricks et al., 2011; Reeve, 2012).

Emotional or affective engagement. Emotional engagement aligns with affective characteristics. It refers to the degree to which the student demonstrates positive and negative reactions to school, learning, teachers, and peers. Emotional engagement is also conceptualized as having a sense of belonging and feeling like a valued member of the school and class communities. The student demonstrates positive emotions and appreciation toward successfully completing school-related tasks and assignments with enthusiasm, curiosity, interest, and willingness. It also involves the absence of task withdrawing emotions, such as fear, frustration, anger, anxiety, or distress (Connell & Wellborn, 1991; Finn, 1989; Reeve, 2012; Voelkl, 1996, 1997).

While levels of interest related to student engagement remain high, the fact that there are varied definitions and categorizations for the term, produce the potential for some confusion regarding how the construct of student engagement has been and should be operationalized and measured. "Although different definitions and models of engagement currently exist, engagement is generally viewed as a malleable, multidimensional construct rooted in students' behavior and emotion or affect" (Grier-

Reed, Appleton, Rodriguez, Ganuza, & Reschly, 2012, p. 85). In a very general sense, researchers consider factors such as time on-task, levels of interest, participation, investment in learning, and behaviors and attitudes all related to student engagement (Appleton, Christenson, & Furlong, 2008; Bachman & Bachman, 2011; Fredricks & McColskey, 2012; Goodenow, 1992).

According to the *Glossary of Education Reform* (2015):

> Student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education. Generally speaking, the concept of "student engagement" is predicated on the belief that learning improves when students are inquisitive, interested, or inspired, and that learning tends to suffer when students are bored, dispassionate, disaffected, or otherwise "disengaged." *Stronger student engagement* or *improved student engagement* are common instructional objectives expressed by educators.

Student engagement continues to be a focus of educators seeking to increase student engagement and learner outcomes. The multi-dimensional construct has implications of being a very powerful predictor of a student's success and sense of belonging. Engaged students are more apt to participate and provoke positive learner results (Carini, Kuh, & Klein, 2006; Taylor & Parsons, 2011). Fredricks and McColskey (2012) concluded their research by recommending that "future research should explore qualitative differences in engagement across different contexts (i.e. teacher directed as compared to small group work)" (p. 778).

Gasiewski, Eagan, Garcia, Hurtado, & Chang (2012) conducted a mixed-methods study on the impact of student academic engagement in a science, technology, engineering, and mathematics (STEM) course. The purpose of the study was to provide a richer understanding of the relationship between student engagement and science instruction. Gasiewski et al. (2012) collected quantitative data from 2,873 students in 73 introductory STEM courses across 15 colleges and universities. The authors also collected qualitative data from 41 students in focus groups at eight of the colleges and universities. To ground their study, Gasiewski et al. (2012) used the theoretical frameworks for student engagement of Astin (1985), Pike (1999), and Pike and Kuh (2005), each of which suggested that students learned best and are engaged by *meaningful doing*. Gasiewski et al. (2012) conceptualized academic engagement as mainly behavioral, including student involvement in academic tasks with measures of paying attention, demonstrating effort, asking questions, collaboration, and attendance. The authors also considered active learning pedagogical practices, such as those theorized by Chickering and Gamson (1987) who argued that active learning strategies required students to think, discuss, collaborate, write, and make personal connections. All of which, as asserted by Chickering and Gamson (1987) and Tagg (2003), capitalized on students' levels of motivation and led to greater levels of student engagement. Gasiewski et al. (2012) hypothesized that the outcomes for academically engaged students were positive.

The Gasiewski et al. (2012) research results suggested that student engagement contributed positively to students' levels of understanding, predicting, and course achievement. The study's findings suggested no significant differences in engagement

across gender or racial lines. In addition, the results uncovered that students with higher levels of emotional or affective engagement and feelings of excitement and enthusiasm about learning new content also reported higher levels of student engagement. The present study may contribute to identifying ways in which to enhance students' levels of emotional engagement at younger ages in an effort to foster lasting levels of excitement and interest. Gasiewski et al. (2012) also found that there was a strong correlation between student engagement and teacher attitudes and behaviors. Students in classes wherein teachers established environments that welcomed questions, encouraged discussions, and expected active student participation reported higher levels of student engagement.

Although the findings of Gasiewski et al. (2012) added to the current body of literature relative to student engagement and supported claims of its importance, the results had some limitations. For example, the study was with college level students in introductory STEM courses. Gasiewski et al. (2012) cited the lack of academic engagement of students in introductory science classes as one of the primary reasons some students decided to abandon science majors. The researchers selected college students because of recent significant interest in student success in the field of STEM education combined with the premise that academically engaged students had higher likelihood of continuing beyond their first years of college. The Gasiewski et al. (2012) study did not extend across disciplines, whereas the current study collected data that extended beyond the discourse of science. The authors also suggested further investigations into possible ways of making learning more engaging by using more innovative pedagogy. The results from the current study can potentially assist in

identifying ways in which to increase levels of student engagement through the use of technology integration.

Several studies have been conducted on the collegiate level to measure and determine the impact associated with student engagement. The Bachman and Bachman (2011) study examined the effectiveness of using a classroom response system (CRS) to increase student levels of active engagement by providing prompt and immediate feedback with the use of a wireless keypad. Bachman and Bachman (2011) explained that using a CRS prompted positive effects on student engagement and student performance. The authors noted this method as a constructivist approach to learning by creating a student-centered environment that yielded positive results. The study's findings indicated significant differences in levels of engagement and achievement between those students who did and those who did not use a CRS (Bachman & Bachman, 2011). The authors therefore advocated for further investigations into ways to create student-centered learning environments that would increase student engagement and performance.

Komarraju and Karau (2008) conducted a study with 172 undergraduate college students to explore the relationships between the values students associated with various instructional practices and their degrees of motivation and engagement. The authors concluded that student engagement positively corresponded with students' perceived value of instructional techniques employed in class. Komarraju and Karau (2008), therefore, proposed that a variety of instructional practices should be used to engage all learners.

Alarcon, Edwards, and Menke (2011) explored predictors of engagement and burn out in first year college students. The authors used Hobfoll's (1989) conservation of resources (COR) theory, a model of stress that integrates several stress theories, as a framework. The theory posits that humans seek to obtain and maintain four basic resources: objects, conditions, personal characteristics, and energies. It suggests that stress occurs when there is loss, threat of loss, or conflict between one or more of the four basic resources. The study's findings suggested that students should be taught productive and adaptive ways to deal with stress in the academic environment. It purported that this would, in turn, lead to an increase in engagement and a decrease in burnout (Alarcon, Edwards, & Menke, 2011). House (2012) investigated relationships between classroom instructional strategies, student computer use, and interest in learning science for students in grade eight in Korea and the United States. The study included 4,002 students from Korea and 6,811 students from the United States. The study found that "teaching strategies and computer engagement are positively related to student motivation for learning science" (p. 169).

Technology Integration

The physical placement and utilization of computers in classrooms became more prevalent during the early 1970s, and technology advanced rapidly during the period. Between 1963, when only 1% of schools used computers for instructional purposes, and 1975, there was a drastic increase in computer based education with 55% of schools having access to computers for instructional purposes in a little more than a decade (Molnar, 1997). Data collected by Pelgrum, Reinen, and Plomp (1993) indicated that, by 1990, ninety-five percent of all schools in America had computer access and used them

for instructional purposes. Shortly thereafter, schools began putting more computers in the classrooms and the computer-to-student ratio decreased from 1:53 in 1993 to 1:4 in 2006 (U.S. Dept. of Education, 2006).

Today's generation of elementary students are unfamiliar with a world without the Internet, email, Facebook, Twitter, YouTube, texting, video games, mobile phones, or instant messaging. The students sitting in the elementary, middle, and even high schools today are commonly referred to as 21st century learners or digital natives, and they are primarily being taught by digital immigrants. According to a report issued in January of 2010 by the Kaiser Family Foundation, students from eight to eighteen years of age spent approximately seven hours and 38 minutes each day using various forms of entertainment media. The report also indicated that many of these students are actually media multi-tasking, which means that they used more than one form of device simultaneously, allowing them to consume more than ten and a half hours of media content into the reported seven hours and 38 minutes (Kaiser Family Foundation, 2010). Because of these dramatic changes, some argue that this is an indication that there has been a change in the manner in which students learn, and assert that this therefore means there should be a change in the ways in which students are being taught (Byrne, 2009; Hicks, 2011; Liu, 2011; Prensky, 2006; Selwyn, 2006).

To inform and guide the design and implementation of the current study, the researcher reviewed several theoretical frameworks and learning principles, discovering that Kearsley and Shneiderman's Engagement Theory (1998) was appropriate to ground this particular research. Although the theory is not a direct derivative of any other

theories, its basic principles share commonalities with various other learning theories and principles researchers identify as key to effective teaching and learning.

Engagement Theory

The Engagement Theory shares some of the same foci or key elements as Social Constructivism, Project Based Learning, and the Situated Learning Theory. Each stresses the importance of certain aspects, such as socialization and collaboration, relevant and applicable learning experiences and products, and a certain level of student responsibility and ownership in a more self-directed learning process. Kearsley and Shneiderman's Engagement Theory purported that learners must be collaborative participants in meaningful and relevant learning experiences and engaged in tasks that extended beyond the classroom if student engagement and authentic learning were intended goals (Kearsley & Shneiderman, 1998).

The theory has three primary principles of focus to increase student engagement. It suggests a focus on collaboration, project-based tasks and assignments, and an authentic and relevant focus on meaningful work that extends beyond the classroom. Summarized, the three core components become relate, create, and donate. Although Kearsley and Shneiderman offered the theory as a framework for technology-based instruction, they also advocated its flexibility, making it applicable to numerous learning situations. They did, however, stress that the effective use and integration of technology within the classroom could serve to enhance learning possibilities not otherwise possible (Kearsley & Shneiderman, 1998).

"Technology integration is the use of technology resources—computers, mobile devices like smartphones and tablets, digital cameras, social media platforms and networks, software applications, the internet, etc. in daily classroom practices, and in the

management of a school" (*What is successful technology integration*, 2007, para. 1). However, the level of effectiveness related to technology integration largely depends upon when, how, and for what purpose one uses the technology. Klein (2010) stated:

> Technology is only a tool; it allow us to develop dialogue and interaction, but is a means, not an end in and of itself. Tech-based global education has the capacity to improve critical thinking and cultural pluralism but requires far more than just fancy technology; it requires careful, thoughtful curriculum development, and the support or organizations whose goal is to build authentic global communities. (p. 86)

Oblinger (2004) concurred with those sentiments. She claimed that effective technology integration should be predicated on the activities the technology enabled, rather than on the specific technology itself. According to Goodwin (2011), it was simply not possible to overstate the importance of the individual teacher to the success or failure associated with integrating technology in today's classrooms. Oblinger (2004) added that educators should fully understand and view the available technologies as tools to improve learner outcomes.

There is great value and benefit to classroom technology integration. Technology offers teachers the opportunity to do things thought to be impossible just a decade or two ago and the potential future possibilities are limitless. When teachers successfully integrate technology into their classroom instruction, they create opportunities to make learning more meaningful, relevant, and interactive, while enhancing levels of student engagement in the process (Byrne, 2009; DiBlasi, 2013; Hicks, 2011). Technology provides teachers with an opportunity to take advantage of learning opportunities that

extend well beyond the four walls of the classroom. Stuart, Habegger, and Tomer (2013) suggested that teachers could engage students at higher levels of learning, establish deeper thinking relative to the content being taught, and promote listening, speaking, reading, writing, and visualizing skills through the use of technological tools such as QR codes. Kilfoye (2013) argued that the Internet was one of the "most valuable tools available for developing critical thinking, self-discovery, collaboration, and presentation" (p. 54). Consequently, he advocated for not limiting student access in schools. The Internet allows teachers to create meaningful learning experiences and provide students with authentic opportunities to collaborate with, learn from, and virtually connect to people and places they may otherwise never have had the chance to do.

Increasing learner engagement is just one of many incentives for teachers to embrace teaching 21st century learners in 21st century classrooms (DiBlasi, 2013; Hicks, 2009). Teachers can optimize student engagement, motivation, and instructional time by employing technology efficiently. Through the use of technology, students are invited to become more than just passive learners. They are provided structured learning opportunities that encourage them to engage and become active participants in the teaching and learning processes. Hicks (2011) stated, "Technology in the classroom is a must-have attention keeper and ultimately meets the needs of digital natives" (p. 189). Liu (2011) concurred, finding that, along with enhancing student engagement, there were other benefits for students as a result of teachers using technology in their classrooms.

Although many researchers and educators advocate for technology integration, there is no specific prescribed formula for success and there are areas that should be considered in order to generate the desired levels of engagement and student

achievement. Some argue that, when students use computers in the classroom, the computers do all the work, while the students learn passively learning and do not digest the information they were intended to learn. Many are of the belief that information technology is robbing students of their abilities to process information for themselves. Boyle (1998) went so far as to state that information technology "may actually be making us stupid" (p. 618). Opponents tend to argue that technology integration can sometimes have an adverse effect regarding student engagement and achievement due to a lack of adequate teacher training or lack of the critical and very necessary component wherein resources are properly evaluated (Al-Bataineh & Brooks, 2003).

In the Fraser and Garofalo (2015) study, the authors determined that teachers were able to use technology to promote student engagement, questioning, and conceptual understanding in order to expand students' mathematical thinking processes. The study's findings, therefore, suggested positive implications for technology integration into classrooms. Dawson (2012), Downes and Bishop (2012), and Martinez and Schilling (2010) found enhanced levels of student engagement when students were presented with opportunities to use technological tools to demonstrate their learning in meaningful and authentic ways. However, Sahakov (2014) noted that technology integration could act as a distraction, hinder critical thinking skills by making things too easy for students, impede instructional practices when technical difficulties arise, or even promote student cheating. Other researchers worried about the economic commitment of implementing and maintaining the infrastructure necessary to sustain the successful integration of technology in all classrooms (Dutta & Bilbao-Osorio, 2012). It is therefore advantageous

to continue research to identify the effects of technology integration on student engagement in classrooms to determine whether the pros outweigh the cons.

Spires, Lee, Turner, and Johnson (2008) conducted a study with 4,000 students in sixth, seventh, and eighth grades who were also participants in the statewide after school program. The purpose of the study was to investigate middle school students' perspectives about school, technology, and what they needed for engagement. The authors used student surveys and focus groups to collect data. Spires et al. (2008) contended that students are growing up in a time wherein technology is steadily evolving at a pace that is quicker than educators can reasonably find fresh, innovative ways to instruct their students. The authors therefore suggest using student participants as a source to identify effective ways in which to engage and instruct students. Spires et al. (2008) claimed, "Since young people are becoming increasingly dependent on technologies to communicate, gather information, and extend social experiences it is essential that our educational system evolves to meet these new demands" (p. 498).

Quantitative results from the data collected in the Spires, Lee, Turner, and Johnson (2008) study indicated that students used computers significantly more at home than they did at school. The majority of the students were knowledgeable about using Microsoft Office Suite programs, such as MS Word, PowerPoint, and Excel. Analysis of the collected data suggested that students were significantly more likely to use the Internet before using a book to locate information. Students also reported an overwhelming use of technology at home for entertainment purposes. Female students reported using the computer at home more than males did; however, there were no differences between the sexes when looking at computer usage while at school. Students

ranked using the computer and conducting research via the Internet as activities they liked best. Activities they liked least included listening to their teachers and completing worksheets (Spires, Lee, Turner, & Johnson, 2008).

Qualitative results from the focus groups yielded information such as students expressing the fact that they wanted to use more technology during school for learning purposes. Many students voiced the concern that their teachers did not fully understand the large part technology played in their lives outside of school. While students noted their understanding for the need for restrictions to be placed on technology use while at school, they also felt that some of the restrictions were extensive and detracted from the learning potential (Spires, Lee, Turner, & Johnson, 2008).

Based on the research results, Spires, Lee, Turner, and Johnson (2008) concluded that students perceived a clear relationship between the use of various technologies in school and their levels of academic engagement. Spires et al. (2008) also recommended that educators work to find ways in which to make students' learning environments more like the lives and worlds in which they live outside of school. The study's results suggested that students relied on technologies for purposes of communication and entertainment. This finding corresponded well with other reports (e.g., Downes & Bishop, 2012; Kaiser Family Foundation, 2010).

Although the Spires, Lee, Turner, and Johnson (2008) study contributed to the research related to technology integration and student engagement, there were some limitations. The authors selected a targeted population of students, selected because of their unique characteristics of being primarily low income students from a rural area wherein 85% scored at or above grade level expectations on standardized tests in math

and reading. Spires et al. (2008) acknowledged that this might pose a potential study limitation. The study also excluded all voices except for those of middle school students and did not include teachers' perspectives. The current study adds insight from the perspective of the teacher and that of elementary students of varying academic ability levels from varying socioeconomic backgrounds.

The research conducted by Spires, Lee, Turner, and Johnson (2008) established the importance of using technologies in school to enhance student engagement, but the authors did not offer evidence of the types of technologies or instructional strategies that could potentially aid in increasing student engagement. The present study adds to the body of literature relative to technology integration and student engagement by further exploring particular technologies and strategies to engage students and promote positive learner outcomes.

Many view technology as an agent of change. Many researchers, administrators, teachers, politicians, parents, and other supporters strongly believe in and advocate for effective technology integration as a means for preparing today's students for success in tomorrow's world (DiBlasi, 2013; Hicks, 2011; Keengwe, 2007; Keengwe & Onchwari, 2011).

In 2010, the then-U.S. Secretary of Education, Arne Duncan, released the National Education Technology Plan (NETP), which was the Department of Education's plan to transform education in America through technology. Encompassed in NETP is a model entitled *Transforming American Education: Learning Powered by Technology*. The model presents five areas identified as key goals: learning, assessment, teaching, infrastructure, and productivity. As outlined by the U.S. Department of Education's

Office of Educational Technology (2010), the five goals with recommendations are as follows:

- Learning**:** Change the learning process so it is more engaging and tailored to students' needs and interests.
- Assessment: Measure student progress on the full range of college and career ready standards and use real time data for continuous improvement.
- Teaching**:** Connect teachers to the tools, resources, experts and peers they need to be highly effective and supported.
- Infrastructure: Provide broadband connectivity for all students, everywhere—in schools, throughout communities and in students' homes.
- Productivity: Use technology to help schools become more productive and accelerate student achievement while managing costs.

This report, along with other initiatives and programs, such as e-Rate funding, Partnership for 21st Century Learning (P21), and federal block grant monies for professional development, clearly demonstrate continued support for schools to effectively integrate technology into classrooms. During the State Educational Technology Directors Association Education Forum in 2010, Education Secretary, Arne Duncan, reported, "Our nation's schools have yet to unleash technology's full potential to transform learning . . . We're at an important transition point. We need to leverage technology's promise to improve learning" (U.S. Dept. of Education, 2010).

A majority of the National Education Technology Plan places emphasis on 21st century skills and competencies. Along with student learning, technology infrastructure, and assessment, the plan also addresses professional development (U.S. Department of

Education, Office of Educational Technology, 2010). A general synthesis of research suggests that one of the key factors in determining the success of enhancing student engagement and effectively using technology as a tool for classroom instruction is the classroom teacher and the quality of professional development and support he or she receives (Barron, Kemker, Harmes, & Kalaydjian, 2003; Downes & Bishop, 2012; Honan, 2010; Judson, 2006; Komarraju & Karau, 2008; Spires, Lee, Turner, & Johnson, 2008; Wade, Rasmussen, & Fox-Turnbull, 2013; Wozney, Venkatesh, & Abrami, 2006). The authors of NETP readily acknowledge that having good teachers is crucial. Secretary Duncan added, "Technology will never replace good teachers . . . We all know that the most important factor in a student's success is the teacher leading the class. That will not change" (U.S. Dept. of Education, 2010).

Even though the U.S. Department of Education, Office of Educational Technology validated the research regarding the value of technology integration and the need to engage 21st century learners, it is simply a plan, one that needs the power of action to propel it. As stated in the *Transforming American Education: Learning Powered by Technology* (U.S. Department of Education, Office of Educational Technology, 2010) report:

> We also should implement a new approach to research and development (R&D) in education that focuses on scaling innovative best practices in the use of technology in teaching and learning, transferring existing and emerging technology innovations into education, sustaining the R&D for education work that is being done by such organizations as the National Science Foundation, and creating a new organization to address major

R&D challenges at the intersection of learning sciences, technology, and education. (p. x)

In addition, the results from a four-year study of 5,000 middle school students in Texas found that the technology skills of students using laptops for classroom instruction significantly improved. The study's findings indicated that, after three years, those students from lower socioeconomic backgrounds demonstrated equivalent levels of technology proficiency as did students from wealthier backgrounds (Shapley et al., 2009). In conjunction with their subsequent research, Wade, Rasmussen, and Fox-Turnbull (2013) boldly concluded, "Technology by itself can do nothing. Technology in conjunction with engaged, excited, and motivated students, and innovative teachers and administrators can change the world" (p.168). The current study provides additional educational research and development, focusing on ways in which to optimize learning and student engagement through the use of current technologies.

Many who advocate for the use of technology for instructional purposes view it as a must, not only for preparing students for the 21st century, but also as a means of bridging the digital divide. Many students do not reside in homes with access to the latest technological devices, but those students still need to acquire the 21st century skills deemed necessary to become successful productive adults. Advocates view classroom technologies as an equalizer and way to level the playing field for those students coming from homes of lower socioeconomic backgrounds. Although access to information technologies is not the cure for poverty, bridging the gap by providing access to the underprivileged is a step in the right direction toward offering individuals the skills and

tools necessary to advance and to provide some sort of social equity (Norris & Schneider, 2002).

According to Creswell (2008), "A literature review is a written summary of journal articles, books, and other documents that describe the past and current state of information; organizes the literature into topics; and documents the need for a proposed study." (p. 89). The current literature review provided the researcher with a clearer understanding of prior research related to the PoP. It provided not only an extensive review of the literature, but also a historical background for the study. The present literature review identified experts, scholars, and theorists, assisted the researcher with making informed decisions regarding the focus and framework of the study, and significantly contributed to the process of establishing a basis for a better designed study that is grounded in research.

CHAPTER 3

ACTION RESEARCH METHODOLOGY

Introduction

For the purpose of this study, the working definition of technology integration is defined as the use of computing devices, Google Classroom, software and Web-based applications, and the Internet accompanied by classroom instructional practices. Technology is an integral part of our daily lives and used in an almost instinctive manner. What is also evident is that this nearly innate use of technology crosses all racial, ethnic, religious, political, and gender boundaries. The use of technology is also not limited to a specific age group. Individuals from as young as toddlers to those classified as senior citizens use some form of technology on a daily basis.

Problem of Practice

For the purpose of this study, the working definition of student engagement is defined as the level or degree of attention, interest, effort, and completion students demonstrate when involved in learning activities. Researchers have concluded for a number of years that one unfortunate truth in education is that student engagement declines significantly as students matriculate through school (Conner & Pope, 2013). Thus, teachers must engage in an ongoing journey of discovery, acquiring new knowledge that allows them to use deliberate strategies and methods to engage today's learners. Today's students are accustomed to entertaining themselves through various technological avenues. It has become a common practice for students not only to

communicate via technology, but also to express likes and dislikes, how they feel, who they are, and what they believe.

According to the American Library Association (2012), Americans spent in excess of 18 times more money on home video games than they did on school library materials and resources for their children. This is a strong implication of the current interest of today's students and their parents. Therefore, it should also serve as a strong indication of how things must also evolve and change in regard to the processes of teaching and learning within the classroom. Teachers must deliberately work to create learning experiences specifically designed to engage today's 21st century learners, while embodying the set standards they are professionally obligated to address.

Therefore, and more specifically, the identified Problem of Practice (PoP) for the current study was a second grade classroom wherein it was becoming increasingly difficult to gain and keep the attention of students. As a result, the classroom teacher sought ways to develop and implement learning experiences specifically designed to engage her students at higher levels. Serving in the roles of Instructional Technology Specialist and teacher-researcher, the investigator collected data to illustrate whether integrating technology with classroom instruction would engage students in a second grade English Language Arts class at higher levels, while also attempting to capitalize upon their natural curiosities to learn and interact with various technological tools.

Research Question

The following research question was used to guide the data collection strategies employed during implementation of the action research study:

What impact will technology integration have on the engagement levels of ten second grade students in an English/Language Arts classroom located in the southeastern part of the United States?

Purpose Statement

The purpose of this study was to examine the impact of technology integration on the engagement levels of ten second grade students in an English Language Arts classroom. The study sought to determine what, if any, effect using various technological tools to aid and assist with meeting learning goals and objectives would have on students' engagement levels.

Action Research Design

This study used an action research methodological approach. This approach was appropriate due to the main focus, procedures, and purposes associated with action research.

As Mills (2011) stated,

> Action research is defined as any systematic inquiry conducted by teachers, administrators, counselors, or others with a vested interest in the teaching and learning process or environment for the purpose of gathering information about how their particular schools operate, how they teach, and how their students learn. (p. 4)

The action research process allows the researcher to connect theory to practice, while providing an opportunity to design the study, conduct the study, and analyze the data collected to inform and improve instructional practices (Butin, 2010; Corey, 1953). Action research is a very appropriate methodological approach to use when the researcher

conducts research at his or her own site. According to Ferrance (2000), action research is "not problem-solving in the sense of trying to find out what is wrong, but rather a quest for knowledge about how to improve" (p. 2).

This study documented and recorded the steps of inquiry and collected, recorded, and analyzed data to make informed decisions related to using technology to produce the desired outcome of enhancing levels of student engagement. Action research is also an appropriate methodology because the researcher was an active and vested participant in conducting the research. According to Mertler (2014), "Action research is participative, since educators are integral members-not disinterested outsiders-of the research process" (p. 20).

Setting and Timeframe of Study

The research occurred in an elementary school located in the southeastern part of the United States. The setting was a public school in the city, serving students in child development through grade five, and with a student population exceeding 710. According to the school's *2016-2017 School Improvement Council Report* to parents, the student population included 47% African American, 29% Latino, 14% Caucasian, 6% Asian, and 4% other. The school also served 15.1% active duty military families and had 16 different native languages spoken among the student population. Approximately 51% of the student population received free or reduced lunch, and 26% of the students qualified for English Language Learner (ELL) services.

Participants provided data two times per week for six weeks during the English Language Arts block, which also integrated social studies and science content.

Participants

The study participants consisted of ten second grade students attending the school, which was the researcher's current employer. Participants are second graders in a general education classroom with 21 students. This particular elementary school serves slightly more than 710 students in Pre-K through grade five. A primary goal of the researcher was to protect and maintain the privacy of all participants, and students, their parents, and teachers received a non-negotiable guarantee of confidentiality and anonymity. Participants understood the study's purpose, and had options to opt out before or during the study without fear of penalties, ill will, or reprimands for doing so. Parents of the study participants signed parental consent forms, and study participants also signed assent forms consenting to participate.

The study's ten participants consisted of five female students and five male students. The levels of their academic performance ranged from performing significantly below grade level expectations to performing above grade level expectations.

Alice was an eight year old Caucasian female performing below grade level expectations in reading and math. She received response to intervention (RTI) services for 30 minutes each day. This was her first year at the school and she appeared to be very social.

Brian was an eight year old African American male. He liked math, but said he did not like reading or ELA. Brian met grade level expectations related to academics, but had a behavior intervention plan to improve his behavioral and social skills, maximize times in the day when he exhibited self-control, and improve the degree of consistency with which he participated and completed assignments; especially ELA assignments.

Carol was a Latina female. She was eight years old and appeared to be a very quiet and shy student who enjoyed writing. Carol performed below grade level expectations in ELA and received daily ESL services.

Danielle was an African American female. She was seven years old and performing below grade level expectations academically in both English Language Arts and mathematics. Danielle admittedly noted that she was a much better science student and did not like reading or writing very much.

Edward was an African American male. He was seven years old and, at times, took medication for a diagnosis of Attention Deficit Hyperactivity Disorder. When consistently taking medication, he was able to meet grade level expectations consistently in math, but did not meet those expectations as consistently in the subject of ELA.

Fred was a Latino male. He was eight years old and often appeared reserved. Fred did not interact or socialize often with his classmates. He consistently met or exceeded grade level expectations.

Gayle was an African American female. She was seven years old and performing below grade level expectations in reading and math. Gayle tended to struggle with consistently following classroom rules and procedures on a consistent basis.

Hannah was an eight year old African American female. She met grade level expectations in the subjects of reading and math, but appeared to lack some social skills and often experienced trouble adhering to socially acceptable norms.

Idris was a seven year old African American male. He performed above grade level expectations in reading and math. Idris appeared to be very competitive and easily excitable.

Jacob was an African American male. He was seven years old and appeared to be easily distracted and concerned with seeking the attention of the teacher and his classmates. He consistently met or exceeded grade-level expectations in ELA and math. Jacob stated that he loved math and thought ELA was boring.

Mrs. Smith was a second grade teacher who had been in the profession for five years. Her homeroom class consisted of 21 students—eleven boys and ten girls. Mrs. Smith expressed an interest in learning how to engage her students at higher levels and in expanding her knowledge of how to integrate technology into classroom instruction.

Research Methods

The instruments used to collect data were as follows: the Semi-Structured Focus Group Questions (Appendix C), Elementary Student Engagement Checklist (Appendix D), the Student Engagement Questionnaire (Appendix E), the Post Focus Group Interview Questions (Appendix F), Post Interview with the classroom Teacher (Appendix G), and observational field notes. The researcher collected data from students and the teacher in the form of pre- and post-interviews. Data collection derived from students and the teacher after various forms of technology integrated into classroom instruction during the implementation period of the action research study. The students completed a student engagement questionnaire, identifying levels of affective, cognitive, and behavioral student engagement, once a week. The researcher completed a student engagement checklist, indicating levels of affective and behavioral student engagement, twice a week after each lesson. The researcher also maintained observation field notes that were recorded during and immediately following each lesson.

A mixed-methods approach aided data collection. Quantitative data took the form of student questionnaires and student engagement checklists. Qualitative data included observation field notes, informal interviews, and pre- and post-interviews. The instruments identified affective, cognitive, and behavioral student engagement factors, such as time on task, levels of participation, level of completion, students' perceptions of relevancy, and degrees or levels of student and teacher satisfaction, among others.

Research included collecting, recording, and analyzing data from the students and teacher. The quantitative data collected from the participants generated descriptive statistics. Descriptive statistics in the form of tables aided the researcher in organizing and making sense of the collected data. Because the purpose of action research is not primarily to make generalizations to entire populations or to generate inferential statistics (Mertler, 2014), but rather to improve educational practices and learner outcomes, inferential statistics were not the primary focus of the study. After using descriptive statistic techniques, however, the researcher conducted group comparisons and measured existing relationships between variables using inferential statistics. This, in turn determined to what degree the researcher could potentially make generalizations and expect similar results from similar groups of students (Mertler, 2014). The researcher's intended goal was that the study's data and its generated results be beneficial in improving and informing the instructional practices utilized with current and future students.

Procedures

The researcher collected data twice a week for six weeks between the hours of 9:00am and 11:00am, working with a second grade general education classroom teacher

and her class of 21 students during the English Language Arts (ELA) block. The ELA block also integrated science and social studies content. Data derived from ten of the 21 students. During the study, students engaged in classroom instruction that required them to utilize student laptops or desktops to complete and submit assignments online. They perused various websites to research information, recorded the requested information via electronic graphic organizers, used Google Draw and Google Presentation to create products demonstrating their learning, completed online assessments, and communicated and collaborated with the teacher, peers, and parents using the Google Classroom learning management system platform. In order to better identify and validate the study's findings, the researcher collected data in the form of observational field notes, informal interviews with the classroom teacher, pre- and post-interviews, student questionnaires, and student engagement checklists. Below is a detailed description of the curricular lessons and activities that integrated technology during the timeframe of the study. In addition, Table 3.1 provides a condensed synopsis of the instructional lessons implemented during the six week period of the study.

Week One

1A: Students used computing devices to complete a student-paced online formative assessment related to their vocabulary words for the week. Avatars, leaderboards, themes, music, and memes formed the online formative assessment created with the Web 2.0 tool, Quizizz. Following this activity, the researcher collected data from study participants using the Elementary Student Engagement Questionnaire. The researcher also completed student the engagement checklist, and recorded observational field notes.

1B: Students read and discussed the story for the week. They then identified and recorded their favorite parts of the story on Padlet, a virtual wall/poster. Padlet provided a safe digital space for students to collaborate with their classmates and view what other students had written. Students also provided electronic feedback and comments to their classmates. The researcher recorded observational field notes, completed the engagement checklist, and collected student work samples.

Week Two

2A: Students used computing devices to complete Venn diagrams, comparing and contrasting two stories. In addition, they utilized the Google Draw app to complete Venn diagrams, recording similarities and differences between the two stories. They electronically shared their diagrams with the teacher by submitting them via the Google Classroom learning management system. Students physically collaborated in pairs to share ideas and provide each other with meaningful feedback. The researcher recorded observational field notes, completed the engagement checklist, and collected student work samples (See Appendix H).

2B: Students used headphones and computing devices to track the reading in their reading books as the listened to the story for the week being read aloud. Students utilized an electronic graphic organizer in Google Docs to identify and record summaries of the beginning, middle, and end of the story, *Abuelo and the Three Bears*. Students shared the electronic graphic organizer via Google Classroom. Data collection came from completion of the Elementary Student Engagement Questionnaire following this activity. The researcher filled in the student engagement checklist and recorded observational field notes.

Week Three

3A: Students employed computing devices to view a video on idioms, reread the story for the week, and worked with Google Docs to identify and record the figurative meanings of various idiom phrases. Data collection came from completion of the Elementary Student Engagement Questionnaire following this activity. The researcher completed the student engagement checklist and recorded observational field notes.

3B: Students used computing devices to view a teacher-created Google Slide presentation about idioms, and viewed a short online video offering more about idioms and providing examples. Students illustrated the literal and figurative meanings of chosen idiom phrases. The researcher recorded observational field notes, completed the engagement checklist, and collected student work samples.

Week Four

4A: The teacher and students reviewed the differences between fact and opinion and practiced distinguishing between the two. Students viewed the Fact and Opinion Powtoon video and then used the Plickers ios app (electronic CRS) to practice categorizing various statements as facts or opinions. Students received immediate feedback informing them of the accuracy of their responses. Data collection came from student completion of the Elementary Student Engagement Questionnaire following this activity. The researcher completed the student engagement checklist and recorded observational field notes.

4B: Students viewed a Google Slide presentation on fact and opinion to review what they have learned thus far. Included in the presentation were short teaching videos. Students manually manipulated and navigated various statements within the Google Slide

presentation to categorize the statements as facts or opinions. They completed other interactive activities included within slide presentation and electronically submitted their completed presentations demonstrating their levels of understanding using the Google Classroom platform. The researcher recorded observational field notes, completed the engagement checklist, and collected student work samples (See Appendix I).

Week Five

5A: The teacher created a VoiceThread presentation and Brainpop video to review correct identification of the main idea of a piece of text. Students read various paragraphs and through guided practice identified the main idea and supporting details. They worked collaboratively with classmates to identify main ideas and electronically recorded and submitted responses within the VoiceThread presentation. Students chose to submit their responses using visual recordings they made, their own recorded voices, or printed text. The researcher recorded observational field notes, completed the engagement checklist, and collected student work samples.

5B: Students used computing devices to read various short paragraphs. After reading the passages, students employed the online web 2.0 tool Quizizz to identify which statements within the text served as the main idea and which were the supporting details. Students gained immediate feedback about the accuracy of their submitted responses. Data collection came from student completion of the Elementary Student Engagement Questionnaire following this activity. The researcher completed the student engagement checklist and recorded observational field notes.

Week Six

6A: As an introduction to a unit on animals, students participated in an interactive Safari to South Africa sponsored by WildEarth. The teacher created a ThingLink presentation to introduce the topic of mammals and associated characteristics of this particular animal group. Students viewed a mammals' video on BrainpopJr.com and used Padlet to record newly learned factual information. Data collection came from student completion of the Elementary Student Engagement Questionnaire following this activity. The researcher completed the student engagement checklist and recorded observational field notes

6B: Students used approved websites provided by the teacher to research a chosen mammal, and a Google document to organize and record information learned about their mammal of choice. Students created a Google Slide Presentation intended to inform and teach others about the mammal they selected to conduct research on and learn more about. The students electronically shared their presentations with the researcher, the homeroom teacher, and their parents. The researcher recorded observational field notes, completed the engagement checklist, and collected student work samples (See Appendix J).

Data Analysis Strategies

This study employed a mixed methods approach to collecting data, which allowed the researcher to collect a greater variety of data in order to strengthen the validity of the study's findings (Creswell & Plano Clark, 2006). Qualitative data derived from observational field notes and pre- and post-interviews, and checklists and student questionnaires produced quantitative data. This approach provided the researcher with a

mix of relevant data, subsequently organized and analyzed for patterns and themes (Creswell, 2013). In order to make sense of the data to present key findings without minimizing or distorting information, the researcher utilized inductive analysis when reviewing the qualitative data collected. This was a three-step process consisting of organizing, describing, and interpreting the data (Mertler, 2014). The researcher also used coding to make connections between data and gain a deeper understanding. Observational field notes and transcripts from focus group interviews aided identification of themes and patterns using a prescribed approach (Miles, Huberman, & Saldaña, 2014).

Once collected, the quantitative data underwent a computer-generated analysis using Google Spreadsheets. Students responded to 20 statements on the questionnaire intended to measure levels of student engagement using a Likert-type scale. The questionnaire included the following response options: strongly agree, agree, in the middle, disagree, and strongly disagree. The teacher-researcher also completed a nine statement student engagement checklist based upon classroom observations of student behaviors after each lesson integrating technology. Computer programs such as Microsoft Excel aided in the process of organizing, coding and categorizing the information prior to the researcher identifying and interpreting the data (Creswell, 2008). While the computer stored and organized the data, it did not interpret it (Mertler, 2014). The researcher used inductive logic to construct meaning. A complete analysis of the data could potentially be beneficial to educators when making decisions regarding future instructional practices within the classroom.

Participant Reflection Plan

After analysis, the researcher discussed and reflected on the data with the study's participants. There was an informal discussion with the student participants and a more detailed review of the study's findings with Mrs. Smith, the classroom teacher. Parents had the option of discussing the study's findings and the researcher offered to share the information with all parents who made subsequent requests.

Devising an Action Plan

Action research does not stop after data collection (Mertler, 2014). Once collected, analyzed, and interpreted, the researcher used the data as a guide in developing an action plan. The researcher used the findings of the current study to improve educational practices within the school where she works. She addressed the research question very systematically and employed the study's results in a cyclical manner to promote further research and continue improving instructional practices. The subsequent action plan developed as a result of the current study had a basis in questions that emerged during the implementation period of the current study. The researcher engaged in the reflection process before, during, and after the research was conducted. The researcher reflected upon not just the study's results, but also on the process. The intent of such reflection was to identify a practical approach to implementing the current study's findings. The proposed action plan developed after careful consideration of the study as a whole is shared in Chapter 5.

Table 3.1

Instructional Lessons & Activities

Lesson #	Lesson/Activity	Data Collection Instruments	SE Checklist #
1A	Quizizz Vocabulary for the *Abuelo and the Three Bears* Story	Questionnaire **#1** Observation Field Notes	1
1B	Padlet Recording Favorite Part of the Story	Student Work Sample Observation Field Notes	2
2A	Venn Diagram Comparing Stories in Google Draw	Student Work Sample Observation Field Notes	3
2B	Summarizing Graphic Organizer in Google Docs	Questionnaire **#2** Observation Field Notes	4
3A	Idioms Google Doc Graphic Organizer	Questionnaire **#3** Observation Field Notes	5
3B	Students' Idioms Illustrations	Student Work Sample Observation Field Notes	6
4A	Fact & Opinion Plickers Electronic CRS Activity	Questionnaire **#4** Observation Field Notes	7
4B	Student Google Slide Presentations on Fact & Opinion	Student Work Sample Observation Field Notes	8
5A	VoiceThread on Main Idea	Student Work Sample Observation Field Notes	9

5B	Quizizz on Main Idea	Questionnaire **#5** Observation Field Notes	10
6A	Interactive Safari to Africa Mammals ThingLink and Padlet	Questionnaire **#6** Observation Field Notes	11
6B	Student Created Google Presentations on Mammals	Student Work Sample Observation Field Notes	12

CHAPTER 4

FINDINGS FROM THE DATA ANALYSIS

Introduction

This study addressed teacher-researcher questioning of what impact technology integration has on levels of student engagement. The researcher conducted the study and collected data twice a week for six weeks from one classroom teacher and ten second grade students in a general education English Language Arts classroom located in a southeastern state of the United States.

Research Question

The following research question was used to guide the data collection strategies employed during implementation of the action research study:

> What impact will technology integration have on the engagement levels of ten second grade students in an English/Language Arts classroom located in the southeastern part of the United States?

Purpose of the Study

The purpose of this study was to investigate the ways in which the integration of technology within the elementary classroom impacts levels of student engagement as perceived by the students and the classroom teacher. The current study sought to determine whether effectively using various technological tools to aid and assist with meeting learning goals and objectives set by the state had an impact on levels of student engagement in a second grade English Language Arts classroom. The purpose for such

an undertaking was because the study and its findings have the potential to inform and improve instructional practices and pedagogies.

Findings and Interpretations

After data collection and interview transcription, the researcher reviewed the information extensively on several occasions, seeking emerging themes and patterns (Creswell, 2015) in order to construct meaning. Careful analysis of the data after the review and coding process evidenced four emerging themes. A review of both quantitative and qualitative data contributed to the findings of the four emergent themes, which are as follows: a) Students felt using technology made learning better and more interesting; b) Students were engaged at high levels when they received immediate feedback during the lessons; c) Using technology positively impacted the outcome of students completing ELA assignments; and d) Integrating technology with classroom instruction positively influenced affective and behavioral student engagement.

Theme A: Students felt using technology made learning better and more interesting.

Quantitative Data Analysis

The students completed six Elementary Student Engagement Questionnaires (see Appendix E) over a six week timeframe during the implementation period of the study. The questionnaire required students to respond to 20 statements using a Likert-type scale, which included Strongly Agree (5), Agree (4), In the Middle (3), Disagree (2), and Strongly Disagree (1). Four statements from the questionnaire contributed to the drawing of this conclusion. They were as follows: Statement #6—I like how we learned in this lesson; Statement #11—I would like to do this activity again to learn something else;

Statement #12—I was bored during this lesson; and Statement # 16—The technology made the learning better or more interesting. These results coupled with the quantitative data gleaned from the Student Engagement Checklist (see Appendix D), observational field notes, informal interview responses from the classroom teacher, and student responses to post interview questions aided in uncovering this emergent theme.

In response to the statement, *I like how we learned in this lesson* (see Table 4.1), students strongly agreed with the statement 73.3% for the six lessons in which they were surveyed and they responded with "agree" 21.7% of the time. While there was an overall 5% response of "in the middle," 0% responded disagree or strongly disagree. During the various lessons, students demonstrated levels of effort and interest that, at times, even exceeded the expectations of the researcher. For example, during lesson 5B, students read numerous short passages in order to learn how to identify, distinguish, and categorize main idea statements and supporting detail statements. This was a concept that Mrs. Smith said students struggled with understanding in previous instructional lessons and, as a result, she predicted that this lesson might be one where the researcher would observe fewer students interested, wanting to participate, or putting forth the expected degree of effort. However, as indicated in the collected data, 95% of the time study participants indicated a response of agree or strongly agree that they liked the manner of presentation. This lesson was one in which the study participants not only met expectations, but exceeded them in regard to their degrees of participation, interest, and effort.

Table 4.1

Summary of Item 6 on SE Questionnaire

I like how we learned in this lesson

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
Lesson 1A	60%	30%	10%	0%	0%
Lesson 2B	50%	40%	10%	0%	0%
Lesson 3A	70%	30%	0%	0%	0%
Lesson 4A	80%	20%	0%	0%	0%
Lesson 5B	100%	0%	0%	0%	0%
Lesson 6A	80%	10%	10%	0%	0%
Mean	73.3	21.7	05	0	0
Stand. Dev.	15.99%	13.44%	5%	0%	0%

In response to the statement, *I would like to do this activity again to learn something else* (see Table 4.2), 80% of the time students strongly agreed, 16.7% agreed, and 3.3% of the time students indicated being in the middle. The students disagreed or strongly disagreed with this statement 0% of the time. In other words, of the six lessons wherein students completed the questionnaires, they enjoyed the learning experience, which met the criteria for students wanting to engage in like activities thereafter. While there were assignments that students preferred over others, none of the students expressed a desire to discontinue learning with the new instructional practices and technologies introduced and used during the study. As a matter of fact, on a frequent basis, a great majority of the study participants began asking if it were possible for the researcher either

to work with the students and teacher more often than the scheduled two days each week or for the researcher to extend her work beyond the planned hours of 9:00am-11:00am.

Table 4.2

Summary of Item 11 on SE Questionnaire

I would like to do this activity again to learn something else

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
Lesson 1A	80%	10%	10%	0%	0%
Lesson 2B	60%	30%	10%	0%	0%
Lesson 3A	90%	10%	0%	0%	0%
Lesson 4A	80%	20%	0%	0%	0%
Lesson 5B	100%	0%	0%	0%	0%
Lesson 6A	70%	30%	0%	0%	0%
Mean	80%	16.7%	3.3%	0	0
Stand. Dev.	12.90%	11.06%	4.71%	0%	0%

Statement #12 on the elementary student engagement questionnaire (see Appendix E) stated *I was bored during this lesson* (see Table 4.3). Zero percent of the students strongly agreed or agreed regarding the six lessons to which they responded. However, on average, 81.67% strongly disagreed, 16.67% disagreed, and 1.67% students responded in the middle. These findings indicated that the study participants had high levels of affective student engagement and were receptive to continuing to learn by participating in future learning experiences that were similar.

In response to the statement, *the technology made the learning better or more interesting* (see Table 4.4), students strongly agreed 83.3% of the time, agreed 15% of the

time, and were in the middle 1.67% of the time. The students had not previously used the technological tools, learning management platform (Google Classroom) or instructional practices introduced during the study. Therefore, they had no prior knowledge, experience, or levels of comfort, but they still indicated high levels of agreement with the statement that the technology made the learning better or more interesting. This table also demonstrates that students were affectively engaged at extremely high levels.

Table 4.3

Summary of Item 12 on SE Questionnaire

I was bored during this lesson.

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
Lesson 1A	0%	0%	0%	30%	70%
Lesson 2B	0%	0%	10%	20%	70%
Lesson 3A	0%	0%	0%	20%	80%
Lesson 4A	0%	0%	0%	20%	80%
Lesson 5B	0%	0%	0%	0%	100%
Lesson 6A	0%	0%	0%	10%	90%
Mean	0%	0%	1.67%	16.67%	81.67%
Stand. Dev.	0%	0%	3.73%	9.43%	10.67%

Table 4.4

Summary of Item 16 on SE Questionnaire

The technology made the learning better or more interesting.

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree

Lesson 1A	80%	20%	0%	0%	0%
Lesson 2B	70%	20%	10%	0%	0%
Lesson 3A	80%	20%	0%	0%	0%
Lesson 4A	80%	20%	0%	0%	0%
Lesson 5B	100%	0%	0%	0%	0%
Lesson 6A	90%	10%	0%	0%	0%
Mean	83.33%	15%	1.67%	0%	0%
Stand. Dev.	9.43%	7.64%	3.73%	0%	0%

During the six week data collection period, the teacher-researcher completed a student engagement checklist after each lesson, totaling 12 checklists. Items three, five, and nine from the checklist supported this emergent theme (see Table 4.5). During ten of the twelve lessons (83.3%), the teacher-researcher observed the majority of the students displaying a positive effort and interest while engaged in completing the assignments. During 12 of the 12 lessons (100%), a majority of the students participated, while during only one of the 12 lessons (8.33%) did the teacher-researcher observe a seemingly bored display of student behavior from one student. The actual observed behavior was not necessarily a true indication of boredom, but the student did not appear as eager to engage in the activity for the duration. It was also later discovered that this was a day which the student had not received the prescribed medication for his diagnosed medical condition of ADHD.

Table 4.5

Checklist Results for Statements 3, 5, 9

Summary of SE Checklist Results for Statements 3, 5, and 9

Characteristic/Trait	Observed	Not Observed
Majority of students display a positive effort and interest	83.3%	16.7%
Majority of students participated	100%	0%
Seemingly bored displays of student behavior	8.33%	91.67%

Qualitative Data Analysis

During the semi-structured focus group pre-interviews, the researcher discovered that ELA was the least favorite academic subject for six of the ten study participants. Brian concurred with Jacob in his assessment that "reading is boring," and Edward sighed loudly, folded his arms and stated, "I'm not a reading person and I don't like when [Mrs. Smith] makes us do language arts." However, during lesson 2A when students were assigned to reread the story with a partner and then use Google Draw to complete a Venn Diagram comparing two different versions of the reading story (see Appendix H), Edward raised his hand with tremendous pride six times during the lesson requesting that the researcher or Mrs. Smith come see the great job he was doing with his work. At the conclusion of the lesson, Edward also asked if it would be possible for him to come straight to class tomorrow morning to work more on the assignment instead of going to the morning room. Since Edward was one of the students who did not have a computing device at home, he would have to use one of the classroom computers. After hearing this request, Mrs. Smith raised an eyebrow in surprise and whispered to the researcher that this was "a first" because Edward had never requested to do more on *any* assignment, let alone an ELA assignment. This request prompted three more study participants to ask if they could work more on their assignments at home since they had access to computing

devices. Thereafter, it became a common practice for several of the students who had access to computing devices at home to work on classroom assignments while away from school. In addition, Mrs. Smith added an incentive to Edward's behavior intervention plan (BIP) the option of allowing him to enter the classroom early on Thursdays to work on classroom assignments that integrated the use of technology. During the semi-structured post-interview, Edward's response to the interview question that asked, *What was the best part about using technology during the lessons* was that, even though he did not go into the classroom early *every* Thursday, he really liked that Mrs. Smith allowed him to "come in early and get work done on my Chromebook."

One category on the post interview (see Appendix F) queried, *If technology were not available the rest of the school year, describe how you would feel*. All ten of the study's participants expressed disappointment. There were several gasps, "oohs" and each included the word "sad" as a part of his or her response. Carol, an ESL student who spoke little during class said, "I'd be mad because we can't learn as much as we're learning now if we don't use our computers." Fred followed up by agreeing with Carol and stated, "Yah, I *know* I'd get tired of learning because learning wouldn't be as fun." Idris replied, "Man, I wouldn't even wanna come to school 'cause that junk would be boring!" These student responses corresponded well with the observations of the researcher during the period of the study. Throughout the study, the participants consistently demonstrated behaviors that indicated a disposition reflecting high levels of effort, interest, and completion related to integrating technology with classroom instruction. During the post interview, Mrs. Smith noted,

As a result of the study, I have used technology a lot more with my students. I don't think they'd have it any other way and after seeing how engaged and involved my students were in the learning when using technology, I don't think *I* would have it any other way either!

Theme B: Students were engaged at high levels when they received immediate feedback during the lessons

Engaged students are more likely to perform better academically and earn higher grades. Conversely, the consequences for disengaged students can be very detrimental (Friedel, 2011; Milton, 2009; Prensky, 2005; Taylor & Parsons, 2011). According to Kuh and his colleagues (2008), the time, energy, and effort students invested in educational activities related to and represented by their degrees of student engagement. For the purpose of this study, the definition of student engagement was defined as the level or degree of attention, interest, effort, and completion students demonstrated when involved in learning activities.

Quantitative Data Analysis

While the study's participants demonstrated a degree of enthusiasm each time the researcher integrated the use of technology with classroom instruction, there were specific times when the degrees of student attention, interest, effort, and participation were higher than others. The researcher analyzed multiple sources of data in order to merge the data and better identify this emergent theme. Statements one, four, five, and six on the Elementary Student Engagement Questionnaire aided in illuminating this particular emergent theme. While students received some form of feedback for all assignments, five of the twelve curricular learning activities (1A, 1B, 4A, 5B, 6A)

conducted during the study provided opportunities for students to receive immediate, and, in some cases instantaneous, feedback. Study participants completed the engagement questionnaire for four of the five lessons that provided students with immediate feedback. Tables 4.6, 4.7, 4.8, and 4.9 detail the results from the collected data. In each of these lessons, study-participants overwhelmingly responded they paid attention, approached the learning using their personal best, participated, listened, and followed directions.

Table 4.6

SE Factors for Lesson 1A

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
I paid attention the best I could during the lesson	80%	20%	0%	0%	0%
I tried my personal best to learn	90%	10%	0%	0%	0%
I participated during the lesson	100%	0%	0%	0%	0%
I listened and followed directions	100%	0%	0%	0%	0%

Table 4.7

SE Factors for Lesson 4A

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
I paid attention the best I could during the lesson	100%	0%	0%	0%	0%
I tried my personal best to learn	100%	0%	0%	0%	0%
I participated during the lesson	100%	0%	0%	0%	0%
I listened and followed directions	90%	0%	0%	0%	0%

Table 4.8

SE Factors for Lesson 5B

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
I paid attention the best I could during the lesson	100%	0%	0%	0%	0%
I tried my personal best to learn	100%	0%	0%	0%	0%
I participated during the lesson	100%	0%	0%	0%	0%
I listened and followed directions	100%	0%	0%	0%	0%

Table 4.9

SE Factors for Lesson 6A

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
I paid attention the best I could during the lesson	100%	0%	0%	0%	0%
I tried my personal best to learn	100%	0%	0%	0%	0%
I participated during the lesson	100%	0%	0%	0%	0%
I listened and followed directions	100%	0%	0%	0%	0%

The information recorded on the student engagement checklist also helped to identify this feedback as an emergent theme. Of the five curricular lessons and activities that provided students with immediate feedback, a majority of the study participants displayed engagement at high levels by staying on task, participating, asking questions, and demonstrating positive attitudes and degrees of effort that either met or exceeded researcher expectations almost 100% of the time. Table 4.10 provides a summary of the

documented information from the student engagement checklist completed by the researcher at the conclusion of each lesson wherein students had immediate feedback.

Table 4.10

Checklist Results for Lessons 1A, 1B, 4A, 5B, 6A

Characteristic/Trait	Observed	Not Observed
Majority of students remained on-task majority of the time	100%	0%
Majority of students display a positive effort and interest	100%	0%
Majority of students participated	100%	0%
Students asked questions to clarify and advance learning and understanding	80%	20%

Qualitative Data Analysis

After careful and repeated review of observational field notes, informal interviews with the classroom teacher, an informal polling of the students, and transcripts from the semi-structured focus group interviews, it became apparent that the study participants displayed engagement at extremely high levels during the activities that offered opportunities to receive immediate feedback. During the second week of the study's implementation, Mrs. Smith asked the researcher to show her ways to create lessons using Quizizz or Padlet because her students kept asking when they would be able to use those tools again. Quizizz and Padlet were two Web tools introduced to students during the first week of the study, but not used during week two. At the beginning of lesson 3A, as soon as the researcher entered the classroom, Idris asked if they were going to do Quizizz again that day. When the researcher replied "not today," he slumped in his seat and commented, "awww man! I wanted to do Quizizz!" Two other study-participants,

Jacob and Danielle, quickly agreed. These comments resulted due to the fact that we had not used these technologies during week two.

Because students participating in the study and even those who were not a part of sample group continuously asked about Quizizz and Padlet, the researcher conducted an informal poll with the study participants at the end of week three. The poll was a quick survey created using Google Forms. The researcher created a form rather than asking students to raise their hands because she did not want the study participants' responses to be influenced by their peers. The poll question was as follows: *Of the technology tools we've used thus far, which technological tool did you like using best?* The choices were Quizizz, Padlet, Google Draw, and Google Presentation. Six students (60%) chose Quizizz, three participants (30%) chose Padlet, one (10%) chose Google Presentation, and no students (0%) chose Google Draw. After an informal interview with Mrs. Smith, a review of the researcher's observational field notes, and a review of the data collected thus far on the student questionnaires, the researcher began to consider the possibility that the students showed higher levels of engagement when they received immediate feedback.

Thus, during weeks four, five, and six, at least one of the lessons utilized a technological tool that provided students with immediate, sometimes instantaneous, feedback regarding their performances. The researcher's observational field notes confirmed that there was always student dancing, high 5s, and outbursts of joy when these lessons were conducted. During lesson 4A, which used the camera on the iPad and scan cards serving as an electronic clicker system, Idris and Edward got out of their seats and gave each other a chest-bump when they both selected the correct answer choice two

times in a row. During this same lesson, Jacob made the comment aloud, "Oh, we are doing this again tomorrow!" Carol, who appeared to be a much more reserved student that does not engage in frequent conversation with her classmates, smiled and clapped her hands four times during the activity, while Hannah sang a song of "oh yah, oh yah" each time she got an answer correct. When the researcher announced that there was only five minutes remaining before the lesson would end, Alice stated "No! Why?" Idris added, "We can just go to lunch late. We can swap lunch with [Mrs. Jones'] class because we did that before." These observations were strong indications that the study participants were engaged at extremely high levels when they received immediate feedback.

During the post-focus group interviews, Brian expressed that the best part about using technology during lessons was that students did not have to wait in line for the teacher to check their papers. He said, "If she uses Plickers, we can know fast if we got our answers right." Jacob added, "And Quizizz!" Several additional students concurred with the prior reasoning and comments of their peers. Hannah mentioned that one of the best parts about using technology to learn was when the students had the opportunity to observe "real" animals in their habitats by viewing the live Webcam feed. She added that the "assignments look better" when using technology because students did not have to write them in their own handwriting. The interview concluded with the researcher having to assure the study participants that they would have opportunities to learn using technology next year when they were promoted to the 3rd grade.

Theme C: Using technology positively impacted students completing ELA assignments.

During the first focus group interviews, six of the ten students noted their least favorite subject was ELA, which translated to 60% of the study's participants not liking or enjoying the subject of English Language Arts. While the other 40% named other subjects, such as math or social studies, as their least favorite, no student listed science as their least favorite and only two, Hannah and Alice, stated ELA was their favorite subject. Mrs. Smith, the classroom teacher, remarked prior to the study's implementation that it was becoming "increasingly difficult" to keep her students focused and interested during the ELA block.

Coupling the use of technology with classroom instruction can provide teachers with the opportunity to take advantage of learning opportunities that extend well beyond the four walls of the classroom. Stuart, Habegger, and Tomer (2013) suggested that teachers could engage students at higher levels of learning, establish deeper thinking relative to the content being taught, and promote listening, speaking, reading, writing, and visualizing skills through the use of various technological tools. Another emergent theme discovered as a result of the researcher conducting a thorough analysis of the study's data suggested that using technology with classroom instruction positively impacted the outcome of students completing ELA assignments.

Quantitative Data Analysis

An analysis of the data collected via the elementary student engagement questionnaire and student engagement checklist suggested that technology integration positively impacted students' desire to and acts of completing ELA assignments. Data

from questions 14 and 20 on the student questionnaire supported the claim that students demonstrated expected levels of effort and completed ELA assignments. Even though, in accordance with students' individual accommodation plans (IAP), two of the study's participants received extended time to complete assignments, a review of the data indicated that an overwhelming majority of the study's participants completed all 12 assignments. In only three of twelve instances did participants not fully complete the ELA assignments with one of those due to a student absence. Analysis of the data gleaned from the student engagement checklist confirmed that a majority of students satisfactorily completed all assignments.

Qualitative Data Analysis

Observational field notes supported this emergent theme as well. The researcher notated that students unable to complete the assignments during class time either did so at a later time during the school day or voluntarily completed assignments at home. Completing assignments at home that required access to technology was never a requirement or expectation set by the researcher; however, several students often elected to do so voluntarily. For example, Alice, who was a struggling reader, reread week two's story, which was a homework assignment, at home with her parents and then asked them to assist in completing the electronic graphic organizer. Even though there was already a plan in place for Alice to complete the graphic organizer the following day during her response to intervention (RTI) time and Alice was aware of this plan, she took the initiative to complete the assignment at home with her parents' help. When Alice returned to school the following day, she proudly announced in the hallway on her way to

class, “I don’t need to finish my graphic organizer in RTI because I did it at home last night with my mom.” This example also supports the identified emergent theme.

During the post focus group interviews, study participants replied to *What advice would you give a second grade teacher on how to use technology in ELA? What kinds of activities should the teacher include?* Idris immediately responded, “Do Quizizz!” and the other participants all agreed. Alice’s response was to “make sure they can work together like we did on Padlet.” Because the researcher was unclear about Alice’s meaning, she asked for further explanation. Alice clarified that she really liked using Padlet because she could see what other students had written and that helped her think of things to write as well. Hannah explained that she thought all teachers should use Google Classroom with their students because doing so “could save lots of paper.” Brian, who admitted at the beginning of the study that reading was “boring,” stated that those teachers should talk to the researcher because she could teach them how to “make ELA not so booooring.” Since Brian had basically admitted that ELA was not boring after all, the researcher asked him the follow up question of “So do you like ELA now?” He replied, “It’s not my favorite subject, but I like doing the ELA assignments we did with you.” After a short pause and sheepish grin, Brian added, “it’s still not my faaaavorite subject though.”

Because Jacob was another study participant that had already acknowledged that he too considered ELA “boring,” the researcher asked him the same question about whether he now liked ELA. After tapping the side of his chin and looking up, he offered, “It’s okay.” The researcher asked if it was still okay even if the teacher did not use

technology and he quickly replied, "No!" A chorus of no responses from the others followed.

During the semi-structured post interview with Mrs. Smith, the researcher asked about some of the benefits or positives she noticed coming from the study. After appearing to give the question some serious thought, Mrs. Smith replied,

> To be totally honest, I was a little hesitant at the beginning of the study. I knew my students loved to use technology to play games, but I wasn't so sure that they would be able to handle using technology to really help them in the learning process. I also feared that my students might not take it seriously or put forth any effort once they knew they wouldn't be using the technology to play games. At the time the study was done, it had become increasingly challenging to gain and keep the attention of my students. It was also a struggle to get them to complete their assignments; especially ELA assignments. So . . . I would say one of the greatest benefits that resulted from the study is the fact that my students are now completing far more ELA assignments than they were before *and* they are doing it without complaining. Another equally beneficial change that happened as a result of the study is my attitude toward using technology to engage my students. I now know how to use technology in a more meaningful way to engage my students at higher levels while making sure they are still learning at the same time. Lastly, I would say another big positive is the fact that I have noticed fewer behavior problems when you're in here using technology with my students and even when I'm

using some of the technologies I've learned how to use during instruction. There were many positives that came as a result of this study and I am so thankful that my students and I had the opportunity to serve as participants.

The comments shared by Mrs. Smith reaffirmed several of the identified emergent themes from the current study. The researcher interpreted her comments to mean that many positive things resulted from the study's implementation and an enhancement in levels of student engagement was one of those things. An additional positive was Mrs. Smith offering her gratitude, on more than one occasion, because the frequency of many of the misbehaviors she had come to expect from some of the study participants had been minimized since the researcher had begun working with the class. This implied that there was a correlation between improving levels of student interest, focus, and engagement, and decreasing the frequency of student misbehaviors.

Theme D: Integrating technology with classroom instruction positively impacted levels of affective and behavioral student engagement.

Affective student engagement refers to the degree to which a learner demonstrates positive and negative reactions to school, learning, teachers, and peers, also conceptualized as having a sense of belonging and feeling like a valued member of the school and class communities. The student demonstrates positive emotions and appreciation toward successfully completing school-related tasks and assignments. It includes the student demonstrating enthusiasm, curiosity, interest, and a willingness to complete tasks. Affective student engagement also involves the absence of task

withdrawing emotions, such as fear, frustration, anger, anxiety, or distress (Connell & Wellborn, 1991; Finn, 1989; Reeve, 2012; Voelkl, 1996, 1997).

Behavioral student engagement refers to a student's observable positive conduct. It is a demonstration of the student actively participating in and complying with school and classroom rules and procedures. The student exhibits on-task attention and focus with high levels of effort and persistence. In addition to the student's involvement in academics, behavioral engagement also includes the student's participation in socially acceptable norms without the presence of troublesome behavior (Connell & Wellborn, 1991; Finn, 1989; Fredricks & McColskey, 2012; Reeve, 2012).

Quantitative Data Analysis

Careful review and analysis of the collected data confirmed high levels of affective student engagement throughout the study's implementation. The results for the affective student engagement factors included on the elementary student engagement questionnaire are below in Table 4.11 for lesson 1A. After review of the data, the researcher recognized that the results were exactly the same for 100% of the study's participants on the subsequent five student questionnaires completed during the study. There was no variation whatsoever. The study participants strongly agreed on an overwhelming basis that they could and would give or receive help from their classmates if the need arose. Participants never reported feeling nervous or fearful during the learning activities and they were in complete agreement 100% of the time that the researcher wanted them to learn and get smarter.

Table 4.11

Summary of Affective Student Engagement Factors

	Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
I did or would have helped my classmates who needed help	100%	0%	0%	0%	0%
I could ask my teacher to help me if I didn't understand	100%	0%	0%	0%	0%
I felt nervous or scared while we were learning	0%	0%	0%	0%	100%
I got angry or upset during the lesson	0%	0%	0%	0%	100%
My teacher wants me to learn and get smarter	100%	0%	0%	0%	0%
I could ask friends in my class for help if I needed to do so	100%	0%	0%	0%	0%

Even though study participants gained exposure to various technological tools to aid them in their learning and many were working in a subject area that was their least favorite, the data results showed that there were extremely high levels of affective student engagement. On numerous instances during the study, the researcher had to re-explain how to do certain things or provide individualized assistance, but even in those instances, study participants still reported lack of fear or nervousness. This data and data presented in previous tables, such as 4.4, reaffirmed the positive levels of affective engagement present during the study's implementation period.

Two items on the Student Engagement Checklist provided support in the discernment of degrees of affective student engagement. Statement 2—*displays of negative emotions such as anger or denial* and statement 7—*displays of collaboration and socialization when appropriate* were both checklist items that provided insight into

students' levels of affective engagement. As represented in Table 4.12, the researcher observed no displays of negative emotions from study participants and numerous displays of collaboration or socialization when appropriate during 12 of the 12 (100%) instructional lessons and activities. Because there were zero instances of students exhibiting negative or withdrawing emotions, such as fear, frustration, or anger, integrating technology with instructional practices this provided validation of it enhancing students' levels of affective student engagement. The data also implied that technology integration had a positive impact on degrees of student engagement.

Table 4.12

Checklist Results for Affective SE

Characteristic/Trait	Observed	Not Observed
Displays of negative emotions such as anger or denial	0%	100%
Student-displays of collaboration and socialization when appropriate	100%	0%

Qualitative Data Analysis

Much of the study's qualitative and quantitative data presented thus far in this chapter speaks to high levels of behavioral student engagement present during the study. In addition, the researcher's observation field notes offered examples of students' observable positive conduct and teacher comments. For example, during lesson 2B, which required students to use their computing devices and headphones to listen to the reading story for the week, Hannah's headphones stopped working. When this happened, Idris immediately volunteered to allow Hannah to use his headphones stating, "I can just read the story myself because I'm a good reader." During lesson 4B, which required

students to respond to questions about fact and opinion on a Google Slide presentation, Fred was partnered with Danielle. The researcher recorded in field notes that "Fred demonstrated a great deal of patience as he worked with Danielle. He explained the difference between statements of fact and statements of opinion and even offered an example that he made up himself."

Last, comments such as "students worked quietly and asked questions," "several displays of joy observed," "all study participants followed directions and demonstrated degrees of effort exceeding researcher expectations," and "difficult concept for many students to understand, but lots of student questions were asked and no off-task behavior observed" were among the many observations recorded by the researcher during the study's implementation period. Review of these data serve as corroborating support of the identified emergent theme that integrating technology positively impacted affective and behavioral student engagement.

Conclusion

The impact of technology integration on the levels of student engagement was apparent in numerous ways. However, the collected data consistently indicated and demonstrated that students had a propensity for engagement at high levels when technology was integrated with classroom instruction. Among other things, the researcher notated and considered students' facial expressions, body language, actions, and comments to uncover the findings of the study. As evidenced in the qualitative and quantitative data presented, there were enhanced degrees of attention, effort, interest, and completion of student work as a result of utilizing technology with instructional practices. Due to the positive benefits observed when students used technology to aid the process of

learning during the study's implementation period, Mrs. Smith began integrating technology more in other curricular subjects. She remarked in her post-interview,

> I was in desperate need of strategies to get student engagement levels to where they were prior to Winter break and this study showed me how to do that. Because I saw a major improvement in the amount of excitement and effort my students put into learning during the study, I now plan more lessons and activities that provide opportunities for students to learn using technology in all of the subject areas. The study was not only beneficial for my students, but for me too because it also changed the way I approach teaching and getting my students engaged.

CHAPTER 5

DISCUSSION, IMPLICATIONS, and RECOMMENDATIONS

Overview and Summary of the Study

For the purposes of this study, the definition of student engagement was the level or degree of attention, interest, effort, and completion students demonstrated when involved in learning activities. Furthermore, technology integration served as the use of computing devices, Google Classroom, software and Web-based applications, and the Internet merging with classroom instructional practices. This study incorporated various uses of technology with classroom instruction. The purpose of doing so was to determine the impact of technology integration on the engagement levels of ten second grade students in an English Language Arts classroom. The study employed both quantitative and qualitative research data in order to capitalize upon the strengths of both (Mertler, 2014) research methods. Data collection occurred twice a week for six weeks from the ten second grade study participants (five girls and five boys) in the same homeroom class. During the study, participants engaged in classroom instruction that required them to utilize student laptops or desktops to complete and submit assignments online. They utilized various websites to research information, recorded the requested information via electronic graphic organizers, used Google Draw and Google Presentation to create products demonstrating their learning, completed online assessments, and communicated and collaborated with the researcher, teacher, peers, and parents using the Google

Classroom platform as the learning management system.

After careful review of the data yielded from the study, the researcher uncovered four emergent themes: a) Students felt using technology made learning better and more interesting; b) Students were highly engaged when they received immediate feedback during lessons; c) Using technology positively impacted the outcome of students completing ELA assignments; and d) Integrating technology with classroom instruction positively impacted affective and behavioral student engagement. The students' responses on the questionnaires, the researcher's observational field notes, transcripts from focus group interviews, and formal and informal interviews with the classroom teacher provided data points for the study's results. These data were collected to assist with answering the research question of how technology integration impacted levels of student engagement for ten second grade students in an English Language Arts classroom.

An interpretation of the data collected suggested students' levels of attention, interest, participation, and effort met or exceeded researcher expectations. As a result, Mrs. Smith significantly increased integrating technology with her classroom instruction and stated she was pleased with how much better her students paid attention and completed assignments when they were able to do so using technology. These are significant findings because, according to Mertler (2014), "The main goal of action research is to address local-level problems with the anticipation of finding immediate solutions" (p. 12). Thus, the current study provides information that can assist classroom educators with addressing the problem of student disengagement by developing and

implementing instructional strategies and best practices specifically designed to engage students at higher levels.

Suggestions for Future Research

While the collected data from the current study supports the positive impact technology integration can have on the engagement levels of students, there are ways in which this study could be extended in order to gain even greater knowledge. Since only second grade students served as the study participants, the researcher suggests that future studies should include students in the upper elementary grades or even include middle and high school students. The researcher also recommends future studies that document actual levels of student achievement related to integrating technology with classroom instruction and student engagement levels. Last, the student body at the research site for this study included a large number of ESL learners and a majority of the students enrolled received free or reduced lunch. Future research at sites with contrary demographics may be beneficial in contributing to the understanding of how technology integration impacts levels of student engagement on a broader level.

Implications

Upon review and consideration of the current study and its findings, classroom teachers should consider incorporating the use of technology with their instructional practices to engage learners at higher levels. Integrating technology with classroom instruction can expand and transform how teaching and learning manifests in today's classrooms. Technology allows the learning process to extend far beyond the four walls of the classroom, while enhancing students' levels of attention, interest, engagement, and participation. Disengaged students exist for numerous reasons, but classroom teachers

still have the responsibility of finding ways to engage them in order to facilitate further learning. The current study suggests that planning and implementing learning activities that utilize various technological applications and resources may be a potential strategy that teachers can employ to enhance levels of student engagement in order to meet diverse learner needs.

Action Plan

The results of this study reveal that integrating technology with classroom instruction is beneficial in enhancing levels of student engagement in the English Language Arts classroom. The integration of technology provided opportunities for the researcher to make learning more meaningful, relevant, and interactive, while also augmenting student engagement levels. Butin (2010) maintains that one of the beauties of educational action research is that the researcher can apply that research to his or her daily in the field and on the ground practice. According to Mertler (2014), the development of an action plan should be the "ultimate goal of any action research study" (p.43). Successful teacher-researchers are most effective when they evaluate and reflect upon what they do. They do not simply conduct research and discontinue the process. They understand that action research is a cyclical process and they critically analyze and reflect in order to optimize the learning that has taken place as a result of the action research and its yielded results (Dick, 2000).

As a result of the findings and implications from the current study, four key questions emerged. They are as follows: a) How can we share the study's results and strategies employed with other educators in the building in order for the results to have a wider reach and impact; b) Are levels of student engagement positively impacted through

technology integration in subject-area classrooms other than English Language Arts; c) Are the current study's findings indicative of those that one might find in an upper elementary classroom; and d) Is there a positive correlation between levels of student engagement and academic achievement. In light of these four emerging questions, the researcher developed an action plan that consists of three phases.

Phase one of the action plan consists of the researcher and classroom teacher (Mrs. Smith) conducting eight professional learning and development workshops during the 2017-2018 school year. The workshops will be held twice a quarter and the researcher will use Google Classroom, the same learning management system (LMS) platform used with students during the study to facilitate learning. Google Classroom will be used to foster ongoing collegial collaboration and to share materials and resources intended to inform and improve instructional practices. An additional part of phase one will establish a school technology team. The team will consist of one teacher from each of the K-5 classrooms, one special education teacher representative, one ESL teacher representative, and one related arts teacher. Mrs. Smith has agreed to serve as the second grade representative. This will provide an opportunity for her to continue to expand her knowledge in the area, while serving as a tech ambassador for others in the building.

Phase two of the action plan addresses the second emerging question pertaining to whether technology integration in a subject area other than English Language Arts will positively impact levels of student engagement. This part of the action plan will include working again with Mrs. Smith's homeroom students for the upcoming school year, but conducting the study during the mathematics block. Aside from the content, the researcher plans to duplicate many of the procedures of the current study. The researcher

will determine whether students' levels of engagement improve and identify new and/or recurring emergent themes.

Phase three of the newly devised action plan resulting from the findings of the current study is two-fold and intended to address the third and fourth emerging questions. Those questions pertain to whether working with students enrolled in an upper elementary class will produce similar results and whether there is a positive correlation between student engagement and student achievement. A fifth grade teacher currently employed at the same school as the researcher has already volunteered her class and students for further research during the upcoming school year. This teacher team-teaches and is the English Language Arts and social studies teacher; thus, the study will take place during the English Language Arts block. Conducting this study with older elementary aged students offers the potential for greater generalizability of the results if they are similar.

Since the students are older and it is a common practice for teachers at this grade level to administer a greater number of summative assessments, the added piece to this subsequent research will incorporate data collection that not only identifies students' levels of engagement, but also identifies and records student performance. Willms, Friesen, and Milton (2009) maintain that there is a positive correlation between a student's level of engagement and that of his or her level of performance and achievement. Modifying the research in this manner can add to this understanding and be essential in future efforts to inform instructional practices.

"Action research is built on the premise that some type of action will result from your action research project" (Mertler, 2014, p.210). In order for the resulting action to

be meaningful, the teacher-researcher must engage in professional reflection. He or she must review and reflect upon the entire study from beginning to end and ask a series of questions to determine what modifications, revisions, and improvements could or should be made. The reflection component of the current study successfully served as the catalyst to further assist the researcher in providing support to the teachers with whom she works. It has also provided an excellent starting point for conducting additional research intended to evoke change, enhance student engagement, promote academic achievement, and improve educational practices.

Conclusion

Integrating technology with classroom instruction allows educators opportunities to do things that were thought impossible at one time. For example, integrating technology in the current study allowed participants to engage in an interactive live safari to Africa, observe animals in their natural habitats via live Webcams, and instantly submit and share completed assignments with parents, students in other classrooms, and on the Internet. This, in turn, made learning more meaningful, relevant, and interactive. The study's data demonstrate participants acknowledging numerous benefits, including enhanced learner engagement through the use of technology.

Student engagement continues to be a focus of educators wishing to increase the degree to which students invest in learning activities and to those wishing to improve learner outcomes. The multi-dimensional construct has implications of being a very powerful predictor of a student's success and sense of belonging. Engaged students are more apt to participate and provoke positive learner results (Carini, Kuh, & Klein, 2006; Taylor & Parsons, 2011). The current study provides insight into potential ways for

elementary school teachers to enhance levels of student engagement by integrating technology with their instructional practices. The study participants were very clear in letting their voices be heard regarding the use of technology in the classroom. When asked what advice students would give a second grade teacher considering not using technology with students in English and language arts, Alice gasped, "They have to use technology!" and all of the other study participants in the focus group agreed.

The researcher is by no means suggesting that technology integration is the perfect panacea for all the ills that plague the world of education or that it will solely resolve every instance of student disengagement. However, through the use of technology, students are invited to become more than just passive learners. Technology integration allows educators the opportunity to provide students with learning opportunities that encourage them to engage with and become active participants in the teaching and learning process. The current study's results demonstrate how technology integration can potentially optimize levels of student engagement in an effort to optimize learner outcomes.

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APPENDIX A:

PARENTAL CONSENT FORM FOR STUDY PARTICIPANTS

August 16, 2016

Dear Parent/Guardian:

I am the technology and learning coach, and I am currently working toward earning my doctoral degree in curriculum and instruction from the University of South Carolina. As a part of the dissertation completion requirements, I will be conducting an action research study to examine how the use of technology coupled with instructional practices affects levels of student engagement in the elementary classroom. Specifically, I am seeking to determine whether effectively using various technological tools to meet learning goals and objectives has an impact on student engagement as perceived by students and teachers.

I will be working with your child's homeroom teacher to observe and collect data during regular classroom instruction times. Participation will involve students responding to questionnaire items and additional feedback will be solicited from students through small group interviews. Students may also complete rating scales or polls. The study's data and its generated results are intended to inform and improve instructional practices utilized with current and future students.

There are no potential risks for participating in the study and all student data will be kept confidential. Study methods will comply with all research guidelines for both Richland School District Two and the University of South Carolina. The researcher may publish the study results, but will not use student names. Participation is strictly voluntary and there are no penalties should you decline for your child to participate. Participation will not impact your child's grades, treatment, services rendered, or infringe upon any other rights to which you or your child would otherwise be entitled. You may at any time withdraw your child's participation.

Since the study can potentially benefit and inform various fields of education, instructional and educational technology, and professional growth and development programs for current educators and those enrolled in training programs, I would greatly appreciate your consent for your child to participate. If you have questions regarding this study or your child's participation, please feel free to contact me at 803.419.2226 or ojh@email.sc.edu. Please use the back of this page to indicate whether you give consent

for your child to participate in this study, and then sign, and return the form no later than **September 22, 2016**.

Sincerely,

Octavia J. Hamilton, Doctoral Candidate

_____I give consent for my child, _____, to participate in the above referenced study.

_____I do *not* give consent for my child, _____, to participate in the above referenced study.

Parent's Name:_____

Parent's Signature:_____

Date:_____

APPENDIX B:

ASSENT FORM FOR STUDENTS

Dear Student,

I am the technology and learning coach at your school and I am also a student just like you. I am a graduate student at the University of South Carolina working on my doctorate like the principal of our school. As a part of my homework, I will work with your teacher to help make teaching and learning even better in your classroom. She and I will be designing classroom lessons that will allow you to use technology to help you learn. We want to know if using technology makes a difference in your learning and student engagement.

As a part of my research, I will be asking you to answer some survey questions, you will get to vote and tell me how you liked our lessons, and some of you will even be interviewed by me. All students who participate need to give their permission, so the choice is yours. There are no grades or prizes for participating and there won't be any negative consequences for those who do not participate. In order to protect and respect your privacy, instead of using your real name, I will be using pretend names. If you decide to participate in the study, you can always change your mind later and you won't get in trouble for doing so. There is no chance for you to get hurt, there is no extra work or homework, and the study might just make learning more fun for you and help other teachers in their classrooms too.

Use the space below to tell me if you would like to participate in the study.

Sincerely,

Octavia J. Hamilton, USC Doctoral Candidate

_____Yes, I'd like to participate in Mrs. Hamilton's technology research study.

_____No, I would ***not*** like to participate in the technology action research study.

Student's Signature: _____ Date: _____

APPENDIX C:

FOCUS GROUP INTERVIEW QUESTIONS

Pre-Interview

- What is your favorite academic subject in school?

- What is your least favorite academic subject in school?

- What do you like most about school?

- What do you like least about school?

- Do you have a computing device at home? (Ex: laptop, desktop, tablet, iPad, smartphone) If so, how often do you use it?

- What types of things to you do at home with technology?

- Have you used technology at school to learn? How?

APPENDIX D:

STUDENT ENGAGEMENT CHECKLIST

Teacher:_____

Grade Level:_____

Lesson Title:_____

Date:_____

Was technology integrated with instruction?_____Yes _____ No

Characteristic/Trait	Observed	Not Observed
Majority of students remain on-task majority of the time	❑	❑
Displays of negative emotions such as anger or denial	❑	❑
Majority of the students display positive effort and interest	❑	❑
Students demonstrate expected degrees of effort	❑	❑
Majority of students participate	❑	❑
Students ask questions to clarify and advance learning and understanding	❑	❑
Student displays of collaboration and socialization when appropriate	❑	❑
Majority of students satisfactorily complete the assignment	❑	❑
Seemingly bored displays of student behavior	❑	❑

APPENDIX E:

ELEMENTARY STUDENT ENGAGEMENT QUESTIONNAIRE (Screenshot)

Elementary Student Engagement Questionnaire

DIRECTIONS: Please answer the following questions very honestly by circling a number. This is *not* a test and there are no correct answers or wrong answers to these questions. You will not get in trouble for being truthful. Your answers are very important and will help your teacher understand what you think about school and how he or she can make learning even better for you.

Student Name: Date:

		Strongly Agree	Agree	In the Middle	Disagree	Strongly Disagree
1.	I paid attention the best I could during the lesson.	5	4	3	2	1
2.	I asked questions when I did not understand.	5	4	3	2	1
3.	I did or I would have helped my classmates who needed help.	5	4	3	2	1
4.	I tried my personal best to learn.	5	4	3	2	1
5.	I participated during the lesson.	5	4	3	2	1
6.	I like how we learned in this lesson.	5	4	3	2	1
7.	I could ask my teacher to help me when if didn't understand.	5	4	3	2	1
8.	I listened and followed directions.	5	4	3	2	1
9.	I felt nervous or scared while we were learning.	5	4	3	2	1
10.	I respected all adults and classmates.	5	4	3	2	1
11.	I would like to do this activity again to learn something else.	5	4	3	2	1
12.	I was bored during this lesson.	5	4	3	2	1
13.	I got angry or upset during this lesson.	5	4	3	2	1
14.	I tried my best to complete the assignment.	5	4	3	2	1
15.	My teacher wants me to learn and get smarter.	5	4	3	2	1
16.	The technology made the learning better or more interesting.	5	4	3	2	1
17.	This lesson helped me learn something or get smarter.	5	4	3	2	1
18.	I could ask a friend in my class for help if I needed to do so.	5	4	3	2	1
19.	I think this lesson was too hard for me.	5	4	3	2	1
20.	I used perseverance to try to complete this activity.	5	4	3	2	1

APPENDIX F:

SEMI-STRUCTURED FOCUS GROUP INTERVIEW GUIDE

Post-Interview

- What was the best part about using technology during the lessons?

- If technology were not available for the rest of the school year, describe how you would feel.

- What are some activities or things you were able to do because you had technology in the classroom?

- Tell me about some learning activities you liked that did not involve technology. What did the teacher do or not do that made the lesson interesting or fun?

- What advice would you give a second grade teacher on how to use technology in a reading and language arts class? What kinds of activities should she or he include?

- What would you say to a teacher who says she is not going to use technology with her students during English Language Arts?

APPENDIX G:

SEMI-STRUCTURED INTERVIEW GUIDE

Teacher Post Interview

- How would you define student engagement?

- Do you believe your students were more engaged, less engage, or about the same when using technology during the study's implementation period?

- What do you feel is one of the greatest benefits or positives that resulted from the study?

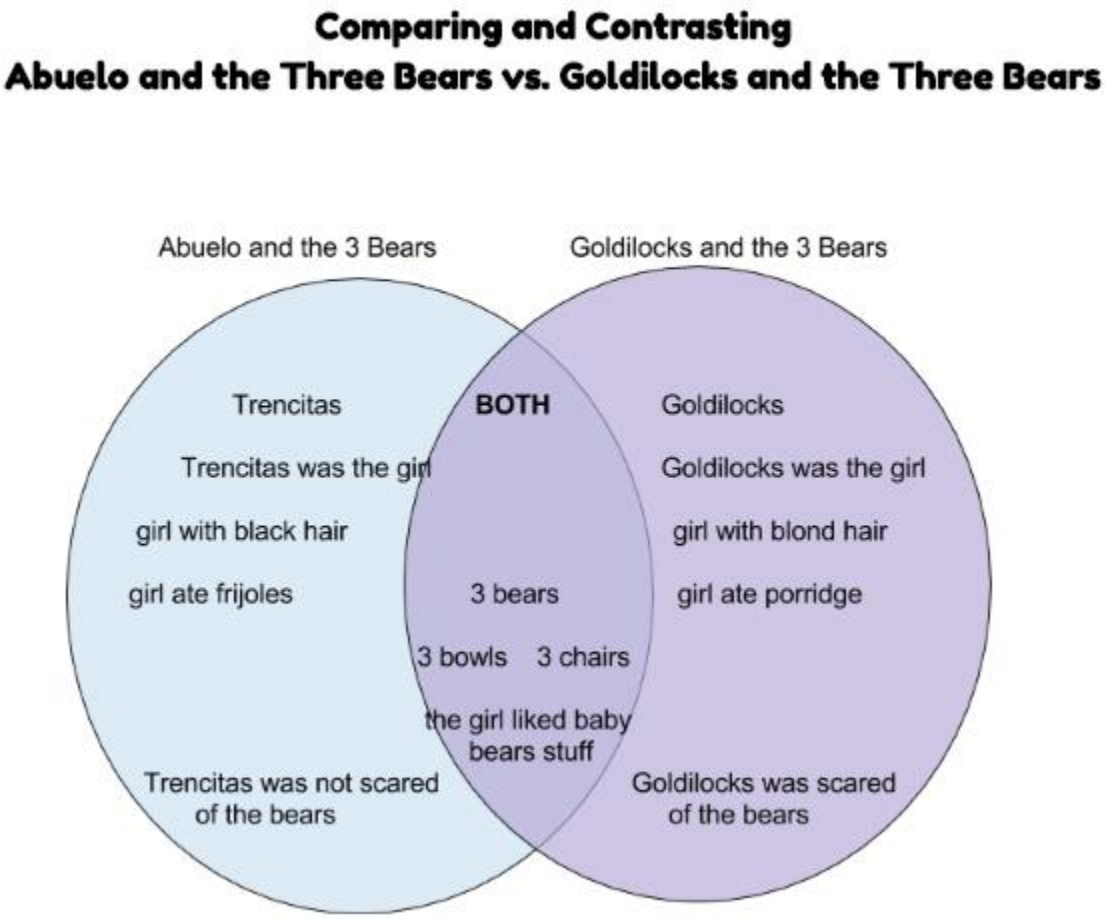
- Did you notice any negatives or drawbacks as a result of using technology with students during the study?

- Since the study's end, have you used technology with your students more, less, or about the same? Why?

- What are your overall thoughts regarding the study? As you respond, think about any benefits, differences in your instructional practices, students' opinions, learner-attitudes, and degrees to which they completed assignments.

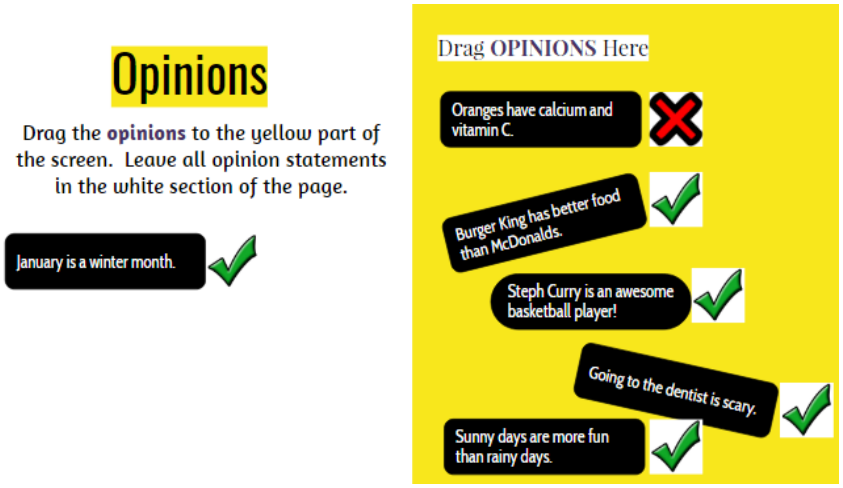
APPENDIX H:

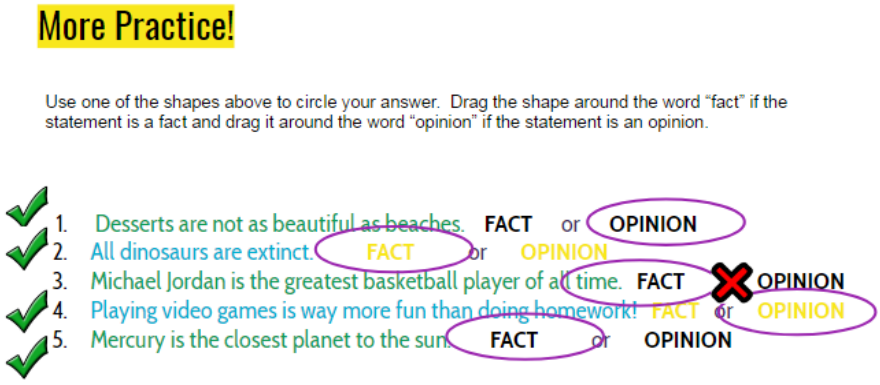
LESSON 2A STUDENT WORK SAMPLE (Screenshot)

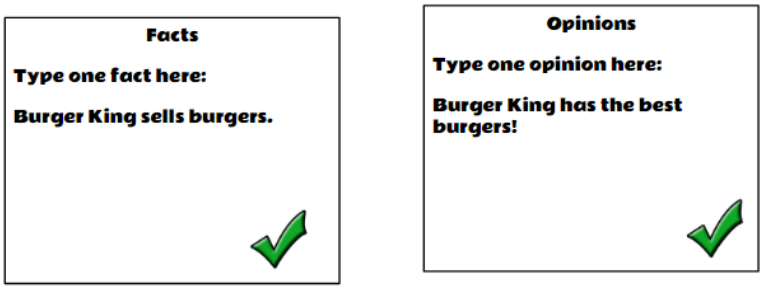


APPENDIX I:

LESSON 4B STUDENT WORK SAMPLE (Screenshots)







APPENDIX J:

LESSON 6B STUDENT WORK SAMPLE (Screenshots)