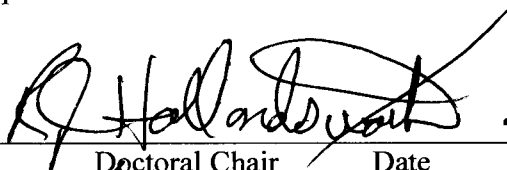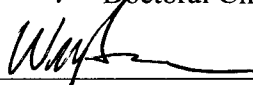An Exploration of the Technology-Based

Learning Environment

in Middle Grades English/Language Arts Instruction

and Its Impact on Learner Autonomy

By

Mary Ellen Welch

Approved:

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Piedmont College

School of Education

An Exploration of the Technology-Based

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in Middle Grades English/Language Arts Instruction
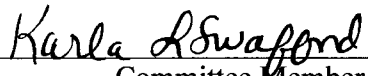
and Its Impact on Learner Autonomy

Mary Ellen Welch

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Dedication

I dedicate my dissertation to God, my family, friends, and colleagues. God's favor and hand in my life are undeniable. God so richly blessed me with my supportive and loving husband, Adam, whose understanding and faith in my ability to complete this task has been unwavering. My son, A.J., provided much needed humor and words of motivation every step of the way. My supportive parents, Tom and Julie, instilled excellence and supported me throughout this determined endeavor. My mom and mother-in-law, Donna, whose words of encouragement and acts of service through meals, laundry, and time spent with A.J. have made my time to write possible. My sister, Anna, whose faith in my ability and prayers and kind words resonated in my spirit. To all of my siblings, I hope I've served as an example of how God works within and through when you allow Him to do so. To my friends who have been patient and supportive in my endeavors and a sound board for my ponderings along the way. To my fellow colleagues and educators who are equally passionate for learning, bringing relevance to content for student learners, and embrace change every day. To all of my past, present, and future student learners, you are truly the driving force of change, and I cannot thank you enough for always challenging me to seek more knowledge to better serve you.

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God richly blessed me with a cohesive Doctoral committee to my study whose expertise, guidance, support, and continual challenging of my thinking led to this proud moment. My chair, Dr. Randy Hollandsworth, provided his extensive technology expertise, met and corresponded with me regarding my progress, continually read and reviewed my work, and advised me along the way. My committee member, Dr. Bill Brown, freely shared his learning and cognition expertise and engaged me with insightful ponderings. Another committee member, Dr. Karla Swafford, bestowed her English/Language Arts and qualitative expertise and provided encouraging words along the way. I am so grateful my committee was so balanced in the interwoven disciplines of technology, the learner, and English/Language Arts content. Their combination of expertise and its impact on this work is undeniable.

My Piedmont College professors throughout the Doctoral program and cohort of colleagues continually challenged my thinking and helped maximize my potential throughout this process. My life-long learning process is continually confirmed as I realize I've barely tapped into how much information is available in this world. The camaraderie of cohort colleagues has been of comfort when reaching points of frustration.

My educator participants and their student learners and their principals and district leaders made this study possible. The willingness to open their districts, schools,

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and allow the stories to flow from the educators shows how much value and respect there is for the educator and their student learners. My educator participants, "Lynn", "Mallory", and "Jane", you have all inspired me more than you'll ever know. It never ceases to amaze me how much educators are willing to give of themselves to enrich the lives of their learners. I can never thank you enough for what you do for children and your honesty and openness in my research process. I enjoyed your student learners, especially their humor and honesty. I am in complete awe of the knowledge-base and deep thinking of their learning experiences and how educators are shaping the learners into the future men and women they desire to become.

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List of Abbreviations

ARCS- Attention, Relevance, Confidence, and Satisfaction

ATI- Aptitude-Treatment Interaction

DI- Differentiated Instruction

EI- Emotional Intelligence

E/LA- English/Language Arts

GaETC- Georgia Educational Technology Conference

GDP- Grammar Daily Practice

LoTi- Levels of Technology Implementation

MI- Multiple Intelligences

NETP- National Education Technology Plan

TPACK- Technological Pedagogical Content Knowledge Framework

Abstract

An Exploration of the Technology-Based Learning Environment in Middle Grades

English/Language Arts Instruction and Its Impact on Learner Autonomy

By

Mary Ellen Welch

Chair: Randy Hollandsworth, Ph. D.

As student learners become exposed to more technology, they drive change in their learning environments. The United States Department of Education and Georgia Department of Education responded with national and state technology plans to better support the Digital Natives of this century. Local school districts and schools equipped educators in this study through portable and mobile tablet/laptop carts, student response devices, data/video projectors, and/or interactive TVs/white boards. In this multisited, multiple case study, three middle grades English/Language Arts educators honored connections between content, pedagogy, and technology. Through narrative vignettes, within-case and cross-case analysis of data, and interpretation and implications of findings, the researcher described how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. The researcher desired the findings to be of value to educators and others whose decisions regarding professional development, instructional practices, and instructional resources influence the learning experiences for educators and their student learners.

Keywords: case study, Digital Native, English/Language Arts, Learner Autonomy, technology-based learning environment

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Chapter I

Introduction

Background and Context

Students in the United States of America have more access to technology than any other students in the world (November, 2010a). In 2011, the United States Census Bureau reported 75.6% of Americans had a computer in their home with 71.7% also having Internet access (File, 2013). With the prevalent personal and professional utilization of technology across America, its potential for enhancing the teaching and learning of today's student learner was widely recognized (Coppola, 2004; Davies, 2011; Georgia Department of Education, 2013b, 2014b; Joan, 2013; Prensky, 2010; Raya & Fernandez, 2002; Sandholtz, Ringstaff, & Dwyer, 1996; U.S. Department of Education, 2010a, 2010b).

In the 2010 reauthorization of the Elementary and Secondary Education Act, President Barack Obama and his administration acknowledged the need for the investigation, evaluation, and support of innovative technological approaches to teaching and learning in the nation's education system (U.S. Department of Education, 2010b). The Administration's National Education Technology Plan (NETP), *Transforming American Education: Learning Powered by Technology*, offered a national long-range technology plan to apply daily personal and professional utilized advanced technology to the entire educational system in an effort to improve student learning, promote effective teaching and learning practices, and utilize data to improve the nation's education system (U.S. Department of Education, 2010a). The mandates and priorities of President Obama and his administration portrayed the nation's shared belief that technology improves the

instruction and facilitation of learning (Davies, 2011; Davies & West, 2014; U.S. Department of Education, 2010a, 2010b). The NETP further outlined and recommended for public education systems five main goals to transform the education of American student learners: "learning, assessment, teaching, infrastructure, and productivity" (U.S. Department of Education, 2010a, p. xvi). Despite the digital learning divide between students with technology available in their homes and schools and students without technology availability (Ally & Samaka, 2013; Palfrey & Gasser, 2008; Rakes, Fields, & Cox, 2006), the NETP further called for state and local public education systems to "ensure equitable access to learning experiences for all students and especially students in underserved populations—low-income and minority students, students with disabilities, English language learners, student in rural and frontier schools, and others" (U.S. Department of Education, 2010a, p. xv). Although the recommendations were made, it was ultimately up to local and state public education systems to determine how to better support student learners in this century (Davies, 2011; U.S. Department of Education, 2010a).

On the state level, the Georgia State Board of Education adopted the National Educational Technology Standards for Students (NETS-S) in 2011, later revised to the International Society for Technology in Education Standards for Students, or ISTE Standards-S (Georgia Department of Education, 2014b; International Society for Technology in Education, 2012). The six standards included: (a) Creativity and Innovation; (b) Communication and Collaboration; (c) Research and Information Fluency; (d) Critical Thinking, Problem Solving and Decision Making; (e) Digital Citizenship; and (f) Technology Operations and Concepts (International Society for

Technology in Education, 2012). These standards were integrated into Georgia's

Common Core Curriculum (Georgia Department of Education, 2014b).

The Georgia Department of Technology Services also provided a *3 Year*

Technology Plan, which consisted of their vision to

> utilize technology to make education work for Georgia's educators, students,
>
> parents, business/industry, and educational partners by providing them with
>
> timely and accurate information using high quality data and tools that are easy to
>
> use, powerful, cost effective and readily accessible (Georgia Department of
>
> Education, 2013b, p. 3)

Through this plan, the Georgia Department of Education (2013b) aimed to:

- Collect and maintain high quality data;

- Provide easy, powerful, and cost effective tools; and

- Provide fast and ubiquitous access to data and tools. (p. 3)

These data and tools were "to provide education experiences to every Georgia Public

School student" (Georgia Department of Education, 2013b, p. 4).

How, then, were technological devices allocated throughout the state of Georgia?

The Georgia Department of Education Technology Services annually conducted and

shared its K-12 survey of public schools results. The "2013-2014, the 2012-2013, and the

2011-2012 Annual State Technology Inventory Survey" and the "Annual State

Technology Inventory Survey- December 2010", information was gathered regarding the

access to high-speed Internet and student instructional computers and peripheral

equipment utilized across the state of Georgia [see Appendix A] (Georgia Department of

Education, 2011, 2012, 2013a, 2014a). These survey results indicated a shift toward

portable and mobile labs through tablets and laptops, or through stationary labs within schools, which enabled greater technology access to all students (Georgia Department of Education, 2011, 2012, 2013a, 2014a). Within the classroom, the trends over the years indicated student response devices, data/video projectors, and interactive whiteboards were peripheral equipment utilized most frequently during instruction (Georgia Department of Education, 2011, 2012, 2013a, 2014a).

Although policymakers and curriculum standards influenced educational decision-making, student learners were truly driving educational change in the 21st century classroom (Joan, 2013; Sheskey, 2010). The nation's K-12 student learners, or Digital Natives, all lived with access to networked digital technology and have never known a time without it (Oh & Reeves, 2014; Palfrey & Gasser, 2008; Sheskey, 2010). Outside of school, Digital Natives obtained knowledge through these technological devices independently as they built and managed their identity through communicating and forming relationships globally with their peers through social media [e.g., Facebook] (Ally & Prieto-Blazquez, 2014; Ally & Samaka, 2013; Hsu, Ching, & Grabowski, 2014; November, 2010a; Oh & Reeves, 2014; Palfrey & Gasser, 2008; Wilmarth, 2010). Further understanding of these Digital Natives would help educators bring relevance into their instructional practices (Baker, 2010; November, 2010a; Palfrey & Gasser, 2008; Prensky, 2010; Sheskey, 2010 Wilmarth, 2010) and better support, rather than control, the learning of their students (Ackermann, 1995; Coppola, 2004; Cunningham, 1992; Elkind, 1976; Fosnot, 1996; Gould, 1996; Jarvis, 2005; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995).

The educator's roles, and relationship established with student learners, were then acknowledged as key factors leading to a path of educational success (Coppola, 2004; Jacobs, 2010a; Sandholtz et al., 1996; U.S. Department of Education, 2010b). At the "forefront as active participants" (Sandholtz et al., 1996, p. 2) in "developing high-quality uses of computers in schools" (Coppola, 2004, p. 1), educators were challenged to match the ever-changing world to the needs of their learners (Jacobs, 2010a). There was a national call for educators to assist student learners in the development of their technology literacy and skills to independently think critically, accomplish tasks with minimal support, and utilize flexibility and adaptability to available resources to gather information needed as graduates ready to utilize their skills in higher education and employment as future competitors in this global economy (Coppola, 2004; Davies, 2011; Davies & West, 2014; November, 2012; Prensky, 2010; U.S. Department of Education, 2010a, 2010b).

Educators reinforced higher education and employment success through the process of learner autonomy development (Holec, 1981). Learner autonomy was further supported by providing opportunities for student learners to have a voice, make choices, and take responsibility for their learning through setting goals, planning, and monitoring and evaluating their own progress (Asik, 2010; Asmari, 2013; Holec, 1981; Lamb, 2011; Little, 2009; Mutlu & Eroz-Tuga, 2013; November, 2012). Researchers Jang, Reeve, and Deci (2010) discovered educators with high levels of autonomy support and structure also heighten students' engagement through crafting instruction where students were able to take initiative in their learning. Scholars noted that access to a wide range of resources through technology (e.g., computers, Internet, Web-based learning, email systems,

discussion forums, and online chat environments) led to a better support system for the autonomous learner as they are better able to take responsibility for their learning through familiar tools (Asmari, 2013; Behera, 2013; Davies, 2011; Hockly, 2013; Hsu et al., 2014; Hussain & Adeeb, 2009; Mutlu & Eroz-Tuga, 2013; November, 2010b; Raya & Fernandez, 2002; Sheskey, 2010).

While federal and state plans desired the integration of technology to meet the demands of the global economy and enhance the teaching and learning of today's student learner, they acknowledged the need to investigate and evaluate innovative technological approaches to teaching and learning in the nation's education system (Coppola, 2004; Davies, 2011; Georgia Department of Education, 2013b, 2014b; Prensky, 2010; Raya & Fernandez, 2002; Sandholtz et al., 1996; U.S. Department of Education, 2010a, 2010b). Clearly there was a need to find, explore, and share classrooms moving towards meeting, or already meeting, the demands of our Digital Natives and their influence in the future global economy. Such research may have also implicated how to best technologically equip student learners and educators in the nation's and state's education systems (Georgia Department of Education, 2011, 2012, 2013a, 2013b, 2014a, 2014b; U.S. Department of Education, 2010a, 2010b). This study sought to provide rich, in-depth descriptions of educators and student learners engaged in such innovative technological approaches in their learning environment. How those experiences impact student learner autonomy was also explored.

Problem Statement

While the needs of student learners were acknowledged in the United States of America, what students need to be successful in their future endeavors was found to be

different from what was currently being taught in classrooms (Davies, 2011; Jacobs,

2010a, 2010b, 2010c; Joan, 2013; Prensky, 2010; Rakes et al., 2006; U.S. Department of

Education, 2010a, 2010b). After school, student learners engaged socially with each other

through the Internet in a host of technological tools to teach themselves and others about

their real present and future, thus a shared vision was needed to support more authentic

experiences for student learners (Ally & Prieto-Blazquez, 2014; Ally & Samaka, 2013;

Hsu et al., 2014; November, 2010a; Oh & Reeves, 2014; Palfrey & Gasser, 2008;

Prensky, 2010; Wilmarth, 2010). Should educators have ignored how young people

utilized the Internet or headed toward the digital age with learners through cautious

encouragement and development of digital literacy skills (Palfrey & Gasser, 2008)?

Researchers found many student learners lacked critical thinking, advanced

information literacy skills, and global communication skills, which created a sense of

urgency in the educational needs of student learners (Davies, 2011; November, 2010a;

Oh & Reeves, 2014). Education lacked in affording opportunities for student learners to

learn how to utilize "emerging technologies appropriately and effectively for learning"

(Oh & Reeves, 2014, p. 825). Most educators were concerned and realized their need to

utilize technology meaningfully in their teaching practices, but few educators were

trained in effective media uses in instruction and many educators were not proficient in

teaching media literacy to their student learners (Baker, 2010; Prensky, 2010). Such

educators were concerned as their technology uses could "help or hinder the educational

process" (Prensky, 2010, p. 3). What was needed, then, were educators and leaders

willing to support roles, not traditional in teaching and learning, to empower students in

their ability to "co-create curriculum, own their learning, and make contributions to the collaborative process of learning" (November, 2012, p. 89).

By forming a partnership (Prensky, 2010) where educators coached, guided, and modeled key strategies, the student learners enhanced their own learning and developed critical thinking skills through utilization of appropriate technology and media tools (Ally & Prieto-Blazquez, 2014; Baker, 2010; Brown, Collins, & Duguid, 1996; Davies, 2011; Davies & West, 2014; Hsu et al., 2014; Lave & Wenger, 1991; November, 2010b; Prensky, 2010). To further support learners, educators shifted from traditional curricular and instructional practices to updated and upgraded practices (Jacobs, 2010b), structured their classroom physically to encourage social interaction and collaboration (Coppola, 2004; Elkind, 1976; Deubel, 2003; Fosnot, 1996; Hung, 2001; Jarvis, 2005; Jonassen, 1991; Rakes et al., 2006; Sandholtz et al., 1996; Suryaningrum, Wuryani, & Purbasari, 2014; Von Glasersfeld, 1996), and provided a learning environment that honored the connections between technology, content, and pedagogy (Mishra & Koehler, 2006).

Behaviorists and constructivists asserted educators must not control learning but rather support it (Ackermann, 1995; Ally & Prieto-Blazquez, 2014; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Elkind, 1976; Fosnot, 1996; Gould, 1996; Hung, 2001; Jarvis, 2005; Jonassen, 1991; Reed, 1996; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). Increased pressures on educators for high academic achievement scores on standardized tests resulted in educators taking more control, which impacted student choice and voice, or their autonomy (Lamb, 2011; Rakes et al., 2006). Students, then, needed opportunities to drive, shape, and seek higher purposes through beneficial contributions in their educational experiences (November,

2012) as they "self-monitor, self-assess, and self-correct" (Prensky, 2010, p. 12). It was this development of learner autonomy that could benefit the education system and future directions of the nation (Coppola, 2004; November, 2012; Raya & Fernandez, 2002).

Purpose of the Study

The purpose of this multisited, multiple case study was to describe how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. The researcher explored and depicted these experiences through student in-depth interviews and three-interview series of educators; observations of the learning environment; and an analysis of learning environment documents. This research sought to inform educators and others whose decisions regarding professional development, instructional practices, and instructional resources would influence the learning experiences for educators and their student learners.

Research Questions

The following questions guided this research:

1. How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

2. How does the technology-based learning environment impact learner autonomy?

Research Approach

This qualitative study sought to describe how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. Utilizing the multisited, multiple case study approach aided in the exploration, discovery,

and interpretation of an in-depth understanding through insight into the educator and student learner participants' contexts (Creswell, 2013; Merriam, 2009). It also empowered the participants and researcher to share and interpret their experiences in the naturalistic setting (Creswell, 2013; Merriam, 2009). The researcher maximized variation in the educator participant samples across a variety of counties and grade levels to aid in the description of multiple perspectives that later evolved into a wider application scope to readers of this study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Seidman, 1991).

Data was collected, triangulated, and supported by recurring in-depth interviews of the student learners and three-interview series of educators, observations, and through examination of public records and personal documents. Credibility and dependability were increased by the multiple approaches taken through the triangulation (interviews, observations, and documents). The purposeful, maximum variation sampling of the multiple case study settings and participants increased the transferability of the study. Coding the themes before conducting each new round and case and engaging in member checks increased the study's transferability, dependability, and confirmability. To limit bias, the researcher provided transparency in the methodology chapter of this dissertation, utilized an audio recorder in the interview process, transcribed the interviews, and engaged in member checks and peer debriefings.

Data collection and its analysis were conducted simultaneously. The researcher provided an in-depth narrative vignette of the case contexts and case descriptions through tables and figures in Chapter IV. The researcher advanced a within-case theme analysis

and cross-case theme analysis of the cases in Chapter V. The researcher then developed naturalistic assertions and generalizations in Chapter VI.

The researcher intended to contribute to the understanding of how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. The researcher sought findings to be of value to educators and others whose decisions regarding professional development, instructional practices, and instructional resources would influence the learning experiences for educators and their student learners.

The Researcher

Perspectives. The researcher entered into this study as a Digital Native with a myriad of technology-based scholarly activities and eight years of teaching experience in elementary and middle school English/Language Arts settings. An interest in bringing technology to the hands of young learners, specifically third-, fourth-, and fifth-graders, resulted in the researcher's co-sponsorship of an afterschool program called Soarin'. While leading and empowering these learners, the researcher realized the importance and value of tapping into the interest of student learners to enhance the educational experience. This further resulted in permission being sought from her principal at the time to attend the annual Georgia Educational Technology Conference (GaETC), a conference that consisted primarily of educators across the state of Georgia who shared uses of technology in their class instructional practices, in November 2010. The knowledge gained and overall experience gained at the conference sparked an interest, passion, and drive in finding ways to technologically enhance the educational experience

for all student learners. The researcher sought the guidance of her media specialist in obtaining any and all available technological resources (box television on a cart; interactive slate; old, large headphones with microphone; educator-issued laptop). Podcasting, synonymously used at the time with Vodcasting, was the result of an educator sharing her practices at the GaETC and the acquisition of resources from the researcher's colleague. Technology use became an essential part of the researcher's instruction practices within and outside of the classroom (later adding a hand-held video camera and document camera in creation of the Vodcasts). Based on the successes experienced from utilizing this tool for remediation and extension of the curriculum and increased parent involvement, the successes were shared with colleagues at the county's technology conference in July 2011 and at GaETC in November 2011.

Colleague guidance and school-wide support resulted in the creation of the school's Technology Empowerment Committee. The committee also played an intricate role in the recommendation of technology allocations through fund availability as the committee engaged in multiple professional development activities, research quests, colleague submissions of requests and ratings, and discussions with other professionals in the county and state in obtaining the appropriate and useful technology for student learners across grade levels. The committee successfully brought technology into the hands of educators, offered professional developments through Techy Tuesdays (sharing ways to integrate technology effectively for educator and student utilization), and brought student creation devices to the forefront of instructional practices and experiences of student learners and their educators.

As part of a county-wide pilot, chosen classrooms were equipped with a variety of technological devices to encourage the innovation of educators and student learners. The researcher's room was equipped with student devices (hand-held cameras, laptops, and tablets), a student creation station (small, flat-screen television; interactive slate; wireless mouse and keyboard; headphones with microphones), and whole class devices (big, flat-screen television; interactive slate; document camera; wireless mouse and keyboard). Minimal professional development was offered in how to utilize each device and incorporate it as educator and/or student tool, so the researcher and other educators had to devise ways to utilize the technology in enhancing their instruction and student utilization. This further fueled the passion of student learners and the researcher. As more technology became incorporated, grade level discussions established the researcher's classroom instruction differed significantly from colleagues and their more traditional classrooms. These experiences were captured and shared through Techy Tuesdays with colleagues, county showcases, annual GaETCs, visitors/colleagues of the school, and other college visitors.

What began with showing a device/feature and how to utilize it shifted to students telling the researcher what devices/features they needed to utilize in showing their understandings of content. Students worked collaboratively to complete tasks and help each other as needed. The student learners, the classroom environment, and learner autonomy all played important roles in the realization of a call for educators to tap into the interest of students, allow them to take ownership of their learning, and leave traditional approaches to teaching and learning behind.

The researcher's technological experiences in this educational journey profoundly impacted her philosophy of education and influenced the expectations and roles of student learners and self in teaching and learning and the approaches sought to facilitate student growth for all student learners. Instructional practices were shifted to incorporate the language and experiences of Digital Natives and facilitate learning experiences that are purposeful, individualized, relevant, and engaging. The goal was for student learners to be challenged daily to collaboratively and independently think critically as they took ownership of their learning.

Assumptions. The researcher brought several assumptions to the study from her personal and professional educational experiences. The researcher found it necessary to conduct this study as she gained understanding of student learner pedagogy, classroom environments where students were encouraged to engage in social interaction and collaboration, shifted student learner and educator roles, and opportunities presented for students to develop and take ownership of their learning. A review of literature provided perspective into the pedagogy of current student learners and the classroom environment needed to support student learners and their educators in teaching and learning and define learner autonomy.

The rationale for this study originated on the rise of technological resource availability and its potential to enhance teaching and learning for student learners and their educators. The researcher understood how technology and media impacts, and will impact in the future, student learners and their educators. Through an exploration of other educators and their student learners differing in context and participant experiences, the researcher hoped to gain an understanding of how technology-based learning impacts the

learning environment of student learners and their educators in middle grades

English/Language Arts instruction and how those experiences impact learner autonomy.

This multisited, multiple case study's rich descriptions provided insights that may help

structure future research, advance the field of education and technological uses in

curriculum and instruction, bring understandings that may affect or improve instructional

and curricular practices of educators, and help inform current policies (Creswell, 2013;

Mardis, Hoffman, & Rich, 2014; Merriam, 2009; Stake, 2005; Yin, 2014).

Definition of Terms

Autonomous Learner – An autonomous learner takes "…charge of one's own

learning" (Holec, 1981, p. 3). These learners continually move between interdependence

and dependent states and take ownership and make decisions in their learning (Asik,

2010; Holec, 1981; Lamb, 2011; Smith, 2008).

Digital Native/Digital Learner – Anyone born after 1980 that lived with access to

and has always known networked digital technology is considered to be a Digital Native

(Oh & Reeves, 2014; Palfrey & Gasser, 2008; Sheskey, 2010).

English/Language Arts – The English/Language Arts content area included the

writing, reading, and grammar instruction of student learners.

Learner Autonomy – "…the ability to take charge of one's own learning" (Holec,

1981, p. 3). Learners are able to take control of their learning through their process of

moving between interdependence and dependent states and taking ownership and making

decisions in their learning (Asik, 2010; Holec, 1981; Lamb, 2011; Smith, 2008).

Middle Grades – Middle grades referred to sixth-, seventh-, and eighth-grade

student learners and their educators.

Multisited, Multiple Case Study – A multisited, multiple case study is a qualitative approach to research in which the researcher clearly defines cases with boundaries and seeks to compare several cases through in-depth, rich, holistic accounts of a phenomenon (Creswell, 2013; Mardis et al., 2014; Merriam, 2009; Yin, 2014). The researcher further analyzes similarities and differences among the cases to further develop naturalistic generalizations people learn for themselves or apply to other situations (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014).

Technology – Technology included "any tool, piece of equipment or device— electronic, or mechanical—that could be used to help students accomplish specified learning goals (Davies, Sprague, & New, 2008b)" (as cited in Davies, 2011). This was also inclusive of mobile devices such as mobile phones, smartphones, notepads, notebooks, laptops, or tablets that were "designed to be portable in hand or pocket of users" (Zamfiroiu, 2013, p. 219).

Technology-Based Learning Environment– The learning environment in this study is the middle grades, English/Language Arts classroom and how educators developed their classroom to encourage social interaction and collaboration through the use of technology-based instructional practices.

Chapter II

Review of the Literature

Section I: The Student Learner

      Introduction. "It is a crucial time to begin looking at what is truly driving change in the 21st century classroom: the students" (Sheskey, 2010, p. 199). Piaget (1970) and Vygotsky (1978) developed, and other scholars explained, the shift to the constructivist approach toward student learning and cognitive development (Bednar, Cunningham, Duffy, & Perry, 1992; Boden, 1980; Conrad & Donaldson, 2011; Cunningham, 1992; Elkind, 1976; Jarvis, 2005; Jonassen, 1991; Marshall, 1998; Murphy, 2006; Mutlu & Eroz-Tuga, 2013; Rakes et al., 2006; Reed, 1996; Von Glasersfeld, 1995). Cronbach and Snow (1981), Gardner (2006), Tomlinson (1999, 2001), and other scholars laid the foundation for intelligence theories and shared their implications on effective educational learning environments (Arghode, 2013; Bandura, 2000; Fer, 2004; Hill, 2001; Lalley & Gentile, 2009; Lopes, Salovey, Cote, & Beers, 2005; Mayer, Salovey, & Caruso, 2008; Salovey & Mayer, 1990; Serdyukov & Serdyukova, 2009; Sutton & Wheatley, 2003; Tomlinson, 2001; Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006; Wilson, 2012). Understanding how technology and media have impacted current (and will impact future) student learners, or Digital Natives, is vital for educators in today's classroom (Ally & Prieto-Blazquez, 2014; Hsu et al., 2014; November, 2010a; Oh & Reeves, 2014; Palfrey & Gasser, 2008; Prensky, 2010; Sheskey, 2010; Wilmarth, 2010). Technology afforded learning opportunities in any context, as the process was about the student learner and not the technology (Ally & Prieto-Blazquez, 2014; Cronbach, 1975; Cronbach & Snow, 1981; Snow, 1989). Literature was reviewed specific to the behaviorist and constructivist approach towards learning and cognitive

development, intelligence theories and shared implications on effective educational

learning environments, and the impact technology and media had on Digital Natives in

the classroom.

      Behaviorist and constructivist approaches. Learning theories have shifted from

behaviorism, observable phenomenon in the early and mid-twentieth century, to

cognivitism, internal cognitive processing in the 1970s, toward constructivism, internal

learning process based on experiences in the 1980s (Rakes et al., 2006). Deubel (2003)

found that while early learning through technology was influenced by behaviorists, later

discovery-based technology was founded on cognitivist and constructivist models of

learning. In looking at technology-based learning from a behaviorist perspective, Deubel

(2003) found two major assumptions that impact student learners: (a) they are "not just

passive entities who react to environmental stimuli" and (b) their learning occurs due to a

"change in behavior due to experience and a function of building associations between

the occasion on which the behavior occurs (stimulus event) and the behavior itself

(response event)" (p. 65). The exclusion of the mind from learning due to one's inability

to observe it has resulted in a paradigm shift from behaviorist to cognitivist who

struggled to set criteria to study the existence of the mind to constructivist approaches

toward technology-based learning (Deubel, 2003; Jonassen, 1991; Rakes et al., 2006).

      Piaget and Vygotsky were credited with the constructivist approach toward

learning and cognitive development (Conrad & Donaldson, 2011; Deubel, 2003;

Jonassen, 1991; Jarvis, 2005; Oguz, 2013; Rakes et al., 2006; Von Glasersfeld, 1995).

Similarly, the scholars emphasized the ability for student learners to obtain their own

knowledge through environmental experiences as active agents of their own learning

(Bednar et al., 1992; Boden, 1980; Cunningham, 1992; Deubel, 2003; Jarvis, 2005; Jonassen, 1991; Marshall, 1998), as "meaning is a function of how the individual creates meaning from his or her experiences" (Jonassen, 1991, p. 10). In contrast with Piaget, Vygotsky placed more emphasis on the learner's environment and interaction with others, which was later referred to as the social constructivist approach (Conrad & Donaldson, 2011; Deubel, 2003; Hsu et al., 2014; Jarvis, 2005; Marshall, 1998; Mutlu & Eroz-Tuga, 2013; Rakes et al., 2006; Von Glasersfeld, 1995).

Piaget (1970) found humans naturally motivated to actively obtain knowledge as agents of their own learning (see also Boden, 1980; Conrad & Donaldson, 2011; Elkind, 1976; Jarvis, 2005; Marshall, 1998; Murphy, 2006; Von Glasersfeld, 1995). Piaget (1970) explained as young learners explore their environment they create mental representations of reality, and as they progress in age their mental representations become more sophisticated. He also emphasized increasing one's schema, gaining information and experience, through social interaction. According to Piaget (1970), learners were in a state of equilibrium when able to use their existing schemas to explain perceptions gained from their environment, but were in a state of disequilibrium when their existing schemas could not explain what was being perceived (see also Boden, 1980; Elkind, 1976; Jarvis, 2005; Marshall, 1998; Murphy, 2006; Von Glasersfeld, 1995). These scholars agreed disequilibrium was experienced when one becomes driven to improve their world, increase their schema, and overcome to better adapt to their environment. This learning process was described by Piaget (1970) as an adaptation to the environment. To regain equilibrium, a learner underwent accommodation, where a new idea was obtained and

one accommodates to it (Piaget, 1970; see also Boden, 1980; Elkind, 1976; Jarvis, 2005; Marshall, 1998; Murphy, 2006; Von Glasersfeld, 1995).

Piaget (1970) proposed as one cognitively developed they must understand how their environment operates, and this occurred through an age- and subject-specific development of operations in four stages (see also Boden, 1980; Elkind, 1976; Jarvis, 2005; Murphy, 2006). For approximately the first two years of life, learners went through the sensorimotor stage (Piaget, 1970). This stage primarily consisted of physical sensation and coordinating the body, trial and error explorations and manipulations of the environment, how actions influenced the environment, awareness that people were separate beings, and had an understanding of their language and symbols as words (Piaget, 1970; see also Boden, 1980; Elkind, 1976; Jarvis, 2005; Murphy, 2006). The second stage of learners, aged two to seven, was termed preoperational as the learners focused on one aspect of their environment at a time and saw it only as it appeared concretely (Piaget, 1970). This second stage was further apparent through the learner's egocentrism (their difficulty in perceiving their environment from any other point of view but their own) and animism (their attribution of lifelike characteristics to inanimate objects) and difficulties in understanding conservation (objects remain the same in quantity even if their appearance changes) and class inclusion [how objects may be classified and fall under different subgroups] (Piaget, 1970; see also Boden, 1980; Elkind, 1976; Jarvis, 2005; Murphy, 2006). The third stage of learners, aged seven to eleven, was termed concrete operational as learners were able to utilize logical thought to objects and situations present and physical, or were able to think quantitatively (Piaget, 1970). Learners became less egocentric, lost their tendency for animism, and could

understand conservation- and class inclusion-based tasks if the physical objects were available to be manipulated (Piaget, 1970; see also Boden, 1980; Elkind, 1976; Jarvis, 2005; Murphy, 2006). The fourth stage of learners, aged eleven or twelve into adolescence, was termed formal operational as learners became capable of formal reasoning, could think about abstract concepts and devised and tested their hypotheses, and developed a system of values and ideals (Piaget, 1970; see also Boden, 1980; Elkind, 1976; Jarvis, 2005; Murphy, 2006). Another characteristic perceived in teens during this stage was self-consciousness, which resulted as learners assumed others were thinking about them because they started thinking about the way other people thought (Elkind, 1976). Although Vygotsky concurred with Piaget's social interaction and stages of development, he felt Piaget did not emphasize enough culture or social interaction (Jarvis, 2005).

Vygotsky (1978) also emphasized mediation, or the collective ways the culture interacts with learner development (see also Jarvis, 2005; Marshall, 1998; Wertsch & Toma, 1995). Vygotsky (1978) found children to be born with perception and focused attention, but lacking in higher mental functions. Through guided learning experiences and social interactions with others, he proposed student learners would internalize these into individual mental representations (Vygotsky, 1978; see also Jarvis, 2005; Marshall, 1998; Wertsch & Toma, 1995). Vygotsky (1978) asserted learning develops between the learner and more advanced peer/adult in a social or intermental plane, and in the learner's mind in a psychological or intramental plane (see also Jarvis, 2005; Marshall, 1998; Wertsch & Toma, 1995).

Based on these beliefs, Vygotsky (1978) reviewed and rejected the following major theoretical positions on the relationship between learning and development: (a) the processes of child development were independent of learning, (b) learning was development, and (c) a combination of the other two positions. Vygotsky (1978) then proposed the concept that development lags behind learning; therefore, he defined the concept zone of proximal development as the "distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (p. 86). The actual developmental level involved a child's mental functions that were established as a result of their already completed developmental cycles (Vygotsky, 1978).

Theories of intelligence. Cronbach and Snow's (1981) concept of Aptitude-Treatment Interaction (ATI) laid the foundation for intelligence theories and effective educational learning environments (see also Cronbach, 1975; Reed, 1996; Snow, 1989). Cronbach (1975) defined aptitude as "any characteristic of the person that affects his response to the treatment" (p. 116), adding later with Snow (1981) "any characteristic of a person that forecasts his probability of success under a given treatment" (p.6) which included "some matters untouched by conventional ability and personality measures" (p.6). Cronbach and Snow (1981) defined instructional treatment as "any manipulable variable" [e.g., varying instruction by pace, method, or style, classroom learning environments, characteristics of the educator] (p. 6). Snow (1989) further explained the goal of ATI was to utilize aptitudes and treatments in the predictions of educational outcomes. Cronbach and Snow (1981) found: (a) instruction exactly matched to learner's

aptitudes resulted in optimal learning; (b) tasks and situation variables influenced

aptitude and instructional treatments; (c) highly structured treatments supported students

with lower abilities, but impeded higher-achieving students; and (d) anxiety and degree

of independence determined needs of the learning environment.

Educators need to balance their instructional treatments to enrich the aptitudes of

all student learners (Cronbach & Snow, 1981; Reed, 1996; Snow, 1989). Hooper and

Hannafin (1988) believed that flexible homogeneous and heterogeneous grouping had to

occur to help all student learners achieve academic growth. In their study, they found

lower achieving student learners were more interactive and efficient in the flexible and

collaborative learning environment when grouped heterogeneously with peers. However,

higher achieving students demonstrated higher achievement in homogeneously grouped

settings and showed some decline when grouped heterogeneously (Hooper & Hannafin,

1988).

Student learning outcomes were linked to their learning styles, as difficulties were

indicative as a mismatch between an educator's instructional delivery and the student

learner's preferred learning style[s] (Gardner, 2006; Lalley & Gentile, 2009; Tomlinson,

1999, 2001; Wilson, 2012). Needed balances in instructional support by student learners

were explored in the following theories and practices: Gardner's (2006) Multiple

Intelligences (MI), Emotional Intelligence (EI), and Tomlinson's (1999, 2001)

Differentiated Instruction (DI).

Gardner (2006) believed "human cognitive competence is better described in

terms of a set of abilities, talents, or mental skills" (p. 6) which he conceptualized through

the following "intelligences": Linguistic, Logical-Mathematical, Spatial, Musical,

Bodily-Kinesthetic, Interpersonal, Intrapersonal, and Naturalistic (Gardner, 2006; see also Goleman, Barlow, & Bennett, 2010; Lalley & Gentile, 2009). Gardner's (2006) MI study led to three conclusions:

- All of us have the full range of intelligences;

- No two individuals—not even identical twins—have exactly the same intellectual profile because, even when the genetic material is identical, individuals have different experiences; and

- Having a strong intelligence does not mean that one necessarily acts intelligently. (p. 23)

Gardner's implications for education involved the concept of "individual-centered education" where the learner's abilities were "honored and nurtured" (p. 239) as educators made instructional decisions and created multiple ways for their student learners to learn (Gardner, 2006; Goleman et al., 2010; Lalley & Gentile, 2009).

The development of appropriate social interaction and collaboration skills occurred for student learners to be successful in their educational and future work endeavors (Gardner, 2006; Goleman et al., 2010; Lalley & Gentile, 2009). Gardner (2006) referred to these intelligences as interpersonal (one's external ability to determine distinctions in the intentions and desires of others) and intrapersonal (one's internal ability as gaining insights into their inner self). Through his research of the brain, Gardner found the frontal lobes took a vital role in one's interpersonal and intrapersonal abilities. Biological evidence of the intelligences included the "close attachment to the mother" and "social interaction" through "group cohesion, leadership, organization, and solidarity" (Gardner, 2006, p. 16).

According to Emotional Intelligence research specific to social interaction and collaboration, interpersonal and intrapersonal abilities offered student learners a connection between their learning experiences and emotions (Salovey & Mayer, 1990; see also Arghode, 2013; Bandura, 2000; Fer, 2004; Goleman et al., 2010; Hill, 2001; Lopes et al., 2005; Mayer et al., 2008; Sutton & Wheatley, 2003). Through their ability model, Salovey and Mayer (1990) defined EI as "the subset of social intelligence that involves the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (p. 189; see also Arghode, 2013; Mayer et al., 2008). EI was established as student learners: (a) exhibited control and coping mechanisms over their emotions, (b) utilized motivational emotions to advance their intelligence, (c) held confidence in others and self, (d) communicated their feelings and emotions concisely and precisely, (e) recognized the emotions of others, (f) demonstrated problem-solving abilities and creative and imaginative thinking, (g) made learning concrete through emotional bonds, and (h) handled relationships with others (Salovey & Mayer, 1990; see also Arghode, 2013; Bandura, 2000; Fer, 2004; Goleman et al., 2010; Hill, 2001; Lopes et al., 2005; Mayer et al., 2008) and educators: (a) improved delivery of instruction, (b) believed in one's self ability to affect their performance and future endeavors, (c) maintained strong and healthy relationships with student learners, (d) cultivated and promoted a classroom environment conducive to learning, and (e) demonstrated flexible planning (Salovey & Mayer, 1990; see also Arghode, 2013; Bandura, 2000; Fer, 2004; Mayer et al., 2008; Sutton & Wheatley, 2003).

To further optimize the learning potential of student learners, Tomlinson (1999) outlined her philosophical approach towards teaching and learning, DI, as a means to optimize the learning potential of all student learners. DI called on educators to ensure effective learning for their varied student learners by being reflective of "whom they teach (students), where they teach (learning environment), what they teach (content), and how they teach (instruction)" (Tomlinson & McTighe, 2006, p. 2). Student learning outcomes depended on the quality of teaching received and stressed the importance of connecting teaching practices to the following student learner characteristics: (a) readiness—the current understandings and knowledge in relation to the content to be delivered, (b) interest—the current appealing, intriguing, relevant, and worthwhile things of interest to student learners to aid in linking and connecting new content, and (c) learning profile—the preferred learning styles and intelligence preferences of student learners (Gardner, 2006; Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001; Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006). Knowing the learners aided educators in their assessment of effective instructional actions and strategies best supporting the learning of: (a) content—information presented/delivered to learners, (b) process—opportunities were given to learners to process the content/ideas and skills to which they had been introduced, (c) products— various options were given to learners through which they demonstrated their mastery of the content delivered, (d) affect—how thoughts and feelings were linked in the classroom, and (e) learning environment—how the classroom felt and functioned (Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001; Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006). Educators created a positive

learning environment that consisted of "high-quality curriculum, assessment to inform educator decision making, and flexible classroom management" (Tomlinson, & Imbeau, 2010, p. 13), which affected student learner performance (Serdyukov & Serdyukova, 2009). To further aid in their efforts to support student learners, educators understood their learners were Digital Natives, or have lived with access to networked digital technology and have never known a time without it (Oh & Reeves, 2014; Palfrey & Gasser, 2008; Sheskey, 2010).

The digital native. Digital Natives were "constantly connected" (Palfrey & Gasser, 2008, p. 5) as the Internet was their "dominant media of choice" (November, 2010a, p. 12). Palfrey and Gasser (2008) also highlighted observable behaviors of Digital Learners that were of concern to educators and parents: multitasking, shorter attention span, and copying and pasting rather than synthesizing information. Due to these behaviors and the student learners' perceptions that the curriculum and instruction received were irrelevant to their lives and how they learn, these students could be perceived as bored and reluctant in the classroom (Palfrey & Gasser, 2008; Prensky, 2010; Sheskey, 2010).

Digital Natives creatively communicated globally with their peers through social media (e.g., Facebook) (Ally & Prieto-Blazquez, 2014; Ally & Samaka, 2013; Hsu et al., 2014; November, 2010a; Oh & Reeves, 2014; Palfrey & Gasser, 2008; Wilmarth, 2010), regularly made and uploaded videos for commentary (Hsu et al., 2014; Palfrey & Gasser, 2008; Prensky, 2010), and organized themselves around the world both socially and politically (Ally & Prieto-Blazquez, 2014; Oh & Reeves, 2014; Palfrey & Gasser, 2008; Prensky, 2010). Learners were also impacted by social media as they built and managed

their identity by way of relationships forming as they connected with others globally (Ally & Prieto-Blazquez, 2014; Ally & Samaka, 2013; Oh & Reeves, 2014; Palfrey & Gasser, 2008; Wilmarth, 2010). Social media potentially had a substantial impact in learning through these authentic and relevant contexts (Ally & Prieto-Blazquez, 2014; Ally & Samaka, 2013; Hsu et al., 2014; Oh & Reeves, 2014; Wilmarth, 2010).

Understanding the Digital Natives helped educators bring relevance into their classroom (Baker, 2010; November, 2010a; Palfrey & Gasser, 2008; Prensky, 2010; Sheskey, 2010; Wilmarth, 2010). Baker (2010) asserted the importance of awareness of the following abilities of Digital Natives:

- Upload, download, and remix music, photos, videos, and movies;
- Text and instant message using mobile phones and other hand-held devices;
- Connect and communicate via social networking Web sites;
- Operate digital still and video cameras;
- Edit and post online videos;
- Create blogs, podcasts, video games, digital productions, and graphic novels; and
- Participate in virtual reality games and forums. (p. 134)

Prensky (2010) conducted interviews of students, and discovered the following curricular and instructional desires of Digital Natives in regard to their school experiences:

- They do not want to be lectured to.
- They want to be respected, to be trusted, and to have their opinions valued and count.

- They want to follow their own interests and passions.

- They want to create, using the tools of their time.

- They want to work with their peers on group work and projects (and prevent slackers from getting a free ride).

- They want to make decisions and share control.

- They want to connect with their peers to express and share their opinions, in class and around the world.

- They want to cooperate and compete with each other.

- They want an education that is not just relevant, but real. (pp. 2-3)

Synthesis of literature: Research implications. Educators no longer denied the widespread availability and immersion of technology in the lives of Digital Natives (Ally & Prieto-Blazquez, 2014; Oh & Reeves, 2014; Prensky, 2010; Sheskey, 2010). In taking a behaviorist and constructivist approach towards cognitive development and learning, student learners were given opportunities to obtain their own knowledge through environmental experiences as active agents of their own learning (Bednar et al., 1992; Cunningham, 1992; Deubel, 2003; Jarvis, 2005; Jonassen, 1991; Marshall, 1998). There was a need for today's K-12 educators to guide social interaction and collaboration of student learners to increase the learner's schema and help them gain information and experience (Piaget, 1970; Vygotsky, 1978) necessary for competing in their future career market (Ally & Prieto-Blazquez, 2014; Oh & Reeves, 2014). Vygotsky's (1978) emphasized social interaction and collaboration were further substantiated by Cronbach and Snow's (1981) ATI, Hooper and Hannafin's (1988) balanced instructional treatments of flexible heterogeneous and heterogeneous grouping, Gardner's (2006) MI, Salovey

and Mayer's (1990) EI, and Tomlinson's (1999, 2001) DI. Reviewed scholars clearly

called educators to embrace, learn, and model effective ways to integrate technology in

order for student learners to have higher intellectual development and skills to compete in

the future career market (Ally & Prieto-Blazquez, 2014; Deubel, 2003; Jonassen, 1991;

Oh & Reeves, 2014).

There existed a gap between research suggestions and actual practices of

educators and educational leaders in empowering Digital Natives through creating

curriculum together, affording students the opportunity to take ownership of their

learning, and contributing collaboratively (Ally & Prieto-Blazquez, 2014; November,

2012). Taking a shift in current curricular and instructional practices resulted in new

practices that were not traditional in nature (Ally & Prieto-Blazquez, 2014; November,

2012). To encourage reluctant educators, there was a need for such educators, student

learners, and learning environments engaged in the shift to be discovered, explored, and

discussed. This rich, holistic, and in-depth qualitative study provided the means to

ascertain such learning environments and their influences upon student learners and their

educators and learner autonomy.

Section II: Classroom Learning Environment

Introduction. Educators took standardized curriculum and brought relevance to

their Digital Natives (Sheskey, 2010). Researchers explained active classroom learning

environments where learning was encouraged through social interaction and

collaboration through technology-based, behaviorist and constructivist standards

(Ackermann, 1995; Bednar et al., 1992; Boden, 1980; Cunningham, 1992; Deubel,

2003;Elkind, 1976; Fosnot, 1996; Gould, 1996; Jarvis, 2005; Jonassen, 1991,1992; Rakes

et al., 2006; Reed, 1996; Sandholtz et al., 1996; Sheskey, 2010; Von Glasersfeld, 1995, 1996; Wertsch & Toma, 1995; Wood, 1995). Other researchers included additional ways to technologically enhance the learning environment through instructional tools with which students were familiar (Baker, 2010; Davies, 2011; Duffy & Jonassen, 1992; Jacobs, 2010b, 2010c; November, 2010b; Perkins, 1992; Rakes et al., 2006; Sheskey, 2010).

The behaviorist and constructivist environments. As the active classroom environment was crafted by behaviorist and constructivist standards, the educator first structured their physical classroom to encourage social interaction and collaboration through educator facilitation of learning (Coppola, 2004; Elkind, 1976; Deubel, 2003; Fosnot, 1996; Hung, 2001; Jarvis, 2005; Jonassen, 1991; Rakes et al., 2006; Sandholtz et al., 1996; Suryaningrum et al., 2014; Von Glasersfeld, 1996). The active classroom contained: (a) tables and chairs allowing the flexibility for student learners to move into groups or work independently, (b) a quiet corner or area designated for learners to be alone or take a break as needed during tasks, (c) aspects of the immediate environment surrounding the school to be continuous with the natural and home environments of the learners, (d) art displays reflecting the room's E/LA subject matter (Elkind, 1976), and (e) electronic communication devices and digital media (Suryaningrum et al., 2014). In addition to structuring the active classroom, the educator understood his/her role in the learning process.

Educators in the active classroom: mastered their curricula and were skilled at accessing; understood and were committed to their learners; set clear criteria/expectations; were flexible (shift priorities between curriculum demands and

learner needs as necessary) and mobile [monitor students and assist needs of learners] (Deubel, 2003; Elkind, 1976; Hung, 2001; Sandholtz et al., 1996; Wood, 1995). As flexible and learner-responsive routines and schedules were provided, learners were able to focus on the given task and make learning discoveries (Deubel, 2003; Elkind, 1976; Hung, 2001; Sandholtz et al., 1996; Wood, 1995). Affording students to be part of the formation of classroom rules and consequences further support them and their confidence in the system of rules (Elkind, 1976; Wood, 1995).

In regard to curricula and assessing the higher order thinking skills of learners, operative learning required educators to facilitate real-world, authentic, and disequilibrium-based learning tasks, or challenging and open-ended investigations, where all knowledge to be obtained was not prespecified (Bednar et al., 1992; Boden, 1980; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Elkind, 1976; Hung, 2001; Jarvis, 2005; Jonassen, 1991,1992; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). In this instructional design, the independent or collaborative learners discovered and constructed their own understandings and multiple perspectives in authentic learning tasks as they raised their own questions, generated hypotheses and models, and tested them through trial and error (Bednar et al., 1992; Boden, 1980; Cunningham, 1992; Deubel, 2003; Elkind, 1976; Hung, 2001; Jarvis, 2005; Jonassen, 1991, 1992; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). Through the constructed instructional design and integrated technology, learners shifted from conventional learning to sophisticated learning (Suryaningrum et al., 2014).

By establishing collaborative working environments to support multiple and alternate perspectives of issues, student learners gained real-world application that a singular solution does not typically resolve conflicts that arise (Bednar et al., 1992; Coppola, 2004; Deubel, 2003; Jonassen, 1991; Sandholtz et al., 1996). Therefore, offering collaborative investigations in realistic and meaningful contexts afforded learners opportunities to explore, generate, and defend many affirming and contradictory understandings (Bednar et al., 1992; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Fosnot, 1996; Jonassen, 1991, 1992; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). Facilitating reflections, educators placed emphasis on the contradictions and the process of task completion, not necessarily accuracy (Bednar et al., 1992; Cunningham, 1992; Fosnot, 1996; Jonassen, 1992; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). Educators created such tasks through the creation of a problem in their field of content and required learners to defend their decisions (Bednar et al., 1992; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Fosnot, 1996; Jonassen, 1992; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). This aided learners in communicating and defending their ideas to their peers, which assisted multimodal evaluation of the constructed knowledge of the learner in the discipline and their metacognitive skills (Bednar et al., 1992; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Fosnot, 1996; Jonassen, 1991, 1992; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995).

Mobility in the classroom afforded educators the opportunity to work with student learners collaboratively and assist learners through scaffolding techniques (Belland, 2014; Deubel, 2003; Elkind, 1976; Hung, 2001; Jarvis, 2005). Scaffolding involved the

amount of instruction, or active involvement with the learner to reach desired outcomes, educators needed to give a learner based on their progression through the zone of proximal development (Deubel, 2003; Jarvis, 2005). Educators maximized the focused social interaction through: (a) working with individuals one-on-one, in small groups, or in a whole group; (b) cooperative peer groups; (c) peer tutoring; and (d) reciprocal teaching; (Belland, 2014; Deubel, 2003; Jarvis, 2005).

Flexible learning environments included scaffolding as it afforded learners increased choice based on their individual academic abilities and needs (Belland, 2014; Hung, 2001; Joan, 2013). Through Internet-based technology utilized, Joan (2013) explained flexible learning environments with expertise and information accessibility, contribution through expressed opinions and ideas, and correspondence with other learners and mentors. Belland (2004) described a computer-based technique in which the computer was used to accommodate individual needs of students and affords mobility of the educator to provide one-to-one scaffolding as needed. Educators created the computer-based and flexible learning environments to be "context-specific" by tailoring the computer work to the content area of the class or "generic" by tailoring the computer work to materials beyond the classroom and to be inclusive of a variety of content areas or a general process (Belland, 2014, p. 511; see also Hung, 2001).

Utilizing the behaviorist and constructivist theories for learning, educators did not control learning, but rather supported it (Ackermann, 1995; Ally & Prieto-Blazquez, 2014; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Elkind, 1976; Fosnot, 1996; Gould, 1996; Hung, 2001; Jarvis, 2005; Jonassen, 1991; Reed, 1996; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). To accomplish this,

educators provided information and materials of interest to students, allowed student

choice in topics and management of their own time, focused on big ideas, and encouraged

and empowered students in their interests, connections, reformulation of ideas, and

reaching conclusions (Ackermann, 1995; Coppola, 2004; Deubel, 2003; Fosnot, 1996;

Gould, 1996; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995;

Wood, 1995). By allowing students to collaborate, interact, and question, educators

determined patterns in the student learner's thinking and stretched their thought process

(Ackermann, 1995; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Gould, 1996;

Jarvis, 2005; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995;

Wood, 1995).

Educators also modeled for students how to clarify and formulate questions, state

questions indicative of their cognitive understanding, and interpret the results gleaned

from their questioning (Ackermann, 1995; Coppola, 2004; Cunningham, 1992; Deubel,

2003; Gould, 1996; Hung, 2001; Jarvis, 2005; Sandholtz et al., 1996; Von Glasersfeld,

1995; Wertsch & Toma, 1995; Wood, 1995). Questioning students throughout their

learning processes provided educators insight on the learner's understandings and

purpose (Ackermann, 1995; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Gould,

1996; Jarvis, 2005; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995).

Utilizing scaffolding techniques, such as five- to ten-minute strategy-focused lessons,

enabled learners to engage in shared responsibility for their learning (Ackermann, 1995;

Coppola, 2004; Cunningham, 1992; Gould, 1996; Jarvis, 2005; Von Glasersfeld, 1995;

Wertsch & Toma, 1995; Wood, 1995). Peer collaboration was not limited to completing a

task, but also involved interaction with those of greater expertise to gain new knowledge

in skills or procedures that served them in other areas (Ackermann, 1995; Cunningham, 1992; Gould, 1996; Jarvis, 2005; Jonassen, 1991; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). By consistently observing student learners in their learning processes, or stages of development, errors or mistakes made by students were utilized in providing appropriate scaffolding or dialogue with students and were utilized as an indicator of student understandings (Ackermann, 1995; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Gould, 1996; Jarvis, 2005; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). Educators used caution in their conversations with students as students could become dependent on corrections being shared by the educator (Gould, 1996). Researchers suggested a technologically-enhanced environment can best support such educator facilitation and scaffolding of learning through social interaction and collaboration means (Coppola, 2004; Elkind, 1976; Deubel, 2003; Duffy & Jonassen, 1992; Fosnot, 1996; Hung, 2001; Jacobs, 2010a; Jarvis, 2005; Jonassen, 1991; Rakes et al., 2006; Reed, 1996; Sandholtz et al., 1996; Suryaningrum et al., 2014; Von Glasersfeld, 1996).

The technologically-enhanced environment. As educators were challenged to match the ever-changing world to the needs of their learners (Jacobs, 2010a), with access to information readily available to learners through information-processing technology, the learning process and instructional practices were revisited through a constructivism lens (Deubel, 2003; Duffy & Jonassen, 1992; Jonassen, 1991,1992; Perkins, 1992; Rakes et al., 2006). Educators and students formed a partnership (Prensky, 2010) where educators coached, guided, and modeled key strategies as the student learners enhanced their own learning and developed critical thinking skills through utilization of appropriate

technology and media tools (Baker, 2010; Davies, 2011; Davies & West, 2014; Deubel, 2003; Hsu et al., 2014; November, 2010b; Prensky, 2010; Rakes et al., 2006; Zamfiroiu, 2013).

Technology integration provided: (a) "accessibility" to information whenever needed; (b) "immediacy" of information retrieval; (c) "interactivity" through different media to collaborate with educators, experts, and peers; (d) "context-awareness" where the situation of learners were adopted to the environment needed for attainment of needed information; (e) "permanency" and "storing and sharing" where learners knew the information would be permanently stored and located unless removed and could be shared with others; (f) "flexible learning" in the classroom environment; (g) "mobility" in allowing use of the device anywhere and at any time; (h) "multimedia" as the device could be utilized in a plethora of educational means; (i) "connectivity" in its ability to network and connect to afford interaction with other users (Behera, 2013; Hockly, 2013; Hussain & Adeeb, 2009). The most difficult task of educators was their determination of the utilization and integration of the technology tools in the classroom (Davies, 2011; Davies & West, 2014; Rakes et al., 2006; Sheskey, 2010).

A framework for the utilization and integration of technology was offered by Davies (2011) involving three levels: Awareness, Praxis, and Phronesis. At the Awareness level, student learners were aware of the technology available, their basic functions and purposes, and could answer, "What can this technology do?" (Davies, 2011, p. 48). Student learners gained experience through engaging in activities that brought use and functionality knowledge of the technology and could answer, "How do you use this technology?" in the Praxis level (Davies, 2011, p. 48-49). The Phronesis

level involved student learners who choose to, or not to, utilize technology to accomplish learning tasks and goals and could answer, "Why do I use or not use technology in this specific situation?" (Davies, 2011, p. 49). The learner reached the Phronesis level, the highest level of technology literacy, when they demonstrated appropriate technology utilization and integration (Davies, 2011). Davies (2011) framework for utilization and integration of technology provided student learner development consistent with characteristics of the autonomous learner (Chan, 2001; Holec, 1981; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008).

Researchers (Hsu et al., 2014; November, 2010b; Sheskey, 2010) further supported the autonomous learner through tapping into their interests through technology and media tools as it created deeper meaning opportunities and better problem-solving skills of learners. The researchers also described collaborative Web 2.0 tools (Hsu et al., 2014); "images, audio and video recording tools, interactive software, and Web-based collaborative tools" (Sheskey, 2010, p. 197); and "screencasting and podcasting" tools (November, 2010b, p. 188) utilized by learners as they contributed to content delivery in the classroom. Sheskey (2010) further outlined the following tools for constructing such an interactive classroom: (a) data projector or LCD projector to display a variety of media; (b) wireless mouse and keyboard for mobility and interaction in the classroom; (c) wireless tablets, interactive whiteboards, and student-response systems to connect and engage student learners; (d) digital photography to link writing and technology skills; (e) Web 2.0 tools for collaborative learning and communication tools; (f) digital portfolios as assessment tools; (g) podcasting or vodcasting through MP3 players or other media to

demonstrate understandings of content or remediation of content (p. 200-206). Hsu et al. (2014) found Web 2.0 tools utilized for reflection of learning through publishing and sharing documents (e.g., blogs, wikis, Google Docs) also aided in the student collaborative efforts of demonstrating their learning.

Through his Diffusion of Innovations model and theory, Rogers (2004) defined diffusion as "the process through which an innovation, defined as an idea perceived as new, spread via certain communication channels over time among the members of a social system" (p. 13; see also Reed, 1996; Rogers, 1976). His theory offered an understanding on how people adopt to new technology over time, such as the wide spread utilization of the Internet. Its usage has reached "critical mass" or "a point in which a certain minimum number of users have adopted so that the rate of adoption of a new communication technology suddenly takes off" (Rogers & Allbritton, 1995, p. 183). With more technology-based learning practices and tools being educationally adopted, these innovations were beneficially perceived to previous and potential endorsers (Rogers & Allbritton, 1995). As these technology-based learning tools reached critical mass (Rogers, 1976, 2004; Rogers & Allbritton, 1995), there was a need for direction in utilizing these tools to support the instruction delivered by educators and learning experienced by student learners.

Researchers (Jacobs, 2010b; November, 2010b; November 2012; Perkins, 1992) offered such practices educators utilized in implementing an effective technologically-enhanced environment. November (2010b) offered the creation of student jobs used by educators to engage their student learners: (a) an official tutorial designer to screencast or podcast their understanding of taught content; (b) an official scribe to create shared notes

from class through online collaborative tools; (c) an official researcher to search out

answers to questions that arise during class; (d) an official collaboration coordinator to

create and maintain relationships with other global classrooms; (e) an official contributor

to society to determine opportunities for students to make a difference; and (f) an official

curriculum review for students to create podcasts to review the content learned (p. 189-

193; see also November, 2012). Perkins (1992) suggested educators enhanced their

instructional environments through: (a) access to vast databases of popular and technical

literature through telecommunications, (b) instant access to data through rapid computer

look-up procedures, (c) word processors to ease the editing and arrangement of ideas and

texts, (d) assembling abstract entities, (e) phenomenaria, or areas to present phenomena

for others to scrutinize or manipulate or explore, and (f) electronic task managers to guide

and provide feedback throughout the learning process. In regard to the updating and

upgrading of current curriculum and instructional practices, Jacobs (2010b) suggested

educators start by following these steps:

- "Step 1: Develop a pool of assessment replacements" (p. 23)

- "Step 2: Educators, working with IT members, identify the existing types
  of software, hardware, and Internet-based capabilities in their school,
  district, or regional service center" (p. 24).

- "Step 3: Replace a dated assessment with a modern one" (p. 25).

- "Step 4: Share the assessment upgrades formally with colleagues and
  students" (p. 25)

- "Step 5: Insert ongoing sessions for skill and assessment upgrades into the
  school calendar" (p. 26)

Jacobs (2010c) suggested educators then engaged in active and ongoing content area discussions with colleagues to challenge "status quo" practices (p. 34).

Educators considered the development of an instructional design that incorporated problem finding, exploration, and discovery in knowledge acquisition, called anchored instruction (Bransford, Vye, Kinzer, & Risko, 1990). This shift in instructional practices allowed students to experience perceptive changes in their understandings as they viewed the anchor from varied perspectives (Bransford et al., 1990). In this process the educator developed an anchor, or problem situation, and provided student learners with the freedom to explore resources and materials related to the content in solving the presented problem (Bransford et al., 1990). To further increase student learner outcomes, the educator engaged their learners in situated learning, or presented their learners with problems within the curricular framework and context (Ally & Prieto-Blazquez, 2014; Brown et al., 1996). Through an apprenticeship, or in educational training, educators modeled strategies utilized in authentic activities, supported learners as they completed the task, and empowered the independence of their student learners (Ally & Prieto-Blazquez, 2014; Brown et al., 1996; Lave & Wenger, 1991). These anchored and situated learning opportunities played a role in the establishment of a learning environment that encouraged independent and productive autonomous learners who expressed themselves, were engaged, and developed learning communities to help each other in the learning process (Ally & Prieto-Blazquez, 2014; Bransford et al., 1990; Brown et al., 1996; Chan, 2001; Holec, 1981; Lamb, 2011; Lave & Wenger, 1991; Little, 1995; Oguz, 2013; Reinders, 2010).

The technological pedagogical content knowledge framework. For educators to effectively integrate technology and media tools in their classroom, they had certain understandings of content, pedagogy, and technology, as well as the utilization and functionality of the technology in accomplishing these goals (Abbitt, 2011; Davies, 2011; Graham et al., 2009; Koehler, Mishra, Kereluik, Shin, & Graham, 2014; Shulman, 1986). Shulman (1986) first proposed the concept that effective teaching required a blend of "content knowledge", "pedagogical content knowledge", and "curricular knowledge" (p. 9; see also Abbitt, 2011; Fransson & Holmberg, 2012; Graham et al., 2009; Koehler et al., 2014; Mishra & Koehler, 2006). Content knowledge was explained as the knowledge an educator had in regard to the content area in which they taught and the content's relevance within and outside of the discipline (Shulman, 1986; Fransson & Holmberg, 2012; Graham et al., 2009; Koehler et al., 2014; Mishra & Koehler, 2006). Pedagogical content knowledge was described as abilities the educator had to flexibly craft their instructional delivery of content as they reflected on the prior experiences, knowledge, and ages of their student learners and brought the content to varying levels of student understanding (Shulman, 1986; see also Fransson & Holmberg, 2012; Graham et al., 2009; Koehler et al., 2014; Mishra & Koehler, 2006). Curricular knowledge was represented as the variety of programs, materials, and curricular tools the educator utilized in their delivery of content (Shulman, 1986; see also Fransson & Holmberg, 2012; Graham et al., 2009; Koehler et al., 2014; Mishra & Koehler, 2006). Mishra and Koehler (2006) offered an extension to the work of Shulman (1986), through the TPACK framework as shown in Figure 1.

Technological
Pedagogical Content
Knowledge
(TPACK)

Technological
Pedagogical
Knowledge
(TPK)

Technological
Knowledge
(TK)

Technological
Content
Knowledge
(TCK)

Pedagogical
Knowledge
(PK)

Content
Knowledge
(CK)

Pedagogical
Content
Knowledge
(PCK)

Contexts
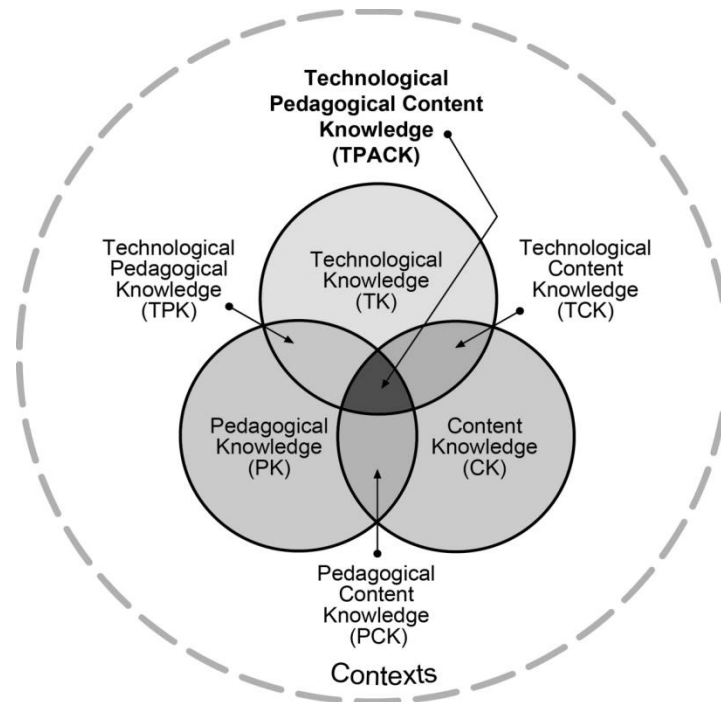
Figure 1. Technological pedagogical content knowledge framework. Included with permission from "Using the TPACK image," by M. J. Koehler, 2012, http://tpack.org.

At the foundation of the technological pedagogical content knowledge framework (TPACK) are the following three major knowledge components:

- "Content Knowledge" (CK): the knowledge of subject-matter, or content, that was learned and taught (Koehler et al., 2014, p. 102; Mishra & Koehler, 2006, p. 1026; see also Fransson & Holmberg, 2012; Graham et al., 2009);

- "Pedagogical Knowledge" (PK): the generic knowledge involved in instructional practices, processes, and methods to promote students' learning, as well as the cognitive, developmental, and social understandings of their student learners and classroom implications (Koehler et al., 2014, p. 102; Mishra & Koehler, 2006, p. 1026-1027; see also Fransson & Holmberg, 2012; Graham et al., 2009); and

- "Technology Knowledge" (TK): the skills and knowledge of how to operate

  technology and ability to learn and adapt to changes in traditional and newer

  technology (Koehler et al., 2014, p. 102; Mishra & Koehler, 2006, p. 1027-

  1028; see also Fransson & Holmberg, 2012; Graham et al., 2009).

How these three components interact was addressed by the following four components:

- "Technological Content Knowledge" (TCK): the knowledge of the reciprocal

  relationship between content and technology and how the utilization of

  technology changed the delivery of subject matter (Koehler et al., 2014, p.

  102; Mishra & Koehler, 2006; p. 1028; see also Fransson & Holmberg, 2012;

  Graham et al., 2009);

- "Pedagogical Content Knowledge" (PCK): the knowledge in flexibility and

  arrangement of content delivery, or teaching strategies, by an understanding of

  the prior knowledge and experiences of the student learners (Shulman, 1986,

  p. 9; Koehler et al., 2014, p. 102; Mishra & Koehler, 2006, p. 1027; see also

  Fransson & Holmberg, 2012; Graham et al., 2009);

- "Technological Pedagogical Content Knowledge" (TPK) the awareness and

  knowledge of the components and capabilities of various technology in

  existence and how to utilize them in the classroom setting and how teaching

  and learning changed as a result of these practices (Koehler et al., 2014, p.

  102; Mishra & Koehler, 2006, p. 1028; see also Fransson & Holmberg, 2012);

  and

- "Technological Pedagogical Content Knowledge" (TPACK): the emergent

  knowledge in regard to the relationships among technology, pedagogy, and

content that enabled appropriate and content-driven learning strategies by

educators (Koehler et al., 2014, p. 102; Mishra & Koehler, 2006, p. 1028-

1031; see also Fransson & Holmberg, 2012; Graham et al., 2009).

The outer dotted circle was representative of the specific contexts the TPACK was

grounded and situated within (Koehler et al., 2014, p. 102; Mishra & Koehler, 2006, p.

1028-1031; see also Fransson & Holmberg, 2012).

The TPACK framework was utilized for scholarly discussions in regard to

education and professional development (Abbitt, 2011; Davies, 2011; Fransson &

Holmberg, 2012; Graham et al., 2009; Koehler, 2012; Koehler et al., 2014; Mishra &

Koehler, 2006). Educators were offered concepts and opportunities to strengthen their

content, pedagogy, and technological practices (Abbitt, 2011; Fransson & Holmberg,

2012; Graham et al., 2009; Koehler, 2012; Koehler et al., 2014; Mishra & Koehler, 2006)

as they determined the utilization and integration of technological tools to teach student

learners how to enhance their own learning and develop critical thinking skills through

utilization of appropriate technology and media tools (Baker, 2010; Davies, 2011; Davies

& West, 2014; Graham et al., 2009; Hsu et al., 2014; November, 2010b; Prensky, 2010;

Sheskey, 2010).

Levels of technology implementation. Moersch (1995) created the framework

and instrument, Levels of Technology Implementation (LoTi), to assess educator and

student learner adaptation and integration of technology (see also Mehta & Hull, 2013).

His updated instrument aligns with the National Educational Technology Standards for

Educators (NETS-T) and measures: (a) Digital Work and Learning, (b) Digital-Age

Learning Experience and Assessments, (c) Student Learning and Creativity, (d)

Professional Growth and Leadership, and (e) Digital Citizenship and Responsibility

(Mehta & Hull, 2013). Unfortunately, the research of Mehta and Hull (2013) determined

the validity of the instrument was questionable and that many revisions needed to be

made to increase the instrument's reliability and validity of the information obtained from

its utilization. This qualitative research study could provide such considerations needed

when ascertaining characteristics representative of an effective technology-based learning

environment and how those experiences influence learner autonomy in middle grades

English/Language Arts instruction.

   Middle grades English/language arts. As the change in pedagogy involved

integrating classroom literacy practices with practices out of the school setting (Clary,

Kigotho, & Barros-Torning, 2013; Hockly, 2013), integrating technology and allowing

learners to take some control over their learning in middle grades E/LA content increased

their motivation and engagement (Clary et al., 2013; Husbye & Elsener, 2014; Jarvis,

2005; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; November, 2012; Reed, 1996). Middle

grade adolescents are multiskilled, multitasked, and multiliterate learners who required

developing literacy skills through accessibility to complex texts and resources (Clary et

al., 2013; Hockly, 2013; Husbye & Elsener, 2014; Prensky, 2010). Through technology

tools these adolescent learners read, researched, wrote, published, and collaborated

socially (Clary et al., 2013; Hockly, 2013; Reed, 1996).

   Researchers shared current effective technology integration practices in E/LA

instruction (Husbye & Elsener, 2014; Kervin, Verenikina, Jones, & Beath, 2013). E/LA

educators facilitated practice through the technology integration of quick-response (QR)

codes and mobile devices, such as: (a) utilizing recording audio sources for running

records; (b) linking content-based, read-aloud and think-aloud modeling to video podcasts, also called vodcasts; (c) posing a question and having students engage in digital gallery walks (Husbye & Elsener, 2014). Internet access, desktop computers, Interactive Whiteboards, and wireless connectivity were found to be the main sources of technology utilized regularly in classrooms in one research study conducted (Kervin et al., 2013). In these classroom settings, educators utilized technology primarily as reference tools, storage and retrieval system for teaching resources, and a means to present information while student learners utilized technology to access information, create texts, present information, and store and retrieve their data (Kervin et al., 2013).

Educators also utilized technology as a means to address needs of student learners with disabilities (Jeffs, Behrmann, & Bannan-Ritland, 2006) or differentiate for learners based on their readiness (Reed, 1996; Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001; Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006). The written expression demonstrated by student learners varied based on learning preferences or their individual approach to the writing process (Reed, 1996; Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006). Through further assistive technology, student learners increased their opportunities to overcome their literacy challenges and took responsibility for their learning and develop their autonomy based on their individual needs (Asmari, 2013; Belland, 2014; Jeffs et al., 2006; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002; Reed, 1996).

Synthesis of literature: Research implications. Educators shifted from traditional curricular and instructional practices to updated and upgraded practices

(Jacobs, 2010b) and provided a learning environment that honored the connections between technology, content, and pedagogy (Shulman, 1986; Mishra & Koehler, 2006). To cultivate an active classroom the educator structured the classroom physically to encourage social interaction and collaboration (Coppola, 2004; Elkind, 1976; Fosnot, 1996; Jarvis, 2005; Jonassen, 1991; Rakes et al., 2006; Sandholtz et al., 1996; Von Glasersfeld, 1996). The educator also provided schedules, routines, and discipline; mastered curricula and assessment; was flexible and mobile; and understood and was committed to their student learners (Elkind, 1976; Sandholtz et al., 1996; Wood, 1995). To establish the collaborative working environment, the educator facilitated, modeled, supported, and scaffolded real-world, authentic, and disequilibrium-based learning tasks, or challenging and open-ended investigations, through information and materials of interest or of student choice (Ackermann, 1995; Bednar et al., 1992; Belland, 2014; Boden, 1980; Coppola, 2004; Cunningham, 1992; Elkind, 1976; Fosnot, 1996; Gould, 1996; Jarvis, 2005; Jonassen, 1991, 1992; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). These investigations afforded learners the opportunity to understand that many problems or conflicts that arise do not typically have just one solution; were given opportunities to raise their own questions, generate hypotheses and models, and test solutions through trial and error; explore, generate, and defend affirming and contradictory understandings; and reflect on their experiences (Bednar et al., 1992; Boden, 1980; Coppola, 2004; Cunningham, 1992; Elkind, 1976; Jarvis, 2005; Jonassen, 1991, 1992; Sandholtz et al., 1996; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995). As educators made the shift to upgraded practices and technology tools became regularly utilized in the classroom, educators assisted

student learners in their cognitive construction of knowledge and furthered their

autonomy development (Holec, 1981; Jonassen, 1991; Lamb, 2011; Mutlu & Eroz-Tuga,

2013; Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Rosen & Rimor, 2009;

Smith, 2008).

       As educators challenged themselves to meet the needs of their student learners

(Jacobs, 2010a), they formed a partnership with their student learners (Prensky, 2010) as

they coached, guided, and modeled student learners through their own learning and

development of critical thinking schools through utilization of appropriate technology

and media tools (Baker, 2010; November, 2010b; Prensky, 2010). Tapping into

technology and media tools of interest and skill of student learners additionally supported

the development of the collaborative and active classroom (Hsu et al., 2014; November,

2010b; Sheskey, 2010). Many suggestions were offered by researchers (Hsu et al., 2014;

Jacobs, 2010b, 2010c; November, 2010b, 2012; Perkins, 1992; Sheskey, 2010), but the

ultimate curricular and instructional choices were left to the educator description based

on their pedagogical knowledge and skills (Coppola, 2004; see also Davies, 2011;

Graham et al., 2009; Koehler et al., 2014; Mishra & Koehler, 2006; Shulman, 1986).

       The TPACK framework offered a goal for educators based on the needs of

students and educators and proposed shifts in teaching and learning (Koehler et al., 2014;

Mishra & Koehler, 2006). TPACK further implicated the need for further research and

curriculum development work in opening discussions of educator knowledge surrounding

technology utilization for the delivery of content (Abbitt, 2011; Koehler et al., 2014;

Mishra & Koehler, 2006). Educators were offered methods in integrating authentic

activities for teaching student learners how to utilize technology in contexts honoring the

connections between technology, content, and pedagogy through the TPACK framework (Davies, 2011; Fransson & Holmberg, 2012; Graham et al., 2009; Koehler et al., 2014, p. 102; Mishra & Koehler, 2006, p. 1028-1031). There was limited research regarding how TPACK works across all content areas as well as how it could be utilized as an instrument (Koehler et al., 2014; Mishra & Koehler, 2006).

As educators shifted their instructional decisions and effectively integrated technology, they established a learning environment that encouraged independent and productive student learners who were engaged, or were supportive in the growth of autonomous learners (Bransford et al., 1990; Brown et al., 1996; Chan, 2001; Holec, 1981; Lamb, 2011; Lave & Wenger, 1991; Little, 1995; Oguz, 2013; Reinders, 2010). Current research demonstrated a need for researchers to explore how educators and their student learners who regularly engaged in technology-based learning impact their learning environment and how those experiences impact learner autonomy. This study explored such practices in the context of middle grades English/Language Arts instruction.

Section III: Learner Autonomy

Introduction. To further understand how to grow in autonomy, its characteristics were first be explored and understood (Aski, 2010; Chan, 2001; Holec, 1981; Jarvis, 2005; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008). Autonomy was found to not necessarily be innate and was encouraged and acquired through the student learner's formal learning (Asik, 2010; Asmari, 2013; Chan, 2001; Holec, 1981; Hui, 2010; Jang et al., 2010; Lamb, 2011; Little, 1995, 2009; Mutlu & Eroz-Tuga, 2013; Oguz, 2013; Reinders, 2010; Smith, 2008). The

context of autonomy in this study provided shared understanding so it was not confused

or utilized synonymously with other known concepts outside of this study's context

(Asik, 2010; Asmari, 2013; Oguz, 2013).

      Characteristics. Learner autonomy was not limited to a single behavior, so the

multiple dimension constructs, or characteristics, attributed to learner autonomy were

first explored (Asik, 2010; Chan, 2001; Holec, 1981; Reinders, 2010). There were

varying degrees of autonomy, moving from varying degrees of dependence to greater

varying states of interdependence (Holec, 1981; Mutlu & Eroz-Tuga, 2013; Reinders,

2010).

      In the process of understanding one's self, their environment and its workings,

and learning how to think or how to learn, the characteristics of the autonomous learner

were developed (Asik, 2010). Research findings attributed the following characteristics to

the autonomous learner: (a) identify learning needs based on preferred learning styles,

preferences, and expectations; (b) establish and articulate learning objectives and goals

well; (c) flexible, inquisitive-minded, organized, hard-working, and enthusiastic and

interested in their learning; (d) display initiative and contribute to the learning process as

active participants in their learning (e.g., determining content, selecting resources,

determining pace and time allotments, deciding and learning how to learn, planning

different activities conducive to learning, assessing progress/evaluation of content

mastery); (e) improve one's standard through self-assessing and monitoring their

learning; (f) work cooperatively and collaboratively with peers and educator; and (g)

highly motivated internally (Chan, 2001; Holec, 1981; Lamb, 2011; Mutlu & Eroz-Tuga,

2013; Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008).

Motivation. The curiosity of student learners confirmed the natural motivation student learners had as agents of their own learning (Jarvis, 2005; Keller, 1987, 2008a, 2008b; Keller & Suzuki, 2004). Educators supported autonomy development and internal motivation by engaging, creating, and allowing opportunities for learners to take some control over their learning through the form of choice, or voice, in their learning (Keller, 1987, 2008a, 2008b; Keller & Suzuki, 2004; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; November, 2012). Supporting internal motivation and autonomy as educators involved understanding deeply the passions of student learners (Prensky, 2010), listening to students frequently (e.g., asking for students' opinions and choices in their learning, offering topics of interest, acknowledging individual pace needs), providing a variety of study methods within and outside of the classroom setting, and allocating independent work time (Mutlu & Eroz-Tuga, 2013; Oguz, 2013). These supports did not mean autonomy was something educators did to learners (Asik, 2010). It was noted that regardless of how much support and learning opportunities provided on the behalf of the educator, the learner must have intrinsic motivation to take control over their learning and succeed in developing increased autonomy (Asik, 2010; Keller, 1987, 2008a, 2008b; Keller & Suzuki, 2004; Reinders, 2010).

To support the autonomous learner through motivational means, educators met the following conditions: Attention, Relevance, Confidence, and Satisfaction, or Keller's ARCS model (Keller, 1987, 2008a, 2008b; Keller & Suzuki, 2004). Keller (2008b) found the motivation to learn is promoted when:

- "A learner's curiosity is aroused due to a perceived gap in current knowledge" (p. 176),

- "The knowledge to be learned is perceived to be meaningfully related to a learner's goals" (p. 177),

- "Learners believed they can succeed in mastering the learning task" (p. 177),

- "Learners anticipate and experience satisfying outcomes to a learning task" (p. 177), and

- "Learners employ volitional (self-regulatory) strategies to protect their intentions" (p. 178).

When these conditions were met, students were motivated in the identified setting and continued to be motivated (Keller & Suzuki, 2004). By integrating these practices into the learning environment, educators further supported the development of learner autonomy (Asik, 2010; Keller, 1987, 2008a, 2008b; Keller & Suzuki, 2004; Reinders, 2010).

Autonomy support in the learning environment. Through the learning process educators initiated, or fostered, autonomy and student learners developed autonomy through these processes (Asik, 2010; Chan, 2001; Holec, 1981; Hui, 2010; Reinders, 2010). Autonomy was a process and helped learners grow in their awareness as their learning involved opportunities to make choices and take responsibility for their learning through setting their goals, planning, and monitoring and evaluating their own progress (Asik, 2010; Asmari, 2013; Holec, 1981; Little, 2009; Reinders, 2010).

Research findings have provided recommendations for educators in the cultivation of a supportive learning environment for autonomous learners (Asmari, 2013; Chan, 2001; Holec, 1981; Lamb, 2011; Little, 1995; Oguz, 2013; Reinders, 2010). When

cultivating the learning environment, the educator's role was addressed through identification and introduction with students (Asmari, 2013; Chan, 2001; Holec, 1981; Lamb, 2011; Little, 1995; Oguz, 2013). The roles of educator continually shifted between manager, resource person, instructor, and facilitator in the classroom setting (Asmari, 2013; Chan, 2001; Little, 1995; Reinders, 2010). Educators determined areas in which they promoted autonomy and the extent possible for varied autonomy-leveled learners to determine their learning objectives, selection of materials, and contributions to assessing their progress towards content mastery (Chan, 2001; Holec, 1981; Little, 1995; Reinders, 2010; Smith, 2008). In the instructional design of an autonomy-oriented classroom, educators promoted equal responsibility for learning through the following learner-centered activities: (a) opportunities for self-discovery in content-based learning activities, (b) student learner involvement through choices of interest and motivation, (c) tasks that enhanced interdependent skill development, and (d) encouragement of learner voice development through finding collaborative, negotiated solutions to disagreements in expectations voiced by educator (Chan, 2001; Holec, 1981; Lamb, 2011; Little, 1995; Reinders, 2010). These constructs encouraged independent and productive student learners who were engaged (Oguz, 2013).

     Student engagement. High levels of autonomy support and structure heightened students' engagement (Jang et al., 2010). The nurturing, non-controlling language, and acknowledgement of student perspectives and feelings by educators in the autonomy-supportive classroom engaged student learners (Jang et al., 2010). To nurture inner motivational resources, educators crafted instruction with students' interests, preferences, goals, choices, and challenge and curiosity, so opportunities were created for students to

take initiative in their learning (Jang et al., 2010). Educators relied on non-controlling informational language when they provided rationales behind tasks and communicated through informative, flexible, and competence-related information (Jang et al., 2010). Acknowledging students' perspectives and feelings involved educators considering and communicating value throughout learning tasks, inquiring student insights, and accepting students' negative remarks as valid and adjusting instructional demands, structures, presentation/delivery, and activities/tasks accordingly (Jang et al., 2010). These fore mentioned characteristics of educator support resulted in increased student engagement in their learning processes (Jang et al., 2010).

  Technology. The access to a wide range of resources through technology has led to a better support system for the autonomous learner (Asmari, 2013; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002). Computers, the Internet, Web-based learning, email systems, discussion forums, and online chat environments: (a) increased the material availability to student learners, (b) empowered their ability to work at their individual paces, (c) created freedom of choice in their material retrieval of information, (d) improved ability to communicate and interact with others through their learning practices, and (e) enhanced sociable, collaborative, and authentic learning opportunities (Asmari, 2013; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002). These resources afforded opportunities for student learners to take responsibility for their learning and develop their autonomy (Asmari, 2013; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002), such as through computer-based scaffolding to offer customization for student learners' needs (Belland, 2014).

It was important to teach learners how to determine relevance and credibility of sources to best support retrieval of information needed when utilizing the Internet materials through Web-based learning activities (Raya & Fernandez, 2002). These scholars further discussed the following variables to consider in the implementation of a learner autonomy framework within a technology-based learning environment:

- The amount of technological tools that institutions and educators have at their disposal. In particular, the availability of technicians in order to solve the kind of mechanical, software and hardware problems that may be encountered.

- The amount of technological tools that students have at their disposal, both at home, and those provided by the educational institutions in which they study.

- Their actual level of technological literacy.

- Their motivation to use this technology, their willingness to make effective use of these tools.

- How time-consuming the use of new technology is as compared with the results of the practical application of these technology (p. 64).

Misconceptions. Scholars were cautioned in their synonymous use of other concepts with learner autonomy (Asik, 2010; Asmari, 2013; Oguz, 2013). Scholars mistakenly utilized autonomy synonymously with the following terms: individualism, isolation (or total dependence), self-regulated learning, self-access learning, self-instruction, self-directed learning, flexible learning, and distance learning; however, some were found to be related (Asik, 2010). First, mistakenly equated with autonomy was individualism as individualizing instruction involved meeting the needs of the unique characteristics of the individual learner. Educators utilized individualized instruction

practices of making instructional decisions based on identified characteristics of the

student learner(s) which negated learners taking control and responsibility of their own

learning (Asik, 2010). Secondly, autonomy was not considered total isolation or total

independence. As learners became less dependent on their educators and as they learned

to work collaboratively with peers through learner autonomy support systems, the term

interdependence best described the state of the autonomous learner (Asik, 2010; Asmari,

2013; Oguz, 2013). Thirdly, self-regulated learning emphasized academic skills, but

autonomy-oriented classrooms were not typically restricted to a skill or ability (Asik,

2010). Fourthly, self-access learning involved a center with resources under supervision.

Although autonomy could be restricted to a special-designed place, it has not always take

place in a self-access center (Asik, 2010). Fifthly, self-instruction implied various

materials produced to guide a learner through a process in the total absence or lack of

direct control of an educator (Asik, 2010). Autonomy does not mean learning with the

total absence of the educator, but a shift in educator roles (Asmari, 2013). The educator

also involved learner choice in goal-setting, selection of resources/materials, various

learning activities, and assessments (Asik, 2010; Asmari, 2013; Oguz, 2013). Autonomy-

oriented educators have not kept students under complete control, but rather helped guide

them in making their own decisions and following their own preferences throughout the

learning process (Oguz, 2013). Sixth, self-directed learning covered autonomy in that

learners made all decisions, but differed in that self-directed learning has not necessarily

meant the learners took on the implementation of their decisions (Asik, 2010). Seventh,

flexible learning was similar to autonomy as they both involved learners having a voice

in their learning (Asik, 2010). Lastly, distance learning involved access in a place far

away from the educator, which differed from educator presence and or support in the autonomous learning environment (Asik, 2010).

  Synthesis of literature: Research implications. The autonomy of educators and autonomy of students were interdependent, thus educator autonomy was a prerequisite for the development and promotion of learner autonomy (Little, 1995). A strong sense of personal responsibility in their teaching and continually reflecting and analyzing their teaching process was indicative of an autonomous educator (Little, 1995). When educators experienced personal autonomy in their trainings, they were more likely to develop supportive learning environments for autonomous learners (Asmari, 2013; Holec, 1981; Lamb, 2011; Little, 1995; Oguz, 2013).

  Researchers have contributed characteristics of the autonomous learner, recommendations for educators in cultivating supportive learning environments for autonomous learners, discussed misconceptions of learner autonomy, and mentioned the ability for resources through technology to support autonomous learners (Asik, 2010; Asmari, 2013; Chan, 2001; Holec, 1981; Hui, 2010; Jang et al., 2010; Jarvis, 2005; Lamb, 2011; Little, 2009; Mutlu & Eroz-Tuga, 2013; Oguz, 2013; Prensky, 2010; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008). While the autonomous learner and learning environment constructs were clearly explained by these researchers, the research lacked in the specific exploration of how technology-based learning impacts the learning environment of student learners and their educators and how those experiences impact learner autonomy in middle grades English/Language Arts instruction.

Section IV: Multiple Case Study

     Introduction. The case study was a common qualitative research method utilized in the field of education (Creswell, 2013; Mardis et al., 2014; Merriam, 2009; Stake, 2005; Yin, 2014). This multiple case study involved exploring three cases over time through an in-depth data collection, description, and analysis of themes (Creswell, 2013; Mardis et al., 2014; Merriam, 2009; Stake, 2005, Yin, 2014). Merriam (2009) explained qualitative case studies are: (a) "particularistic" (p. 43), as they tended to narrow their focus to a specific interest; (b) "descriptive" (p. 43), as they offered in-depth descriptions of their study; and (c) "heuristic" (p. 44), as they offered readers new, extended, or confirmed understandings of the case in study. Stake (as cited in Merriam, 2009) further asserted knowledge gleaned from case studies are: (a) "concrete" (p.44), as it was vivid and related to own experiences; (e) "contextual" (p. 45), as the context was the root of the experiences; (f) "developed by reader interpretation" (p. 45), as the readers brought their own understandings and generalizations when adding new data to their previous data; and (g) "reference populations by the reader" (p. 45), as generalizations were made to the referenced populations. These definitions and characteristics were closely linked to the constructivist perspective (Starman, 2013).

     Interpretive/constructivist perspective. Qualitative research was often considered to be interpretive in nature and involved the assumption that there were "multiple realities, or interpretations, of a single event" (Merriam, 2009, p. 8). These qualitative researchers were interested in understanding how people construct meaning and make sense of their worldly experiences (Creswell, 2013; Merriam, 2009). The researcher, with the "etic" or outsider's viewpoint, needed to understand the insider's, or

"emic", perspective (Merriam, 2009, p. 14) by relying on the view of the case study participants (Creswell, 2013).

As the primary instrument, the researcher gathered data through in-depth interviews, observations, and documents (Creswell, 2013; Merriam, 2009; Yin, 2014). As researchers interviewed participants, their questions were broad, general, and open-ended in nature to help participants construct meaning of the case through discussions, interactions, and descriptions of their life setting (Creswell, 2013). Having focused on these settings, or contexts, the researcher gained an understanding of the historical and cultural context of their participants (Creswell, 2013). The researcher used the data gathered and analyzed it to build themes or a possible theory about their case (Creswell, 2013; Merriam, 2009; Yin, 2014). The role of the researcher was significant as the researcher utilized their own background and experiences to make interpretations of the data collected (Creswell, 2013).

Synthesis of literature: Research implications. This multisited, multiple case study provided in-depth, rich, holistic accounts of a phenomenon (Creswell, 2013; Mardis et al., 2014; Merriam, 2009; Yin, 2014). This study's rich descriptions provided insights that helped structure future research, advanced the field of education and technological uses in curriculum and instruction, brought understandings that may affect or improve instructional and curricular practices of educators, and helped inform future policies (Creswell, 2013; Mardis et al., 2014; Merriam, 2009; Stake, 2005; Yin, 2014).

Chapter Summary

Emerging technology and social media used by Digital Natives called for educators to update and upgrade their current instructional practices (Ally & Prieto-

Blazquez, 2014; Ally & Samaka, 2013; Hsu et al., 2014; Jacobs, 2010b, 2010c; November, 2010b, 2012; Perkins, 1992; Sheskey, 2010). Having tapped into technology and media tools of interest, to be active agents in their learning through voice and choice, today's K-12 educators have structured their classroom and instruction and fostered a partnership with students to promote autonomous learning through collaborative and social interaction opportunities (Bednar et al., 1992; Coppola, 2004; Cunningham, 1992; Elkind, 1976; Fosnot, 1996; Hsu et al., 2014; Jarvis, 2005; Jacobs, 2010b, 2010c; Marshall, 1998; November, 2010b, 2012; Oh & Reeves, 2014; Perkins, 1992; Piaget, 1970; Sandholtz et al., 1996; Sheskey, 2010; Von Glasersfeld, 1996; Vygotsky, 1978). The TPACK framework offered such a construct to open discussion with educators for teaching student learners how to utilize technology in contexts honoring the connections between technology, content, and pedagogy (Abbitt, 2011; Fransson & Holmberg, 2012; Koehler et al., 2014; Mishra & Koehler, 2006).

Do such classrooms exist as presented by the research described in this review of literature? There was a need to engage in purposeful sampling to discover such classrooms, and there was a need for further research including rich, holistic descriptions of educators and student learners who were in classrooms that integrated and utilized technology and media tools to support autonomous learning. This qualitative, multisited, multiple case study sought to explore such utilization of technology in class instruction, how it impacts the learning environment, and how these experiences impact autonomous student learners and their educators in the middle grades E/LA classroom.

Conceptual Framework

The development of the conceptual framework, shown in Figure 2, was formed through the review of literature and combined personal experience and insights. The methodological design of this research and instrumentation to be utilized in the data collection was focused and shaped by this developed conceptual framework. This framework also served as a working and organizational tool for the analysis, interpretation, and synthesis of the research study. Each area was informed by the research questions explained earlier in Chapter I.

Educators were influenced significantly by their own personal autonomy in regard to instructional decision making in the classroom. The first research question sought to explore how technology-based learning in class instruction impacts the learning environment of student learners and their educators. This was reflective in the "technology-based learning" and "classroom learning environment" categories. The second research question sought to uncover how the technology-based learning environment impacts learner autonomy. This was reflective in the "learner autonomy" category. Drawing on review of literature implications, the researcher anticipated potential themes of best practices in instructional decision making, student learning theories, motivation, and student engagement. During data collection and analysis, this conceptual framework was continually revised.
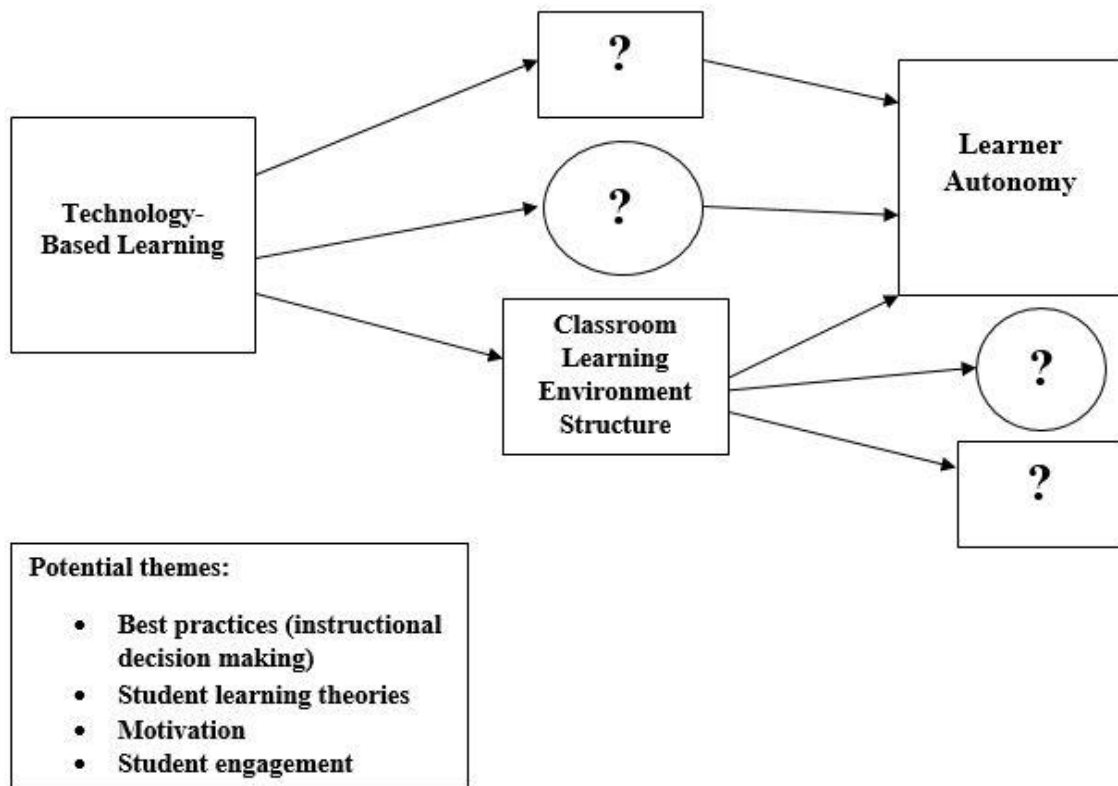
Figure 2. Conceptual framework. The question marks were indicative of the potential,

unknown themes that emerged from the research. The researcher asserted potential

themes relevant to this study as indicated through the review of literature.

Chapter III

Methodology

Introduction

The purpose of this multisited, multiple case study was to describe how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. The researcher explored and depicted these experiences through observations of the learning environment; student in-depth interviews and three-interview series of educators; and an analysis of learning environment documents. This research informed educators and others whose decisions regarding professional development, instructional practices, and instructional resources might influence the learning experiences for educators and their student learners.

The following questions guided this research:

1. How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

2. How does the technology-based learning environment impact learner autonomy?

This chapter describes the study's research methodology through discussions of the following: (a) rationale for qualitative research approach, (b) description of the research sample, (c) overview of the information needed, (d) research design, (e) data collection methods, (f) data analysis and synthesis, (g) role of the researcher, (h) ethical considerations, (i) issues of trustworthiness, and (j) limitations and delimitations of the study. A culminating summary concluded this chapter.

Rationale for Qualitative Research Approach

Qualitative research was conducted to explore, discover, and interpret an in-depth understanding of a phenomenon through insight into the participants' contexts and empowering individuals to share and interpret their experiences in their naturalistic settings (Creswell, 2013; Merriam, 2009). Creswell (2013) explained the following common characteristics specific to qualitative researchers:

- "natural setting": Qualitative researchers gather up-close information as they engage in face-to-face interactions with participants and see how they interact with others within their context (p. 45);

- "researcher as key instrument": Qualitative researchers independently collect data through interviews, observations, and examinations of documents through instruments designed by the researcher (p. 45);

- "multiple methods": Qualitative researchers review, make sense of, and organize into categories or themes multiple forms of data [e.g., interviews, observations, documents] (p. 45);

- "complex reasoning through inductive and deductive logic": Qualitative researchers collaborate with participants and organize data inductively, work back and forth between units of information, and utilize deductive thinking to build themes consistent with the data (p. 45);

- "participants' meanings": Qualitative researchers ensure their report reflects multiple perspectives as they focus on learning the meaning of their study (p. 47);

- "emergent design": Qualitative researchers allow flexibility in all phases of their research process as they obtain information to uncover the meaning of their study (p. 47);

- "reflexivity": Qualitative researchers provide their background experiences and how it may inform their interpretation of the data gathered in their study (p. 47); and

- "holistic account": Qualitative researchers provide a rich description as they develop their description of their study (p. 47).

As the researcher's purpose in this study was not to control or manipulate, but to observe and study in the naturalistic setting the uniqueness of each participant, this study called for a qualitative design (Creswell, 2013; Merriam, 2009). This qualitative research study was further driven by the researcher's ontological, epistemological, axiological, and methodological philosophies through a social constructivist lens (Creswell, 2013; Merriam, 2009).

Ontological philosophy. Ontology involved the researcher's belief in the nature of reality and embracing the possibility of multiple realities as data gathered from different contexts and perspectives of individuals are categorized into themes (Creswell, 2013; Merriam, 2009). Taking primarily the social constructivist approach to this qualitative research study, the researcher constructed these themes and realities through lived experiences and interactions with the participants (Creswell, 2013). Observations provided the researcher with insight into the context and behaviors of participants within them, in-depth interviews provided face-to-face interactions with participants, and review of environment documents provided further insight into the context and behaviors of

participants within the classroom setting studied by the researcher (Creswell, 2013). The researcher sought to discover how the utilization of technology in class instruction impacts the learning environment and student learners and their educators and how those experiences impact learner autonomy. The researcher came into the multisited, multiple case study with an assumption that each case would differ in context and participant experiences. The qualitative tools utilized by the researcher aided in identifying emerging themes over the whole study (Creswell, 2013; Merriam, 2009).

Epistemological philosophy. Epistemology involved subjectively assembling evidence from individual views and perspectives as the researcher got as close to the participants being studied as possible (Creswell, 2013; Merriam, 2009). Lincoln and Guba (1985) described this as minimizing the distance or "objective separateness" (p. 94). Conducting studies in the context of the participants' lives and work helped the researcher understand the perspectives of participants better (Creswell, 2013). Taking the social constructivist approach to this qualitative research study, the uncovered reality was co-constructed between the researcher and participants' individual experiences (Creswell, 2013). Engaging in purposeful sampling and having the participants review the data as it emerged through member checking aided the researcher of this study in minimizing the distance between each other (Creswell, 2013; Lincoln & Guba, 1985; Merriam, 2009).

Axiological philosophy. Axiology involved the values brought and known by the researcher in the study (Creswell, 2013). The stories voiced in this case study are a representation of the interpretation of the researcher as they presented the themes gathered from the data (Creswell, 2013). Taking the social constructivist approach to this qualitative research study, the individual participants were asked to engage in member

checks to make sure that their values were honored in the study (Creswell, 2013). The researcher of this study, a fellow educator who sought the implementation of technology to support autonomous learners across education content areas and contexts, played an important role in this study as collector and interpreter of data collected.

Methodological philosophy: The methodology emerged as the collection and analysis of data shaped the researcher's experience and study (Creswell, 2013). Taking the social constructivist approach to this methodology, observations, interviews, and an analysis of documents from the context of the study and through member checking of the researcher's interpretations emerged themes (Creswell, 2013). The researcher continually reflected and revised the study to capture the meanings shared by the participants of the study.

Multisited, multiple case study. Case studies afforded the researcher to enter the study's well-defined context boundaries and discover the unknown, while continually reflecting on one's own practices and existing knowledge (Starman, 2013). A multiple case study was effective as the researcher clearly defined cases with boundaries and sought to compare several cases through an in-depth description of the understanding gained (Creswell, 2013). This research involved the collection and analysis of data from a multisited, multiple case study (Creswell, 2013).

The researcher engaged in purposeful sampling to identify specific participants in the study who were in the process of integrating technology in their middle grades E/LA classroom instruction processes (Creswell, 2013; Merriam, 2009). By studying such real-life cases that were in progress, the researcher gathered current, relevant information (Creswell, 2013). By studying multiple cases the researcher gathered many forms of

qualitative data, specifically in-depth interviews, observations, and documents from the context in study (Creswell, 2013; Merriam, 2009). The researcher provided descriptions of each case, analyzed and compared them with each other as themes evolved, and concluded with overall meanings and generalizations derived from the multisited, multiple case study (Creswell, 2013; Merriam, 2009).

Description of the Research Sample

The researcher engaged in purposeful sampling and paid careful attention to identify and select specific participants who were currently in the process of integrating technology in their middle grades E/LA classroom instruction processes (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Seidman, 1991). The boundaries were limited to better provide in-depth descriptions across the cases (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Seidman, 1991) through the following educator participant criteria:

- Taught in the middle grades E/LA content area;

- Utilized, or promoted the utilization of, technology for content delivery or demonstration of mastery in his/her middle grades E/LA class instruction practices;

- Structured the classroom physically to guide and encourage social interaction and collaboration that promotes learner autonomy (Bednar et al., 1992; Coppola, 2004; Cunningham, 1992; Elkind, 1976; Fosnot, 1996; Hsu et al., 2014; Jarvis, 2005; Jacobs, 2010b, 2010c; Jonassen, 1991; Marshall, 1998; November, 2010b,2012; Oh & Reeves, 2014; Perkins,

1992; Piaget, 1970; Rakes et al., 2006; Sandholtz et al., 1996; Sheskey, 2010; Von Glasersfeld, 1996; Vygotsky, 1978);

- Created a positive learning environment through Differentiated Instruction practices (Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001; Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006), as evidenced through his/her administration observations and/or lesson plans that were inclusive of "high-quality curriculum, assessment to inform educator decision making, and flexible classroom management" (Tomlinson, & Imbeau, 2010, p. 13); and

- Learned and embraced effective ways to integrate technology and facilitated, coached, guided, and modeled technology integration and utilization of appropriate technology and media tools (Ally & Prieto-Blazquez, 2014; Baker, 2010; Deubel, 2003; Jonassen, 1991; November, 2010b; Oh & Reeves, 2014; Prensky, 2010).

By seeking multisited, multiple cases, the researcher maximized variation in the samples through varying northern Georgia counties and demographics of participant sites to fully describe multiple perspectives that evolved into a wider application scope to readers of this study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Seidman, 1991).

The sample size was limited to a few, varying demographic sites, as permission was granted in a way to enable data collection specific to this study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009). The researcher generated e-mail communications to contact and follow specific county protocols and potential site and educator participants across a variety of counties and grade levels to target educators in

English/Language Arts settings that utilized technology in their class instruction practices. An adequate number of participants and sites were needed to reach saturation (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall, Cardon, Poddar, & Fontenot, 2013; Merriam, 2009). The researcher sought the educators and their student learners in three, middle grades E/LA settings with the number of student learner participants varying as the researcher analyzed student learner data to reach saturation (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam, 2009; Seidman, 1991).

Participants were chosen to collect more extensive details about the context and their experiences (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009). The educator and site was first chosen based on implementation of technology in their classroom instruction practices and who was willing to help facilitate the collection of data (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009). Chosen next was a few of the educator participant's student learners who were chosen flexibly as they were accessible, willing to provide information, and distinctive for their accomplishments and offered specific abilities to shed light on the researcher's study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009). Thus, the sample first occurred at the case and educator participant level, followed by the sample selection of student learner participants (Merriam, 2009).

Information Needed

This multisited, multiple case study focused on three, middle grades E/LA settings across northern Georgia and their educators and student learners. The information needed to address the researcher's focus in the study was informed by the

conceptual framework and fell into four categories: contextual, demographic, perceptual, and theoretical (Bloomberg & Volpe, 2012). The following explains each category and its implications to this research study:

- Contextual: The educators identified were asked to build context as they shared their classroom learning environment with the researcher.

- Demographic: The educator participants' teaching experience and training and experiences related to educational technology were gathered. The student learner participants' learning experiences and training and experiences related to the utilization of educational technology were also gathered.

- Perceptual: The educator participants' roles and decision-making practices within their shared classroom learning environment were expressed. The researcher obtained information regarding the student participants' roles and decision making processes within their shared classroom environment.

- Theoretical: An ongoing review of the literature in regard to the student learner, the classroom learning environment, learner autonomy, multiple case study, and others as they emerged provided the theoretical basis for this study.

Research Design

Steps taken in this multisited, multiple case study design are shown in Figure 3.
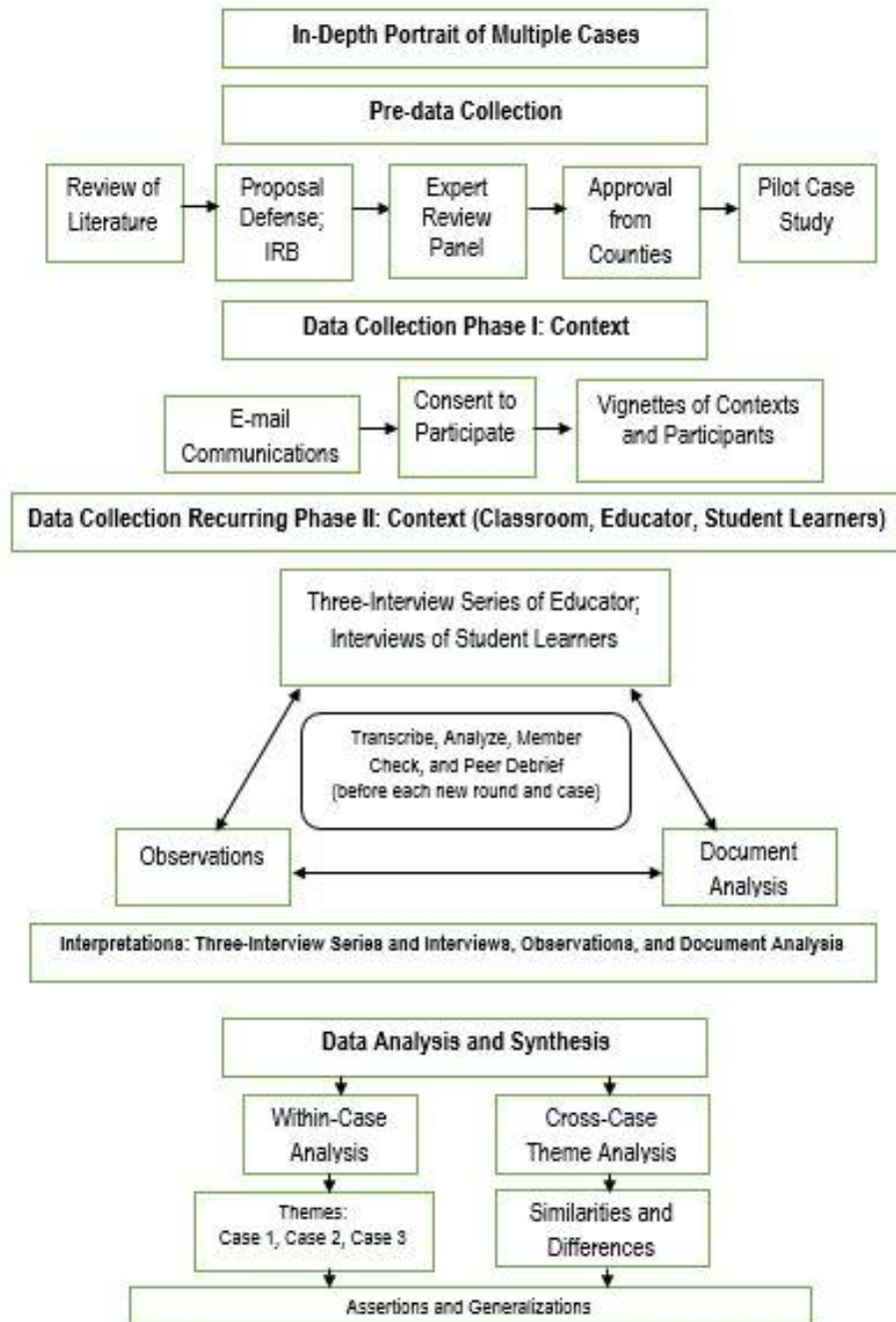
Figure 3. Multisited, multiple case study research design.

Data Collection Methods

Creswell (2013) defined data collection as the process of gathering information to answer the researcher's emerging research questions (p. 146). To ensure triangulation in

this qualitative study, the researcher engaged in observations; in-depth and three-interview series; and document analysis. When the researcher reached a point of hearing and seeing the same things repetitively and new information was not surfacing in the data collection process of this study, saturation was reached (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam, 2009; Seidman, 1991).

Pre-data collection: Literature review. An ongoing review of the literature was conducted to inform this study. Literature was reviewed in regard to the student learner, the classroom environment, learner autonomy, multiple case study, and other areas as they emerged during the research. The review of literature provided understandings of the utilization of technology in middle grades E/LA class instruction and how these impact the learning environment of student learners and their educators and how these experiences influence learner autonomy.

Following the research proposal defense, the researcher sought approval from the Institutional Review Board (IRB). Once this approval was granted (see Appendix B), the researcher assembled an expert review panel comprising of an elementary, middle, and high school classroom educator who regularly integrated technology in their instructional practices; a media specialist; a school district's instructional technology specialist; and a higher education faculty member whose dissertation topic aligned with the researcher's study direction. These members were chosen based on their proficiency and application in their instructional practices of the International Society for Technology in Education Standards for Students, or ISTE Standards-S (Georgia Department of Education, 2014b; International Society for Technology in Education, 2012) through a review of supporting

documents (e.g., resume, Georgia's Educator Keys Effectiveness System, educator website, educator lesson plans). The researcher further reviewed the study with potential expert review panel members, sought their consent to participate in this study, and provided them with a protocol to assess the interview and observation checklist instruments (see Appendix C). The researcher sought approval of the counties of the educator and student learner participants and engaged in a pilot study.

Pre-data collection: Pilot. A pilot case study, consisted of piloting each of the different elements once, occurred for the researcher to provide concept clarification and ensure the elements within the student interviews and educator three-interview series supported the research questions of the study and did not detract from them (Bloomberg & Volpe, 2012; Marshall & Rossman, 2006; Seidman, 1991; Yin, 2014). After the completion of the pilot case study the researcher reflected on the experiences, discussed revisions with the doctoral committee, and revised the research instruments as needed (Seidman, 1991; Yin, 2014).

Data collection phase I: Context. The researcher generated e-mail communications to educator participants as directed through each county's protocols and policies and each county's head of curriculum and instruction and middle school administrators (see Appendix D). Through the responses received, the researcher purposefully selected three, middle grades E/LA potential educator participants across counties with varying demographics that utilized technology regularly in their class instruction practices (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam, 2009; Yin, 2014). These educator participants were chosen based on the following criteria:

- Taught in the middle grades E/LA content area;

- Utilized, or promoted the utilization of, technology for content delivery or demonstration of mastery in his/her middle grades E/LA class instruction practices;

- Structured the classroom physically to guide and encourage social interaction and collaboration that promotes learner autonomy (Bednar et al., 1992; Coppola, 2004; Cunningham, 1992; Elkind, 1976; Fosnot, 1996; Hsu et al., 2014; Jarvis, 2005; Jacobs, 2010b, 2010c; Jonassen, 1991; Marshall, 1998; November, 2010b,2012; Oh & Reeves, 2014; Perkins, 1992; Piaget, 1970; Rakes et al., 2006; Sandholtz et al., 1996; Sheskey, 2010; Von Glasersfeld, 1996; Vygotsky, 1978);

- Created a positive learning environment through Differentiated Instruction practices (Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001; Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006), as evidenced through his/her administration observations and/or lesson plans that were inclusive of "high-quality curriculum, assessment to inform educator decision making, and flexible classroom management" (Tomlinson, & Imbeau, 2010, p. 13); and

- Learned and embraced effective ways to integrate technology and facilitated, coached, guided, and modeled technology integration and utilization of appropriate technology and media tools (Ally & Prieto-Blazquez, 2014; Baker, 2010; Deubel, 2003; Jonassen, 1991; November, 2010b; Oh & Reeves, 2014; Prensky, 2010).

The researcher then corresponded through email and met face-to-face with the educator

participant to review the study, viewed documents supporting the educator's meeting

expectations of the set criteria (e.g., resume, Georgia's Educator Keys Effectiveness

System, educator website, educator lesson plans), and to obtain the educator's consent to

participate in this study (see Appendix E). The student learners and their parents were

also provided with consent forms to participate in this study (see Appendix F).

     The researcher immersed herself in the context, or classroom learning

environment, of the student learner and educator participants in this study to understand

what the participants shared with the researcher throughout the study (Bloomberg &

Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman,

1991; Starman, 2013; Yin, 2014). The researcher also constructed, in Chapter IV of this

dissertation, rich descriptions that encompassed the contexts and participants in this

multisited, multiple case study (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall &

Rossman, 2006; Merriam, 2009; Seidman, 1991; Starman, 2013; Yin, 2014).

     Data collection recurring phase II: Interviews. The researcher also conducted

intensive studies of the student learners and their educator in the multisited, multiple case

study (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam,

2009; Seidman, 1991; Yin, 2014). Interviews were conducted by the researcher to capture

an understanding of the experience of participants in their own words, which required

face-to-face interactions between the participants and researcher (Bloomberg & Volpe,

2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin,

2014). These understandings provided meanings to the researcher as the behaviors were

observed in the participants' context (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014).

The interview process involved the researcher interviewing participants, transcribing the experiences shared, and analyzing the experiences to determine meanings gathered (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). By keeping the questioning rather open-ended, the participants and interviewing researcher were able to maintain focus and balance through the interview structure (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). The student learner participants were interviewed once, and several student learners were interviewed to reach saturation (see Appendix G). Siedman (1991) recommended the three-interview series structure as participants can reflect upon the preceding interview and not lose connections between interviews, and researchers can work with participants over a few weeks. In this research study, this technique was utilized with each educator participant.

Three-Interview Series. This study utilized an expert-reviewed interviewing structure (see Appendix H) through the conduction of three separate interviews, each on one aspect of the study, for each educator participant (Siedman, 1991). As observations and analysis of documents occurred, the researcher at times had to ask the participants for clarification or verification of research obtained through subsequent interviews. The first interview focused on the experiences within the context of the educator participant, the second interview aimed to reconstruct the experiences within the context of the educator participant, and the third interview prompted a reflection on the meaning the experiences held for each educator participant (Siedman, 1991).

In the first interview, the researcher constructed the context of the study through asking the educator participant to provide as much information as possible regarding where they presently were in relation to the study's topic (see Appendix H). This focused on the experiences within the context of the student learner and educator participants and gathering demographic information. The interview also ensured participants and the researcher shared the same understandings of the following defined terms specific to this research study: English/Language Arts, learner autonomy, technology, and technology integration. The researcher then transcribed, analyzed the data gathered, and engaged in member checks with each educator participant.

In the second interview, the researcher asked the educator participant to share concrete details of their present experience (see Appendix H). To aid in reconstructing these details, the researcher asked the educator participants to share stories and specific examples and their roles in their learning environment. The researcher again transcribed, analyzed the data gathered, and engaged in member checks with each educator participant.

In the third interview, the researcher asked the educator participant to reflect on their experience meanings by exploring their past events which led to where they are now, the concrete details of their present experiences, and future implications (see Appendix H). The researcher again transcribed, analyzed the data gathered, and engaged in member checks with each educator participant.

Data collection recurring phase II: Observations. Observations played a key role in discovering the interactions of participants in their natural social settings (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009;

Seidman, 1991; Yin, 2014). By observing student learners and their educator interactions, the researcher gained further insights to lead to further understandings of the context (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). The detailed, concrete descriptions of the student learner and educator participants in their context, also aided the researcher in subsequent interviews (Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009).

The researcher utilized an expert-reviewed observation checklist (see Appendix I). The researcher analyzed the data gathered, engaged in member checks with their student learner and educator participants, and utilized the observations to aid the researcher in questioning in the subsequent interviews.

Data collection recurring phase II: Documents. As a means to triangulate the data and merge findings, document analysis was utilized by the researcher in conjunction with the three-interview series and observations (Merriam, 2009). Gathering and analyzing the documents produced in the context of the study further triangulated and supported the observations and three-interview series data gathered to further develop the researcher's understanding of the context and participants of the study (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). The researcher gathered and analyzed the following documents related to this study: the educator's lesson plans and websites and/or online learning platforms and student tasks, assignments, and work samples. This data were utilized to further describe the context of the study, advance themes, and further support the observations and three-interview series.

Data Analysis and Synthesis Methods

Data analysis involved the researcher interpreting what was said by the student learners in their in-depth interviews and educator participants in their three-interview series, observed in the naturalistic setting of the participants, and examined in the document analysis of this study (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014). The researcher moved between inductive and deductive reasoning to constitute the findings in this study through the formation of organized themes (Merriam, 2009). The researcher followed this data analysis order: (a) immersed, reread, and examined the data obtained; (b) identified text most directly related to the research questions of this study; (c) generated categories and coded within the data; (d) identified themes and patterns from this data; and (e) presented the findings of the study (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall and Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014).

This multisited, multiple case study required within-case analysis, or detailed descriptions of themes in each case, and cross-case analysis, or a thematic analysis across all of the cases, that included the researcher's interpretations of the meanings of the cases (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). The researcher also analyzed similarities and differences among the cases to further develop naturalistic generalizations people can learn for themselves or to apply to other situations (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014).

Role of the Researcher

Fundamental to the qualitative, multisited, multiple case study was the role of researcher as instrument while present in the lives of their participants (Creswell, 2013,

Lincoln & Guba, 1985; Marshall & Rossman, 2006; Merriam, 2009; Siedman, 1991). The researcher in this study was a human observer, interviewer, and analyzer as observations, in-depth interviewing, and document analysis occurred in the context of the study (Creswell, 2013, Lincoln & Guba, 1985; Merriam, 2009; Siedman, 1991). The researcher was adaptable and flexible throughout the study and responded to situations that arose in the study with tact and understanding (Lincoln & Guba, 1985; Siedman, 1991) as immersion into the context of the setting through their numerous site visitations occurred (Marshall & Rossman, 2006). The researcher was aware that as human and primary instrument of the data collection and analysis, realities and deeper perspectives were relayed through their direct, face-to-face observations, in-depth interviews, and document analysis (Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014).

Ethical Considerations

Protection of the participants was of ethical concern in the data collection and reporting phases of this multisited, multiple case study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). To minimize these concerns the researcher in this study obtained informed consent and ensured confidentiality and security of the participants' information gathered (see Appendixes D and E), used caution in utilization and sharing of public and private information, provided reviews of the study and engaged in member checks with participants consistently throughout the study, and utilized pseudonyms for all contexts and student learner and educator participants (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014).

The informed consent and review of the study involved the open sharing of the student interviews, educator three-interview series, observations, and document analysis procedures that were utilized by the researcher in this study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). After each interview, observation, and document analysis were transcribed and/or analyzed, the researcher engaged in member checks of the information (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). The three-interview series was in-depth and allowed educator participants to share their experiences from past, present, and future implications. As the researcher reviewed their study with participants and gained informed consent, it was the researcher's expectation that most people who agreed to participate were willing and enjoyed sharing their experiences (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). The observations were announced and at times were utilized in subsequent interviews with the participants (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). The document analysis involved the educator's personal lesson plans and public or private websites and student learners' tasks, assignments, and/or work samples (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). The researcher asked for consent, took, and analyzed only documents willingly surrendered for the researcher's study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). The researcher acknowledged as primary instrument for the data collection, member checking was important in ensuring the data gathered and findings represented the experiences shared, seen, and read by the participants.

Issues of Trustworthiness

By engaging in purposeful sampling in this multisited, multiple case study, the researcher created greater variation and enhanced the generalizability of the study's findings (Merriam, 2009). To support trustworthiness, the researcher addressed the credibility, transferability, dependability, and confirmability of their study (Lincoln & Guba, 1985; see also Houghton, Casey, Shaw, & Murphy, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991).

Credibility. Credibility involved the researcher's implementation of research in a believable manner that demonstrated credibility (Houghton et al., 2013; Lincoln & Guba, 1985; Marshall & Rossman, 2006). The purposeful sampling, or boundaries and limitations of the study, and the rich, in-depth description of the data derived from the context and participants of the study should be convincing to the readers (Creswell, 2013; Merriam, 2009; Marshall & Rossman, 2006). As the researcher was the primary instrument of data collection and analysis in this study, the interpretations of the participants were accessed directly through the interviews, observations, and document analysis in this study (Merriam, 2009). To establish credibility in this study, peer debriefing, triangulation, and member checking (later described under confirmability) were consistently utilized by the researcher.

Peer debriefing. Peer debriefing involved exposing research gathered and analyzed in the study for peer review and answering the probing questions about the researcher's interpretations (Creswell, 2013; Houghton et al., 2013; Lincoln & Guba, 1985; Merriam, 2009; Yin, 2014). As peers were agreeable to the researcher's findings and interpretations, the research was deemed more credible (Creswell, 2013; Houghton et

al., 2013; Lincoln & Guba, 1985; Merriam, 2009; Yin, 2014). The researcher discussed findings with their committee chair and members and professional colleagues to decrease potential biases and enhance the credibility of this study.

Triangulation. The researcher established credibility and dependability in the study through triangulation, or the gathering of data from multiple sources to substantiate the research (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014). In this study, the researcher was afforded the opportunity to connect experiences shared by participants in in-depth interviews to what was seen through observations and read through documents in the participants' naturalistic setting, or context. Triangulation aided the researcher in creating a rich description of the context and experiences of the student learner and their educator in this study.

Transferability. Transferability involved the capability of the research findings to be transferred to another context or situation (Bloomberg & Volpe, 2012; Creswell, 2013; Houghton et al., 2013; Lincoln & Guba, 1985; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014). Marshall and Rossman (2006) and Merriam (2009) further explained that conducting a multiple case study; utilizing more than one data-gathering method, or triangulation; maximizing the variation in the research sample; and offering rich descriptions in the study help readers transfer their knowledge obtained to other situations. In this multisited, multiple case study, the researcher provided a rich, thick description of the context and participants of the study and detailed description of the findings from their triangulated data of interviews, observations, and documents (Marshall & Rossman, 2006; Merriam, 2009).

Dependability. Dependability involved the consistency between the findings reported by the researcher and the data collected (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014). As the social world was always being constructed and replication was problematic for qualitative studies (Marshall & Rossman, 2006), the main concern was in whether the results were consistent with data collected by the researcher (Merriam, 2009). Triangulation in this study by the conduction of three-series and in-depth interviews, observations, and document analysis also aided in ensuring the data and findings correlated (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014). Furthermore, the researcher consistently engaged in member checking and peer debriefing throughout this study to further increase dependability.

Confirmability. Confirmability was closely linked to dependability as both concepts referred to the neutrality in reporting and accuracy of the data and research findings (Bloomberg & Volpe, 2012; Creswell, 2013; Houghton et al., 2013; Lincoln & Guba, 1985; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014). The researcher engaged in triangulation in this study between the in-depth and three-interview series, observations, and document analysis to further confirm the accuracy of the data and findings. Additionally, the researcher engaged in member checks with their student learner and educator participants.

Member checks. Researchers strongly suggested the confirmation of findings by others (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). After conducting each interview, the researcher transcribed the interview and analyzed the data. This

information was shared with the participant to check for the consistency of what they said and what findings were being reported by the researcher. As this study concerned the participants' understandings of their experiences, it was vital for the researcher to accurately portray the research findings.

Delimitations and Limitations of the Study

Delimitations. To aid in providing better in-depth descriptions across the cases, the boundaries were limited to the E/LA content-specific settings of educators who utilized technology in their class instruction practices (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Seidman, 1991). The educator participants were chosen through the following educator participant criteria:

- Taught in the middle grades E/LA content area;

- Utilized, or promoted the utilization of, technology for content delivery or demonstration of mastery in his/her middle grades E/LA class instruction practices;

- Structured the classroom physically to guide and encourage social interaction and collaboration that promotes learner autonomy (Bednar et al., 1992; Coppola, 2004; Cunningham, 1992; Elkind, 1976; Fosnot, 1996; Hsu et al., 2014; Jarvis, 2005; Jacobs, 2010b, 2010c; Jonassen, 1991; Marshall, 1998; November, 2010b,2012; Oh & Reeves, 2014; Perkins, 1992; Piaget, 1970; Rakes et al., 2006; Sandholtz et al., 1996; Sheskey, 2010; Von Glasersfeld, 1996; Vygotsky, 1978);

- Created a positive learning environment through Differentiated Instruction practices (Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001;

Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson &

McTighe, 2006), as evidenced through his/her administration observations

and/or lesson plans that were inclusive of "high-quality curriculum,

assessment to inform educator decision making, and flexible classroom

management" (Tomlinson, & Imbeau, 2010, p. 13); and

- Learned and embraced effective ways to integrate technology and

  facilitated, coached, guided, and modeled technology integration and

  utilization of appropriate technology and media tools (Ally & Prieto-

  Blazquez, 2014; Baker, 2010; Deubel, 2003; Jonassen, 1991; November,

  2010b; Oh & Reeves, 2014; Prensky, 2010).

The researcher obtained three middle grades E/LA educators and their student learners.

The number of student learner participants varied as the researcher analyzed student

learner data to reach saturation (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln &

Guba, 1985; Marshall et al., 2013; Merriam, 2009; Seidman, 1991). The researcher

maximized variation in the samples through varying demographic middle schools of

northern Georgia counties to fully describe multiple perspectives that evolved into a

wider application scope to readers of this study (Bloomberg & Volpe, 2012; Creswell,

2013; Merriam, 2009; Seidman, 1991).

Limitations. As the researcher was the primary instrument in this qualitative

study, there were many possible limitations (Bloomberg & Volpe, 2012; Creswell, 2013;

Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). The qualitative

researcher may not have had the time or money to devote to the rich, in-depth

descriptions, triangulation of data necessary, and richness of data gathered (Bloomberg &

Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). As formal training in observation and interviewing did not occur for the researcher, her own instincts and abilities, review of literature, and qualitative coursework drove the research efforts (Merriam, 2009). The written product may be too lengthy or detailed and may not be inclusive of busy policymakers and practitioners, so the researcher had to remember to write to a varied audience (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). In addition to the researcher, the participants were also of concern. The sample size may have been affected by those willing to participate or those who may have illness or other factors that may have distracted them and affected the quality of data gathered (Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009).

In this study the researcher utilized in-depth and three-interview series, observations, and document analysis to triangulate data. In transcribing the data obtained, there could be errors (Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009). Member checking and peer debriefing aided in checking for accuracy of data obtained and reported. The researcher acknowledged the participant responses in interviews could have been affected by health, mood, and/or ulterior motives (Merriam, 2009; Seidman, 1991). The setting and interactions observed by the researcher may have led to a distortion of the data (Creswell, 2013; Merriam, 2009). Documents may include information which was unusable, not understandable, or may have been difficult to authenticate for the researcher (Creswell, 2013; Merriam, 2009). The researcher utilized member checking and peer debriefing aids to ensure the data obtained was as accurate as possible and triangulation to ensure the data obtained and findings match.

Synthesis of Methodology: Research Implications

This chapter provided a detailed overview of this qualitative research study. This multisited, multiple case study provided rich, detailed descriptions of how the utilization of technology in middle grades E/LA class instruction impacts the learning environment and student learners and their educators and how these experiences might impact learner autonomy. The researcher engaged in purposeful sampling and identified and selected three, middle grades E/LA potential educator participants across counties with varying demographics that utilized technology regularly in their class instruction practices (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam, 2009; Yin, 2014).

Data collection and analysis occurred simultaneously through the triangulation of in-depth and three-interview series, observations, and document analysis. The data were consistently transcribed, analyzed, and member checked before conducting each new round and case to ensure credibility, dependability, and confirmability. As themes emerged, the researcher engaged in member checks and peer debriefing to ensure confirmability. The rich descriptions and varying grade levels, within-case and cross-case analysis, and continual review of literature also increased transferability in this study. Interpretations and recommendations were offered by the researcher to educators and others whose decisions regarding professional development, instructional practice, and instructional resources influence the learning experiences of educators and their student learners.

Chapter IV

Findings I: Vignettes

Introduction

The purpose of this multisited, multiple case study was to describe how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. The researcher explored and depicted these experiences through observations of the learning environment; student in-depth interviews and three-interview series of educators; and an analysis of learning environment documents. This research sought to inform educators and others whose decisions regarding professional development, instructional practices, and instructional resources would influence the learning experiences for educators and their student learners.

The researcher in this qualitative study sought to answer the following research questions:

1. How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

2. How does the technology-based learning environment impact learner autonomy?

The researcher's focus in the study was informed by the conceptual framework and fell into four categories: contextual, demographic, perceptual, and theoretical (Bloomberg & Volpe, 2012). The following explains each category and its implications to this research study:

- Contextual: The educators identified were asked to build context as they shared their classroom learning environment with the researcher.

- Demographic: The educator participants' teaching experience and training and experiences related to educational technology were gathered. The student learner participants' learning experiences and training and experiences related to the utilization of educational technology were also gathered.

- Perceptual: The educator participants' roles and decision-making practices within their shared classroom learning environment were expressed. The researcher obtained information regarding the student participants' roles and decision making processes within their shared classroom environment.

- Theoretical: An ongoing review of the literature in regard to the student learner, the classroom learning environment, learner autonomy, multiple case study, and others as they emerged provided the theoretical basis for this study.

The narrative vignettes of the three educator participants are provided in this chapter, with each description reflecting the research findings related to the research questions of this multisited, multiple case study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Stake, 2005). To assess the researcher's findings and analysis, it was necessary to provide such an experience of each case (Merriam, 2009; Stake, 2005). Each narrative vignette, with pseudonyms utilized for all contexts and student learner and educator participants, provided findings of the educator participant demographic and contextual information, technology journey, and technology-based learning environment. Chapter V will present findings through a within-case and cross-case theme analysis.

Educator Participants

Three varying northern Georgia middle grades E/LA educators were chosen to participate in the study. Each participant was chosen through the following educator participant criteria:

- Taught in the middle grades E/LA content area;

- Utilized, or promoted the utilization of, technology for content delivery or demonstration of mastery in his/her middle grades E/LA class instruction practices;

- Structured the classroom physically to guide and encourage social interaction and collaboration that promoted learner autonomy (Bednar et al., 1992; Coppola, 2004; Cunningham, 1992; Elkind, 1976; Fosnot, 1996; Hsu et al., 2014; Jarvis, 2005; Jacobs, 2010b, 2010c; Jonassen, 1991; Marshall, 1998; November, 2010b,2012; Oh & Reeves, 2014; Perkins, 1992; Piaget, 1970; Rakes et al., 2006; Sandholtz et al., 1996; Sheskey, 2010; Von Glasersfeld, 1996; Vygotsky, 1978);

- Created a positive learning environment through Differentiated Instruction practices (Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001; Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006), as evidenced through his/her administration observations and/or lesson plans that were inclusive of "high-quality curriculum, assessment to inform educator decision making, and flexible classroom management" (Tomlinson, & Imbeau, 2010, p. 13); and

- Learned and embraced effective ways to integrate technology and

  facilitated, coached, guided, and modeled technology integration and

  utilization of appropriate technology and media tools (Ally & Prieto-

  Blazquez, 2014; Baker, 2010; Deubel, 2003; Jonassen, 1991; November,

  2010b; Oh & Reeves, 2014; Prensky, 2010).

The researcher maximized variation in the educator participant samples across a variety

of counties and grade levels to aid in the description of multiple perspectives that later

evolved into a wider application scope to readers of this study (Bloomberg & Volpe,

2012; Creswell, 2013; Merriam, 2009; Seidman, 1991). The findings shared were

obtained through: (a) in-depth interviews of student learner participants (Bloomberg &

Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam,

2009; Seidman, 1991); three-interview series of educator participants (Siedman, 1991);

observation checklists with field notes (Bloomberg & Volpe, 2012; Creswell, 2013;

Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014); and document

analysis of the educator's lesson plans and websites and/or online learning platforms and

student tasks, assignments, and work samples (Bloomberg & Volpe, 2012; Creswell,

2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). Presented

in Table 1 are the socioeconomic statuses and enrollment demographics of each educator

participant's school setting. The demographic and education experience of the educator

participants are presented in Table 2. The educator participants' grade level and

technology utilized in their learning environment are shared in Table 3. Pseudonyms

were utilized for all contexts and student learner and educator participants in these tables.

Table 1

County and School Socioeconomic Status and Enrollment Demographics

School/ Educator Participant/ Grade Level	Masters Academy/ Lynn Bailey/ Seventh Grade	Walsworth Academy/ Mallory Johnson/ Eighth Grade	Bronte Middle School/ Jane Atticus/ Sixth Grade
County Median Household Income	$50,853	$39,306	$86,569
School Free and Reduced Lunch Percentage	68.32	69.61	37.36
Grade Level Enrollment by Gender	Females: 200 Males: 208	Females: 67 Males: 69	Females: 206 Males: 211
Grade Level Enrollment by Ethnicity/Race	Hispanic: 248 Asian: 8 Black: 15 White:132 Two or More: 5	Hispanic: 57 Asian: 3 Black: 2 White: 69 Two or More: 5	Hispanic:129 Asian: 8 Black: 14 White: 253 Two or More: 13

Note. The table was created through the synthesis of each research case study's county from the United States Census Bureau's "median household income in 2009-2013" and the Georgia Department of Education's Data and Reporting "enrollment by grade level, ethnicity/race, gender" and "free and reduced price meal eligibility" (Georgia Department of Education, 2015a, 2015b; U.S. Census Bureau, 2014).

Table 2

Educator Participant Demographics and Education Experience

Educator Participant	Gender/Race	Highest Education Level	Years as Certified Educator
Lynn Bailey	Female/Caucasian	Specialist's Degree	22
Mallory Johnson	Female/Caucasian	Master's Degree	15
Jane Atticus	Female/Caucasian	Bachelor's Degree	5

Note. The school year in which the study was conducted was included in the number of years as certified educator.

Table 3

Technology Inventory of Educator and Student Learner Participants

Educator Participant	**Lynn Bailey**	**Mallory Johnson**	**Jane Atticus**
Instructional Computers	two tablets, student desktop, teacher laptop	seven student desktops, teacher laptop; for teacher checkout/sign up: one IPad cart (set of 25) and seven laptop carts (ranging between 15-20 laptops per cart) and has three computer labs for teacher sign-up	four student desktops, teacher laptop; for teacher checkout/sign up: four IPad carts (set of 15-30 per cart), thirteen laptop carts, and two computer labs
Peripheral Equipment	interactive TV display; media center has creation stations consisting of TV displays with connection capabilities	interactive whiteboard with projector that attaches to desktop; two sets of student response systems (32 per set) available for teacher checkout	interactive whiteboard with projector that attaches to teacher laptop
Personal Devices of Student Learner Participants	all students brought personally-preferred laptops, earbuds, and other supporting devices (smartphones, tablets, IPods/mp3 players)	administrators approve student devices for lessons: smartphones and IPods	county has a Bring Your Own Technology (BYOT) initiative; teacher sees smartphones and IPads in her classroom
Personal Devices of Educator Participants	IPad and smartphone	Smartphone	IPad and smartphone

Note. The technology presented in this table was observed by the researcher and/or referenced by the educator and student learner participants during their interviews.

Lynn Bailey. Lynn was a Caucasian, female educator with her Education

Specialist's Degree in Curriculum and Instruction. She began her career in the early

eighties as a social science high school teacher, and in the late nineties and early two

thousands transitioned into the middle grades E/LA setting. In her twenty-second year of teaching and position as seventh grade E/LA teacher at Masters Academy, she also sponsored the school's Student Leadership Team and Junior Thespian Troupe. She established relationships and communicated with her Troupe and other students through Instagram. She even provided her cell phone number and left it posted on her dry erase board for her students to text her when assistance was needed during the week. When conversing with Lynn, her desire to prepare kids for their future and enthusiasm for technology-based learning was always at the forefront of her conversations.

Lynn also shared her outside-of-school, technology-based preferences. Her IPad and smartphone's Audible account have been frequented to read a plethora of literature. She also viewed documentaries and a variety of entertaining shows through her Apple TV. She smiled as she expressed her passion for utilizing technology to further explore and document her family history.

Technology journey. Lynn's journey with technology began when she was first introduced to computers back in the late eighties. She reflected that since that encounter she quickly became labeled as the teacher who frequented the available technology. Only two computers were available in her first years of teaching. Shortly thereafter she ventured into an era of computer labs which afforded her opportunities to have her student learners engaged in web and presentation tools. She next integrated Microsoft PowerPoint and research skills into her lessons.

She then worked with a principal who divided the computers up from their school computer lab which placed nine computers into her E/LA classroom. Lynn turned them into stations which provided each learner a chance to experience the E/LA content

through the computers. When she realized her advanced learners had Internet access and computers at home around the 2004 school year, she created a website and posted all resources there.

Lynn stayed technologically current through her frequent review and integration of various Web 2.0 tools, presentation tools, digital tools, back channels, educational sites, collaborative tools, Google Drive, Kaizena voice feedback, and many others. When new technology arose in the county, she attended the professional development, was an early adopter, and shared the information with her colleagues.

Challenges with technology have also occurred for Lynn along the way. With her strong passion for technology, she acknowledged that not all kids she teaches shared that interest. She respected that interest and decided to offer other alternatives for such learners. The Internet was also not available to all learners at home, so the flipped classroom model was not fully embraced or implemented. She has also felt pressured to meet the demands of Common Core and expressed frustration that time has been limited in her integration preferences. She has struggled with the knowledge of the different world her student learners are going to face as they enter into college and wished more time could be allocated toward development of those 21st century skills. She has found the right balance for her classroom to aid in overcoming some of the obstacles faced.

Technology-based learning environment. Walking into Mrs. Bailey's room, it was apparent the action took place at the six tables with the four chairs surrounding each (see Figure 4). One container with materials lay in the middle of each table as the surrounding students were engaged in hushed conversations with each other, typing away on their personal laptops, and/or focused on their smartphones. Once greeted and engaged

in an informal conversation, the researcher was led to a space to place belongings at the two little tables in the front corner of the room by the window, Mrs. Bailey quickly finished taking homeroom attendance and began getting materials pulled up on her interactive TV for her first period E/LA class. She invited the researcher to walk around the room at her leisure.

The researcher gazed back at the classroom's entrance and began traveling around the room taking in the setting of the case study. To the right of the door and on the wall were the light switches, thermostat, and room telephone. Positioned along this wall were a trashcan, place to turn in work and work to be returned, extra copies of materials already given to students, and a collection of teacher materials. Above these items existed a large, touch screen TV display connected to Mrs. Bailey's laptop as one viewed the materials she pulled up for her first period. Mrs. Bailey later described this area as her "little technology section" and the small table behind her work station to "park her stuff". In the corner between the technology section and work station was a bookshelf, later shared to be the poetry and reference library. To the right of her work station was a dry erase board with the day's goals shared through "Today…" and "Tomorrow…" headings. To the right of this board was a table with a student desktop computer. In this corner two tables, which the researcher was directed to upon her entrance into the room, and a window were found. Beside these tables three over-sized bookshelves stood with numerous sets of varied novels exposed, later shared to be book club texts organized by E/LA curricular units one through four. Beside these bookshelves two more tables contained a calendar and various art supplies such as highlighters, markers, colored pencils, tape, sticky notes, and tissues. Bean bags and pillows with a decorative tree, later

referred to as "a little reading cubby corner", laid in this corner. Along the wall was a

bulletin board with a school schedule and upcoming events and E/LA content displayed

related to the current unit. Beneath the board, a table displayed current book club text

copies and another table was laden with nonfiction texts including newspapers and

nonfiction books, periodicals, and magazines. A cabinet for storage of materials and

personal belongings were found in this corner by the door entered in previously. Mrs.

Bailey remarked the room was structured as such so "everything's accessible to the

students easily" as it's "organized in a real logical way, where it's kid-friendly" and the

tables were preferred "to desks for grouping purposes". Figure 4 provides the observed

physical structure of Lynn Bailey's learning environment.
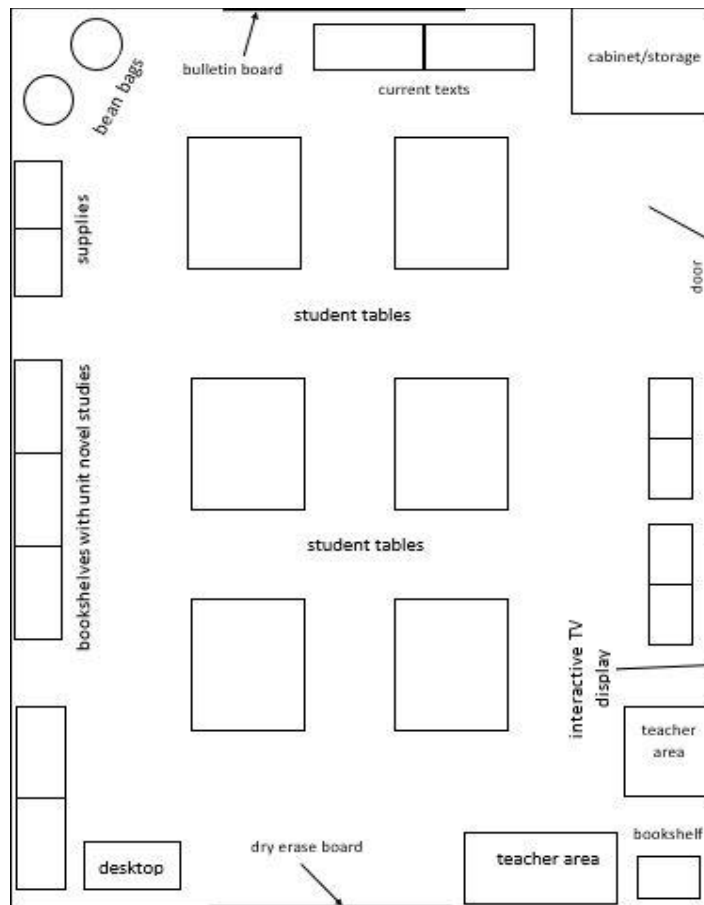
Figure 4. Physical learning environment of Lynn Bailey.

As the students transitioned into first period, they entered, quickly took out their technological devices, and read varied texts either digitally or through printed copies. After a few minutes Mrs. Bailey stated, "Ears" to which the students replied in unison as they found a stopping point and turned their bodies to face her, "Open, Ma'am." With full attention on her, Mrs. Bailey shared the goals for the day while walking toward the prepared materials displayed on the interactive TV screen. Students were referred to their Quest Project Rubric located in the container in the middle of their tables and were given a few quick reminders of task expectations. The students then actively engaged with their educator as she facilitated discussion about how to appropriately utilize various search engine techniques to maximize their potential for finding valuable references for their assigned task. After answering a few questions, students were reminded they could spread out and begin working on their project. Some students went into their study room adjacent to the classroom, a few went to the media center, and the others remained in the classroom. Immediately students began pecking at their keys, stopping only to discuss areas in which they were stuck and/or needed support from a peer. Mrs. Bailey then rotated around these three student-chosen work sites, checked on learner progress, and continually looked at her phone to make sure no students in the other sites were texting her questions. Most students remarked they were fine and continued to independently work on their assignment. Group/partner discussions were focused in nature as they sought affirmation in their progress, questioned each other's work, and referred to their rubric to ensure their responses were complete in nature. One student entered the classroom and shared with Mrs. Bailey, "We're in a dispute about…" and became real hushed in her tone aware of the listening ears around. It seemed that right after this

conference, the student learners were packing their belongings and headed out the door as Mrs. Bailey reminded students to view her webpage and [county program] to make sure various assignments were completed and turned in to her.

Further triangulation of data recounted the same class routine and sort of interactions between the educator and student learners. The first minutes of class were dedicated as time for students to read self-chosen novels based on their individual readiness and interest or nonfiction texts available. The next ten to fifteen minutes of class were designated for focused, mini-lesson skills related to the work sessions that followed. These mini-lessons typically involved modeling through the interactive TV display and students sharing their thoughts on various questions posed by the educator. She would also refer to their county online learning platform. Here she would posts assignments and their due dates. Students were encouraged to post their finished assignments on this site. The work sessions involved the educator and students utilizing combinations of preferred Web 2.0 tools (i.e., Storyboard That, Live Binders), presentation tools (i.e., Prezi, Microsoft PowerPoint), back channels (i.e., TodaysMeet), collaboration tools (i.e., Google Docs, Kaizena voice feedback, creation stations in media center), mashups (i.e., Popcorn Maker), communication tools (smartphone and texting between teacher and student learners) and other various preferred technology tools. Mrs. Bailey set the criteria, let learners create and demonstrate their understandings of the E/LA content, and was mobile throughout the rooms scaffolding for student learners as needed throughout the day's learning task. During this time student learners were often focused on completing the assignment and spoke to each other only when asking a direct question related to the task at hand. Others broke into deep conversations and challenged

each other on differing perspectives to a question posed in the task criteria set forth by Mrs. Bailey. When asking Mrs. Bailey for guidance, she responded based on the need of the student. At times she challenged the thinking of the learner and with others utilized guided questioning techniques and/or think aloud modeling strategies to help the student learner reach the desired conclusion. Class typically ended with short closure of the day's activities and reminders of the next day's expectations. Students were also directed to their county online learning platform for materials, assignments, and a calendar with their due dates. Students quickly gathered their belongings and headed to their next class. Mrs. Bailey was observed checking in with students on their progress as they exited to the room and cleaned various work areas.

Mallory Johnson. Mallory was a Caucasian, female educator with her Master's Degree in Physical Education with an emphasis in Coaching (and Bachelor's Degree in Special Education P-12). She began her teaching career and taught for several years as a special education educator in the middle grades setting at Walsworth Academy. Mallory then transitioned to a different school in the county into a sixth grade E/LA instructional setting. After several years, she then shifted back to Walsworth Academy in a sixth grade E/LA teacher position for a couple of years, and then advanced to the eighth grade E/LA opportunity for the 2014-2015 school year. Common Core curriculum, vertical collaboration and planning, SuccessMaker®, TKES, Write to Learn®, school improvement, literacy collaboration, standards-based classroom, rigorous writing, document-based questioning (DBQ) techniques, Thinking Maps, and co-teaching in the least restrictive environment are just a few of the many continued professional learning topics she had chosen to add to her educational repertoire.

Mallory also utilized technology outside of school. She sought quick-needed answers on the Internet through her laptop, smartphone, or the IPod or IPad belonging to her sons. Several preferred apps are frequented on those devices during her free time as well. Time outside of school has also been spent providing students with feedback to their submitted assignments on Google Drive. Learners with Internet access at home were given additional practice or extra credit opportunities through Study Island and Google Docs.

Technology journey. Mallory began her technology journey through PowerPoints utilized to deliver content to her learners. In building relationships with her students, she felt the desire and need to bring in more technology to her instructional practices. As she had always been willing to learn new things to use with her learners, she quickly sought support from her media specialist and other computer savvy colleagues. A system leader provided further technology training opportunities during her planning. Opportunities were also afforded by her administration for additional trainings/support desired and the ability for teachers to submit planned lessons for administration approval regarding student use of personal technological devices during instruction.

Through these professional development opportunities, Mallory gained new technology-based tool knowledge designed to reach her varied learners. In addition to PowerPoint being utilized to teach new concepts, movie clips from Brain Pop and WingClips were additionally utilized. A writing program, Write to Learn®, provided opportunities for learners to submit prompted writing samples and receive immediate feedback. Google Drive was implemented in eighth grade, rather than Edmodo which was preferred in sixth grade, as students created an annotated bibliography, sent their

documents to her, and she provided immediate feedback, corrected, and typed responses in the margins. The home accessibility of this technology tool was an added bonus for learners who got behind on their task.

      Technology-based learning environment. Mrs. Johnson warmly greeted the researcher, asked about the morning travels of the researcher, and then brought her to a table near her work area. While engaged in conversation, the researcher noticed lamps illuminated the dimmed room, and a diffuser had been responsible for the calming fragrance released into the air. A bell tone sounded as Mrs. Johnson shared her homeroom students would soon enter, offered the researcher lesson plans and artifacts of what she would soon observe, and began greeting students as they calmly entered the room. Several students engaged in personal conversations with their educator regarding their family members, others shared various successes with her, and a few asked varied questions in regard to assigned tasks. Mrs. Johnson maintained a calming demeanor, smiled, and was fully consumed in each individual's conversation. During the established homeroom routine, the researcher observed the physical structure of the room and sketched the layout on a sheet of paper (see Figure 5).

      Looking at the room's entrance, the researcher began traveling to the right around the room. To the right of the door were thirty cubbies positioned on the wall which contained the following various E/LA resources: grammar texts, thesauruses, dictionaries, MLA Handbooks, journals, and student work samples. A four-drawered storage container, filing cabinet, storage cabinet, and educator desk were positioned in the corner of the room beside the cubbies. Along the wall and in front of the teacher's desk were six desktop computers for student learner use. In the corner of the room next to these

computers, were two smaller bookshelves with varied texts. Across the front of the room was a dry erase board with an Interactive board positioned in the middle. The date, standards to be addressed, essential questions for the day, and the day's agenda were all written on the dry erase board to the left of an Interactive board. Posters supporting the E/LA content being addressed were placed to the right of the Interactive board. The next corner of the room consisted of a desk with a desktop computer and other various cords and equipment to operate the Interactive board. The calming diffuser's light changed colors as the calming scent was released. Next to this area was a bulletin board where the unit's focus and supporting materials were displayed for each academic period. Beside this bulletin board was a smaller one displaying rigorous examples of completed tasks. In the final corner by the classroom door were several bookshelves with varied texts for student learners to read at their leisure. Six rectangular tables, with two chairs on each long side, were placed in the front and middle areas of the classroom. A table was positioned in the back of the room near the educator's desk. This table was utilized for placing daily materials to hand out and to place items gathered from student learners for feedback/grading. Mrs. Johnson shared her organizational skills, wanting to maximize learning through outlined expectations on the board, and seating designated for group, partner, and individual work were reasons expressed for the observed physical learning environment. Figure 5 was created through the observed physical structure of Mallory Johnson's learning environment.
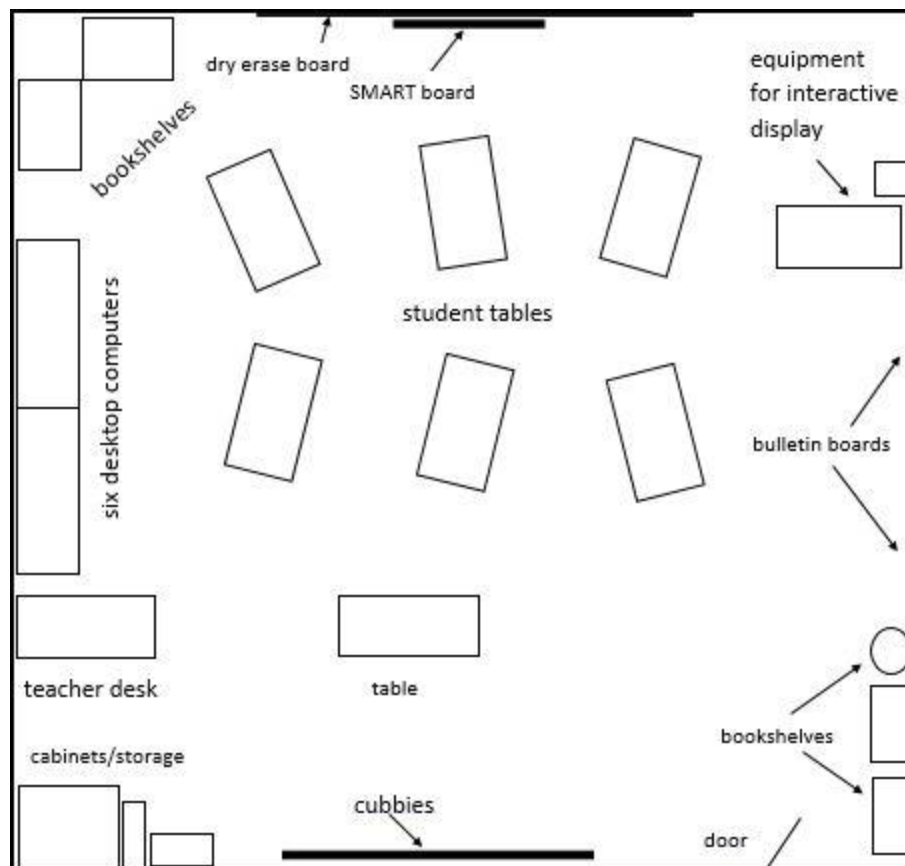
Figure 5. Physical learning environment of Mallory Johnson.

As it was time for the period to begin, students rose from their seats and lined up

at the door. Mrs. Johnson pointed to the agenda for the day and reminded students that as

they worked through SuccessMaker®, a personalized courseware utilized to differentiate

Common Core content mastery for all of her learners, they needed to document scores on

their SuccessMaker® Performance Tracker spreadsheet. The gains made would be

discussed at the end of the class session. Students quietly went down the hall, entered the

computer lab, pulled up SuccessMaker®, and began working. During this twenty minute

period, the educator walked around the room from time to time to check student progress.

A few students raised their hands in the beginning of the session as they sought

reassurance they were in the right place and/or completing the correct task. After a few

minutes only clicks and the peck of keys were heard, other than the occasional enthusiastic sharing of scores obtained with peers and/or Mrs. Johnson. At the end of the session, students were reminded to write down their scores and went through known routines of logging out of the program, lining up, and going back to the classroom. As students resettled into their groups, Mrs. Johnson reminded students about gain expectations. A few students shared out loud to the whole class their exciting gains, others shared to a peer at their table, and all put their sheets away.

Before moving on, students asked Mrs. Johnson about a grade-level, homeroom activity in regard to superlatives. Their educator thanked them for reminding her to pass out the ballots, gave instructions and reminders on what to do, and then gave the students their ballots and a few minutes to work on them. While students worked on their ballots, most collaboratively, a few students asked for Mrs. Johnson's opinions. She replied with guided questions and a few students would state the names they felt everyone should write. Much laughter filled the room's walls as students shared and wrote their thoughts. After a few minutes, Mrs. Bailey shared they needed to move on to plot diagrams and return the ballots at some point during the school day.

Mrs. Johnson then transitioned to the referenced material on the board and took students back through the week's activities regarding plot diagram. Reminders were first given about their guided lesson which involved their completion of a plot diagram as a class through the use of the Interactive board and dry erase board. Students then progressed by completing a plot diagram together in groups identified by readiness with Mrs. Johnson supporting learners as needed. The task at hand involved students demonstrating their individual understanding of plot diagram with support from peers or

teacher as needed. While students independently worked, Mrs. Johnson moved from table to table questioning the thinking process of certain students. She then asked students to reach a good stopping point and they would complete the activity during their next class together. Students gathered their belongings and exited the room. As they exited, several students spoke to Mrs. Johnson regarding school activities coming up, shared how much work they accomplished, and/or asked clarification questions of the task expectations.

Further triangulation of data reported the same class routine was followed and the same sort of interactions previously shared between the educator and her student learners. As students entered, pleasantries were exchanged between the student learners and their educator. Many students looked at the agenda on the board and took out needed materials accordingly. The next ten to fifteen minutes of class consisted of whole group conversations and reminders in preparation for the work sessions that followed. The educator and student learners shared their thoughts on various questions posed and/or reminders of previous lessons referenced in the discussion. Many references were made by the student learners and educator to activities completed together through the utilization of the Interactive board, documents, charts displayed on the bulletin board, and/or information displayed on the dry erase board. The work sessions involved criteria for the task being shared by Mrs. Johnson, students' demonstration of the identified E/LA content standard through technology or on paper documents, and the educator's mobility throughout the room scaffolding for student learners as needed throughout their task. During this time student learners were often focused on completing the tasks and spoke to each other only when asking a question related to the task at hand, checked to make sure they had completed the work correctly, or shared their progress. When asking Mrs.

Johnson for guidance, she responded based on the need of the student. At times she would utilize think aloud modeling strategies and reference previously completed work displayed on the board or bulletin board to help the student learner reach the desired response. Class typically ended with short closure of the day's activities and reminders of the next day's expectations. Students gathered their belongings, shared pleasantries with their peers and Mrs. Johnson, and headed to their next class. Mrs. Johnson would then share and gather additional documents that supported various referenced materials throughout the lesson or by student learners.

Jane Atticus. Jane was a Caucasian, female educator with her Bachelor's Degree in Middle Grades Education. She began her teaching career and taught for two years in a private, elementary school setting. Jane then transitioned to a public, middle school setting. She was in her third year of teaching in the sixth grade E/LA instructional setting at Bronte Middle School. In addition to her teaching, she had engaged in professional learning opportunities through instructional technology personnel, Promethean's ClassFlow software, and her county's online learning platform. Emails from her school's instructional technology personnel frequented Jane's inbox of apps to explore at will. Jane created lessons for teachers to access through Promethean's ClassFlow software, and she was asked by her county to compile lesson plan ideas and resources through her county's online learning platform to be accessed and utilized by educators should inclement weather occur.

Outside of school, Edutopia, PBS, and YouTube are most utilized through Jane's Internet access. Jane sought professional articles related to apps or technology tools

utilized by other E/LA educators through Edutopia and PBS. YouTube was accessed for entertainment purposes, as well as learning clips for her learners.

 Technology journey. Jane's technology journey as an educator began when she transitioned from a private elementary school setting where technology was not available and the curriculum was dictated to the public middle school setting where technology was available and she taught the Common Core Georgia Performance Standards. Her first year at Bronte Middle School was a huge transition in which she ventured out; trying a website here and there. Jane's advanced class was given little bits of technology here and there as she learned and tried to incorporate more technology into her instructional practices. The following year she had a group of learners who were very dependent on her. Although she tried to incorporate more technology, the high level of dependence was frustrating for the student learners and her. As she reevaluated her instructional integration, she thought her learners needed to be more independent. She attended a professional development provided by the county technology leader regarding the idea of the flipped classroom, or the idea of kids doing lessons at home and coming into the school with the lesson's knowledge. In trying new things for the 2014-2015 school year, she wanted to take the idea of the flipped classroom in which lessons would be provided for learners to view at home, and then time would be spent in school reinforcing those skills. Unfortunately all of her learners did not have the technology/Internet available at home to access the information, so Jane incorporated the idea within her classroom setting. She created lessons with notes being provided to learners through either a video or pdf file online, followed by an activity based on those notes. These lessons were uploaded for her learners to complete through their county's online learning platform.

Technology-based learning environment. Intently focused on the screen of her laptop, Ms. Atticus diverted her attention and warmly greeted the researcher and directed her to a table and student desk near her work area. Ms. Atticus shared the majority of her classes included co-teachers to help various learners access the general education curriculum, so this table was designated as their desk. Ms. Atticus and the researcher then conversed regarding the research case study process and the day's lesson to be observed, and conducted the first interview. After the interview concluded, students entered for homeroom and first period. Ms. Atticus conversed with her learners as the researcher explored and sketched the layout of the classroom (see Figure 6).

On the wall outside of the classroom was a dry erase board, later shared by a student learner to communicate additional supplies needed for the day or class reminders. Walking through the door, on the right was hand sanitizer. Following along this wall were a bulletin board with designated absent folders containing the work missed by absent learners for each day of the week, writing rule posters, and school schedule and rules. Then located in this front and right corner of the room was a lamp and bookshelf of grammar texts and fiction chapter books. Across the front wall was a dry erase board with an interactive board. On the dry erase board to the left of the interactive board were sections titled "Today we will do…", "Today is…", and numbered steps of the class itinerary for the day. On the right side of the dry erase board were sections titled "Notes", "Agenda", and "Assignments". Located in the front and left corner of the room was another lamp and a bookshelf containing student materials, colored by class drawers for returned work, and grade level literature textbooks. Lined against the adjacent wall were four student desktop computers. Next to the computers were filing cabinets, the teacher's

desk, a window, and a clock. In this back corner were a closet for storage, desk

designated for Ms. Atticus's co-teachers, and lamp. The main floor space of the

classroom consisted of thirty desks placed in four evenly spaced groups of eight. Ms.

Atticus shared "access and visibility for them actually to know that I am here" was the

reason her room was structured in this manner. Figure 6 was drafted through the observed

physical structure of Jane Atticus's learning environment.
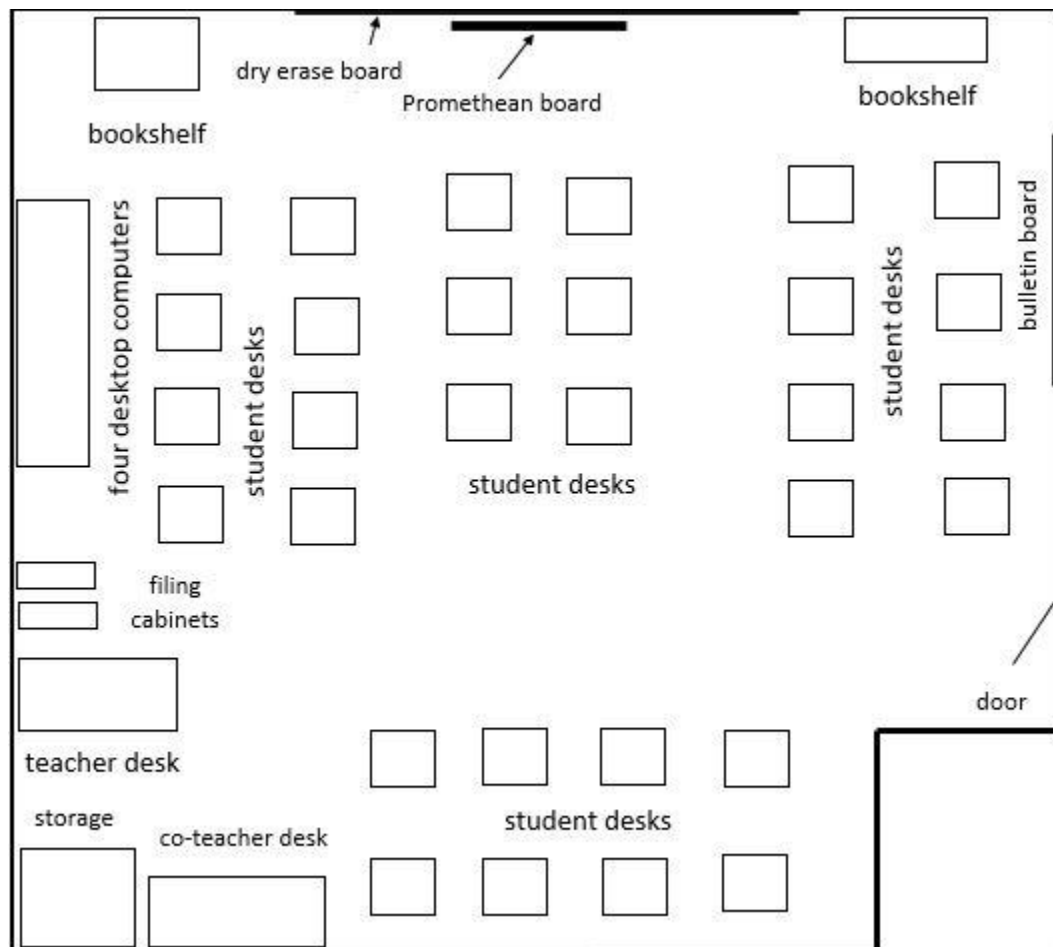
Figure 6. Physical learning environment of Jane Atticus.

As it was time for the period to begin, students were asked to take out their

pronoun notes and either take out their own electronic device or acquire an IPad from the

cart located in the front of the room. The co-teacher assisted learners as they located their

sheets and obtained their IPad/personal device. While devices were powered on, Ms.

Atticus referenced the pronoun sheet and county's learning platform as she reinforced

expectations of the assignment they continued from the previous class day. Students then

independently worked on their sheets and utilized peer support through partners or small

groups as needed to accomplish their tasks. Some learners completed their task

independently with an occasional question asked of a peer or the teacher, other learners

worked with partners through the entire task, and one group of homogeneous learners

worked with their co-teacher throughout the entire task. Ms. Atticus rotated throughout

the classroom and supported learners as needed. She modeled again for those needing

additional support, checked the progress of others, answered questions regarding various

portions of the task, provided technical support with technology glitches, provided guided

instruction, questioned the thinking of learners who asked if they completed the task

correctly, and addressed misconceptions. All student learners were in different places in

regard to completion of the task, which Ms. Atticus easily saw through observation of the

pronoun sheets and progress indicated on the quiz scores displayed at her desk on her

computer screen. Students scoring low several times were conferenced with to determine

and accommodate their individual learning needs. At the end of class, she shared students

would have additional time to keep working on this assignment. Students were viewed

putting their sheets and devices away. Several students shared successes with their peers

and a few students shared their success with Ms. Atticus. After the students left, Ms.

Atticus quickly prepared for the next class that entered the room.

Further triangulation of data conveyed the same class routine was followed and

similar interactions occurred between the educator and student learners. As students

entered the classroom, they looked to the board and took out materials accordingly. Students wrote their responses to the daily grammar practice displayed on the interactive board and waited to go over the answers. Ms. Atticus facilitated the discussion as students shared their responses and rationale for their choices. Responses were occasionally challenged by a peer or Ms. Atticus. At times misconceptions were shared and addressed and at other times students articulated the exact rationale needed for the correct response. The next ten to fifteen minutes of class consisted of whole group conversations and reminders in preparation for the work sessions that followed. The educator provided focused instruction and student learners were invited to share their thoughts on various questions posed by Ms. Atticus. Many references were made by the student learners and educator to activities completed through the utilization of the county's online learning platform. The work sessions involved the task being shared by Ms. Atticus, students' demonstration of the identified E/LA content standard through the learning task assigned, and the educator's mobility throughout the room scaffolding for student learners as needed throughout their task completion. During this time student learners completed the tasks and spoke to each other only when asking a question related to the task at hand, checked to make sure they were completing the work correctly, or shared their progress. Ms. Atticus observed the progress of all learners, answered questions asked by learners, checked progress through quiz scores displayed on her laptop screen and conferenced with students consistently scoring low, and provided guided lessons to students as needed. Class typically ended with short closure of the day's activities and reminders of upcoming expectations. Students gathered their belongings, shared successes or various experiences with their peers during the task

completion with their peers and/or Ms. Atticus, and headed to their next class. Ms. Atticus then shared additional commentary with the observer regarding various referenced materials, provided insights to various learner experiences, and/or shared reflections of the day's task and learner progress.

Synthesis of Vignette Findings: Research Implications

This chapter provided insight into the three varying northern Georgia middle grades E/LA educator participants determined through criteria inclusive of their technology-based learning environment. Each educator participants' socioeconomic statuses and enrollment demographics of the school, demographic and education experience, and grade level and technology utilized in the classroom learning environment were provided. Narrative vignettes provided a glimpse into the educational experience, technology journey, and technology-based learning environment of Lynn Bailey, Mallory Johnson, and Jane Atticus. The following chapter presents a within-case and cross-case theme analysis through obtained observations of the learning environments; student in-depth interviews and three-interview series of educators; and an analysis of learning environment documents (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014).

Chapter V

Findings II: Within-Case and Cross-Case Theme Analysis

Introduction

The purpose of this multisited, multiple case study is to describe how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. In the middle grades E/LA learning environments of Lynn Bailey, Mallory Johnson, and Jane Atticus, the researcher conducted: (a) in-depth interviews of student learner participants (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam, 2009; Seidman, 1991); three-interview series of educator participants (Siedman, 1991); observation checklists with field notes (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014); and document analysis of the educator's lesson plans and websites and/or online learning platforms and student tasks, assignments, and work samples (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014).

Building upon the narrative vignettes of Chapter IV, additional thematic findings within the cases and across the cases specific to the research questions explored in this qualitative study are presented in Chapter V. Pseudonyms were utilized for all contexts and student learner and educator participants in the within-case and cross-case theme analysis presented in this chapter.

The researcher sought to answer the following research questions:

1. How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

2. How does the technology-based learning environment impact learner autonomy?

Data analysis involved the researcher's interpretation of what was said by the student learners in their in-depth interviews and educator participants in their three-interview series, observed in the naturalistic setting of the participants, and examined in the document analysis of this study (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014). The researcher moved between inductive and deductive reasoning to constitute the findings in this study through the formation of organized themes (Merriam, 2009). The researcher followed this data analysis order: (a) immersed herself in, reread, and examined the data obtained; (b) identified text most directly related to the research questions of this study; (c) generated categories and coded within the data (see Appendices I and J); (d) generated data summary tables (see Appendix L); (e) identified themes and patterns from this data (see Appendix M); and (f) presented the findings of the study (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall and Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). The researcher analyzed data gathered through a within-case and across-case theme analysis to further develop naturalistic generalizations people can learn for themselves or to apply to other situations (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014).

Findings related to research questions and previous research, revision of assumptions, implications for future practices and policies, limitations of findings, conclusion, and recommendations for future research are included in Chapter VI.

Within-Case Theme Analysis

The narrative vignettes in Chapter IV provided a glimpse into the educational experience, technology journey, and technology-based learning environment of Lynn Bailey, Mallory Johnson, and Jane Atticus. The data obtained from each case of this study were reviewed in relation to the themes: accessibility to resources, best practices in instructional decision making, and active and engaged participants in the learning process. The cross-case theme analysis drew similarities and differences across the cases (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). Pseudonyms were utilized for all contexts and student learner and educator participants in the cross-case theme analysis.

Lynn Bailey: Accessibility to resources. The learning environment structure was "organized in logical way" where "everything's accessible to the students easily" (Lynn Bailey, October 23, 2014). It was helpful to know all E/LA materials were located in the classroom, there was visibility of the teacher, and the table arrangements aided in collaboration with peers on various projects (Bill, November 6, 2014; Periwinkle, October 30, 2014). In addition to the physical constructs, student learners had access to their daily choice of self-provided laptops, tablets, smartphones, and/or other technology tools. Masters Academy's wireless network access provided needed Internet and access to Web 2.0 tools, presentation tools, collaboration tools, and the county's online learning platform. "It was very valuable for them to have their computers and the search engines

available just at their fingertips" (Lynn Bailey, October 30, 2014). With a new

technology tool or two introduced each week by Mrs. Bailey (Bill, November 6, 2014),

they could "just have so many tools in their toolbox when they leave here" (Lynn Bailey,

November 18, 2014).

Students' (Bill, November 6, 2014; Periwinkle, October 30, 2014) shared access

to the county online learning platform and collaboration through Google Drive aided their

access to the E/LA content and their peers and educator. Students worked at their own

pace and could "…all work on it together and from different places" (Periwinkle, October

30, 2014).

> With the Google Drive and technology, our teacher usually posts the assignments
>
> or lessons online. We can download those and show our friends and review with
>
> them what she taught us and we can also help them if they weren't there in class
>
> that day. We have the documents that we can give them. (Bill, November 6, 2014)

Access at different places also included access to their teacher. "With [county online

learning platform] we can talk to our teachers instead of waiting 'til the next day to talk at

school if we're confused about an assignment" (Bill, November 6, 2014). Mrs. Bailey

even shared her personal phone number with students for texting questions. "…I'm just a

text away of answering a question. At home I do return my emails, but still some kids just

find it so cool to text a teacher, that they tend to ask more questions that way" (Lynn

Bailey, October 30, 2014). Days when Mrs. Bailey accrued an absence were not wasted

as student assignments were uploaded onto their county online learning platform.

Accessibility was provided within and outside the classroom through materials and

technology tools, collaboration with peers, and educator assistance.

Lynn Bailey: Best practices in instructional decision making. "…I'm always thinking about where we're going with this. What's the point and purpose" (Lynn Bailey, November 18, 2014). Learning tasks/assignments were generated with student passions and interests, readiness, and the content standards in mind. Mrs. Bailey scaffolded learning through mini-lessons and conferences held with student learners. "…that lead them and help them gain the skills in order to be able to complete the performance tasks" (Lynn Bailey, November 18, 2014). Mentor examples shared by Mrs. Bailey through mini-lessons provided clear understanding of task expectations. With certain criteria/guidelines set, flexibility occurred through learner readiness and interest and technology-based collaboration and demonstration of content mastery (Bill, November 6, 2014; Periwinkle, October 30, 2014; Lynn Bailey, November 18, 2014).

Mrs. Bailey's knowledge of Digital Natives further influenced her instructional decision making. Being Digital Natives and having increased technology availability, she felt called to "…look at the world that these students will face" and "get them ready for that world. And that world involves a lot of technology" (Lynn Bailey, October 23, 2014). As technology was utilized in her instructional decision making, Mrs. Bailey frequently evaluated learning tasks to ensure their authenticity (November 18, 2014). "…if the content isn't there and authentic learning hasn't occurred, then technology is worthless" (Lynn Bailey, November 18, 2014). "…there are multiple ways you could use the technology to learn the content, such as the different projects. Everyone can do a different thing. There is a right way in that it has to be done correctly to match the standard" (Bill, November 6, 2014). Technology was also utilized to provide feedback to learners as she could have "…thirty conferences at one time because every child is sitting

at their desk with ear buds in listening to my feedback instead of my running around like a crazy person trying to help thirty kids" (Lynn Bailey, November 18, 2014). The accessibility to resources and best practices in instructional decision making further enhanced the learning process of her Digital Natives.

Lynn Bailey: Active and engaged participants in the learning process.

"Technology isn't intimidating to them. It's their world, so I think they become much more engaged when they can use technology to present, but also to communicate" (Lynn Bailey, October 30, 2014). The element of choice helped varied dependent and interdependent learners "…really get out there and explore different options, and I feel like they'll go into high school and college just having a knowledge of the tools available which is important" (Lynn Bailey, November 18, 2014).

> They know where to find things and become very independent. Sometimes they give me a look of 'I've got this', 'You don't need to come over here', 'I can do this by myself', and 'You don't need to come over here because I've got all the tools. Everything's here for me and what you haven't given me I know where to find it.' And so they do not need me as much. Sometimes that can be a little sad because sometimes they can give me that look a lot of 'Get away from me. I don't need you'. (Lynn Bailey, November 18, 2014)

Social interaction and collaboration also led to active and engaged participants in the learning process.

Mrs. Bailey structured the classroom to provide accessibility to resources inside and outside of the classroom and varied opportunities for collaboration. "That lets you all work on it together and from different places" (Periwinkle, October 30, 2014) and

"…collaborate if we're in groups like with Google Drive and [county online learning platform]" (Bill, November 6, 2014). Although given collaborative freedoms with peers and educator, it was noted there were times of no collaboration to "see that they have this skill" independently (Lynn Bailey, November 18, 2014) or "…to show that we can do it on our own" (Periwinkle, October 30, 2014). This learning process afforded opportunities for student learners to explore, learn, and share with each other "…new things that you never knew about technology and language arts" (Bill, November 6, 2014).

Mallory Johnson: Accessibility to resources. The classroom was organized to easily know where things were located (Caleb, December 15, 2014; Lauren, December 15, 2014), including their educator. "…If I raise my hand, she'll be able to see me raise my hand so that I can ask her a question" (Caleb, December 15, 2014). Mrs. Johnson automatically grouped learners in tables to encourage social interaction and collaboration (December 12, 2014; January 14, 2015). When questions arose, they ask their "...neighbor… [as] we can just easily do it by how [the tables] are arranged" (Sarah, December 15, 2014). In addition to how the room was structured, they had access to E/LA materials available in the room, an interactive white board, student desktops, computer lab, and tablet/laptop carts. "These sources have ways for me to find what I need—what information I need" and on "the laptops you can use different search engines" (Caleb, December 15, 2014).

In addition to Internet search engines, Google Drive, Write to Learn®, and Success Maker® are technology tools utilized inside this E/LA classroom. Google Drive was utilized to submit writings to Mrs. Johnson and this tool "…will continue to follow them from high school to college" (Mallory Johnson, January 14, 2015). The program

Write to Learn® provided student learners with prompts, they submitted their writings, and the program provided immediate feedback. Success Maker® provided opportunities to work on skills and concepts at their independent pace and "...if they continue to get a certain concept that they're not understanding, the computer's going to give it to them a variety of ways" (Mallory Johnson, January 14, 2015). In addition to these tools utilized in school, Mrs. Johnson has provided opportunities to learn outside of the classroom through Google Drive and Study Island.

Google Drive and Study Island primarily provided extra credit opportunities and offered a way to catch up absent/behind students. "If I know that a student is behind, that is an option for them to be able to type their writings in [the Google Drive] and share it with me" (Mallory Johnson, December 15, 2014). "…That's one great thing I've enjoyed doing with them this year because they can get that anywhere" (Mallory Johnson, December 12, 2014). The accessibility to resources inside and outside of school influenced Mallory Johnson's instructional decision making.

Mallory Johnson: Best practices in instructional decision making. "I feel like if I want to maximize learning the kids need to know what to expect even in eighth grade" (Mallory Johnson, December 12, 2014), so posted on the board daily are the E/LA standards and essential questions in kid-friendly language and an agenda for the day (Mallory Johnson, December 12, 2014; Lauren, December 15, 2014). "Most of the time I set the criteria you know that this is your task, this is your assignment, and this is the amount of time you have" (Mallory Johnson, January 14, 2015). Further expectations are displayed by Mrs. Johnson through student exemplars posted on the "Walsworth Rigor"

bulletin board. With clear criteria and guidelines expressed, Mrs. Johnson then provided scaffolding techniques to support learners as they worked towards mastery of the content.

Relationships built with students and progress towards content mastery provided insight into the students' readiness and learning styles. Lessons were differentiated through scaffolding and grouping techniques "…where I guess you could say the students who learn faster are in that group or sometimes she splits us" (Sarah, December 15, 2014). New concept explorations "start as a whole class, we discuss, and then we branch off" into groups, partners, and individuals (Mallory Johnson, January 14, 2015). When collaborative groups completed tasks, student understanding was determined through reports back to the class or the educator "going around listening to different conversations in the groups" (Mallory Johnson, January 14, 2015).

Technology further aided content delivery and student learner demonstration of content mastery through educator consideration of the "...best way to give my students this information", "learning styles" of learners, "research-based" tool, and student "choice on assignments" (Mallory Johnson, January 14, 2015). An example shared by Mrs. Johnson involved utilizing the interactive white board to pull up lessons where students revealed misconceptions or other issues in their content understanding. Success Maker® afforded Mrs. Johnson the opportunity to pull up a lesson and go over the concept/skill as a whole class and address questions throughout the lesson. After completed tasks are reported on Success Maker®, gains and weaknesses are reviewed by the educator. Mrs. Johnson "…can actually go into the program and set them up an additional kind of like independent study on those areas where they can actually just be looking and working on what they need to be working on" (December 15, 2014). The

accessibility of resources and best practices in instructional decision making further enhanced the learning process of student learner participants.

Mallory Johnson: Active and engaged participants in the learning process.

"…It goes back to that comfort—that comfort of knowing how to use technology" (Mallory Johnson, January 14, 2015). Mrs. Johnson found the technology kept kids more engaged and confident as they interacted with technology (January 14, 2015). "…if it's technology I guess it would be more engaging" (Sarah, December 15, 2014). Mrs. Johnson acknowledged the varying degrees of technology comfort as well as the importance of encouraging social interaction and collaboration.

Collaborative choices further supported their interdependent and dependent learning states as students generally completed work independently, but socially interacted and collaborated when assistance was needed. The social interaction and collaboration helped "…us learn together like what's going on… and [with] doing our work better" (Lauren, December 15, 2014). "If we can't find something, we can ask someone at our table…" (Caleb, December 15, 2014) and "...we help each other if we don't understand things or we might ask the teacher or something" (Lauren, December 15, 2014). In areas of strength, students sought social interaction opportunities to share their knowledge with peers (Sarah, December 15, 2014). "I shared the knowledge of how to create or share a document or add pictures or stuff like that" with my peers through Google Drive (Sarah, December 15, 2014). When required to read texts/passages, student learners worked independently because of their slower reading pace so their peers would not "…get behind and have to wait for me" (Sarah, December 15, 2014). Outside of school, students had the option to independently send work through Google Drive or

complete extra credit opportunities through Google Drive or Study Island. Sarah liked the

option of Google Drive at home as she "can just log in at home and finish [an

assignment] real quick …so I don't have to turn it in late" (December 15, 2014).

Jane Atticus: Accessibility to resources. The learning environment structure

created "access and visibility for them actually to know that I am here" (Jane Atticus,

January 9, 2015). Ms. Atticus separated desks into sections and designated the section of

desks in the back for learners who needed more space and/or focus and provided easy

access to the educator and student learners (January 9, 2015). The physical arrangement

of the classroom enabled learners to engage in "dialogue with [their] teacher" (Jane

Atticus, January 23, 2015). The IPad/laptop carts rolled into the front of the room or just

outside the classroom door, student desktops, and bookcases with various E/LA content

supports also aid in student access to resources.

With "…so much technology in the room" the educator and student learners

"…can be interactive with technology and work in different websites" (Allie, January 20,

2015). The interactive white board in the front of the room and the arrangements of desks

further aided access to content and interaction with educator and peers (Jeremy, January

20, 2015). "If you want to talk to your friends all you have to do is turn around" and "if

you needed help on something, they just turn around and help you" (Tinkerbell, January

20, 2015). While students worked independently or collaboratively and utilized the

county online learning platform, Ms. Atticus had "…a chance at getting to these kids"

(January 23, 2015).

Although Ms. Atticus noted that several students did not have Internet access at

home, her county online learning platform could be accessed any time at any location.

Jeremy and Tinkerbell shared content on the county online learning platform was accessed outside of school to learn and study more and catch up on work if absent (January 20, 2015). Accessibility to materials, technology, the educator, and peers enhanced the instructional decision making of Ms. Atticus.

Jane Atticus: Best practices in instructional decision making. Ms. Atticus obtained knowledge through Edutopia and PBS, "pick[ing] a lot of people's brains", and collaboration with colleagues (January 20, 2015). In lesson planning, "I start with standard and I think to myself, *How am I going to get these kids to understand that?*" (Jane Atticus, January 23, 2015). Through understanding of her learners, the educator realized she "…had to do something to pull them in" to the E/LA content (Jane Atticus, January 9, 2015). Prior technology experiences required her dictated steps and the complete dependence on or need for validation from the educator was "…very overwhelming and actually created an unproductive learning environment" (Jane Atticus, January 23, 2015). This further frustrated the teacher as she knew "they can be independent because frankly when they download an app, no one dictates how to work that app. They know. They figure it out" (Jane Atticus, January 9, 2015). As the educator sought increased independence, an introduction to the county's online learning platform offered a potential solution. This led to her development and posting of scaffolded notes, activities reinforcing the notes, and quizzes into the county online learning platform (Jane Atticus, January 20, 2015; Jane Atticus, January 23, 2015).

Outside of the classroom, a sign instructed students on what to bring to class (Allie, January 20, 2015). As students entered the room, the board contained the daily agenda. Students have learned procedures and know that when they are done with

Grammar Daily Practice (GDP), they get their personal or school devices, go to the county online learning program, and begin the activities posted. Through the completion of tasks and quizzes and class discussions, Ms. Atticus knew what students needed additional support and provided scaffolds through conferencing, additional practice, and whole group instruction as needed. As students progressed through the learning tasks, "I talk to them. It's not just a machine and student here" (Jane Atticus, January 20, 2015). The delivery of content increased independence of learners and afforded opportunities to conference one-on-one with students "…and I'm happy with those results" (Jane Atticus, January 20, 2015).

Jane Atticus: Active and engaged participants in the learning process.
"Technology is… that is where they are" (Jane Atticus, January 9, 2015). "When you look at like computer screens, it kind of like, to me, it stays in my mind better" (Allie, January 20, 2015). The way the notes, activities, and quizzes were set up on the county online learning platform afforded students the opportunity to be more responsible and independent (Allie, January 20, 2015; Jane Atticus, January 23, 2015; Jeremy, January 20, 2015; Tinkerbell, January 20, 2015).

The county online learning platform enabled learners to "…go as quickly through them as their brain will let them. And those that need more time can pause" (Jane Atticus, January 9, 2015). "High learners are going through (snaps fingers) and they do not have to wait on anyone else, and my lower learners don't have to feel self-conscious about not understanding…" (Jane Atticus, January 20, 2015). Allie, Jeremy, and Tinkerbell shared their quiz scores revealed their understanding of the content introduced and how Ms. Atticus proceeded through content delivery. Additional understanding was demonstrated

through class discussion as students defended their thoughts from the notes they independently compiled and asked questions "that's a lot deeper than just surface level instruction" (Jane Atticus, January 23, 2015).

Although the choice of collaboration was offered, "they don't always go to a partner" (Jane Atticus, January 23, 2015). Allie preferred "to work by myself because it helps me focus better" (January 20, 2015), while Jeremy and Tinkerbell found comfort through partners when assistance was needed. "It's just like you don't have to talk to a big group. It's just you and him. And if you get your favorite bud. I can just do it faster with my friends" (Tinkerbell, January 20, 2015). The county online learning platform increased independence to aid in educator accessibility and encouraged social interaction and collaboration.

Cross-Case Theme Analysis

The cross-case theme analysis yielded similarities and differences across the cases (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). Generated summary tables (see Appendix L), with pseudonyms utilized for all contexts and student learner and educator participants, reflect many similarities and differences between the cases. The data collected from across all three cases were reviewed in relation to the themes: accessibility to resources, best practices in instructional decision making, and active and engaged participants in the learning process. The chapter summary culminates with the within-case theme analysis and cross-case theme analysis findings (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014).

Similarities between cases. Commonalities were found across the three technology-based middle grades E/LA classrooms in their accessibility to resources, best

practices in instructional decision making, and active and engaged participants in the

learning process. Data across the cases were reviewed for each theme. Table 4 presented

similar findings across the cases.

Table 4

Similar Findings Across the Cases

Theme	Similar Findings
Accessibility to Resources	- Classrooms were physically structured and organized to aid in easy access of needed resources within the classroom. - Table/desk arrangements encouraged social interaction and collaboration. - Educators were visible and accessible to student learners. - Varied technology was daily accessible to student learners. - Educators made the E/LA content accessible to student learners outside of the classroom.
Best Practices in Instructional Decision Making	- Educators demonstrated understanding of content, pedagogy, and technology in their instructional decision making. - Educators set clear criteria/expectations for their student learners. - Educators scaffolded content based on student learner readiness. - Educators assessed student progress toward mastery of content through collaborative and individual learning tasks. - Technology must be appropriately and effectively utilized by educators and student learners in the learning process.
Active and Engaged Participants in the Learning Process	- Digital Natives were naturally engaged in technology-based learning tasks. - Student learners were provided with and made independent choices involving social interaction and collaboration. - Student learners demonstrated varied interdependent and dependent states in their learning process.

Note. The data collected revealed these findings across all cases.

Accessibility to Resources. Observations, document analysis, and interviews all revealed accessibility to resources. Classrooms were organized and physically structured to easily locate needed resources within the classroom, the educator was accessible and visible to student learners, and the table/desk arrangements encouraged social interaction and collaboration. Accessibility to varied technology led to other resource availability via the Internet and accessibility to E/LA content outside of the classroom.

Shared in Chapter IV (see Figures 4, 5, and 6), were the classroom layouts of Lynn Bailey, Mallory Johnson, and Jane Atticus. These layouts demonstrated the organization of E/LA materials along the walls of the classroom with the tables/desks throughout the center of the main floor space. Observations and interviews held concurred the accessibility to needed E/LA or technology resources with ease and social interaction and collaboration encouraged by the student learner seating arrangements. The educators' mobility in the room were also noted in observations as they addressed the whole class and then moved from group to group, student to student.

All interviews and observations revealed technology was accessible to student learners. Interactive displays were located in an area visible to all learners and were utilized by the teacher to deliver the E/LA content. With Internet access present in all cases, educators and student learners had potential access to other technology-based resources. Lynn Bailey and Mallory Johnson have both exposed learners to Google Drive as they both felt it would be a tool the students may continue to utilize in high school and college. Lynn Bailey and Jane Atticus both utilized county online learning software programs to craft and upload content and task expectations for student learners. Check

out processes of the school's laptop/IPad cart(s) limited one-to-one technology availability in the cases of Jane Atticus and Mallory Johnson.

All educators made the E/LA content accessible to student learners outside of the classroom as well. Mallory Johnson provided extra credit opportunities through Google Drive and Study Island, while Lynn Bailey and Jane Atticus both utilized county online learning platforms to upload content, activities, and quizzes for student learners. Student learners shared their ability to complete their tasks and assignments within and outside of the classroom to aid in their individual pacing, need for studying, and to catch up when absent.

Best practices in instructional decision making. Data reflected best practices in instructional decision making through educator understanding of content, pedagogy, and technology. Clear criteria/expectations were set for their student learners and educators, and content scaffolding took place based on student learner readiness. Educators assessed student learner progress toward mastery of content through collaborative and individual learning tasks.

Understanding of content was demonstrated through the E/LA standards utilized to determine what skills students needed to master. Learning tasks were then crafted with the interests and readiness of their Digital Natives in mind. All educators provided student learners with the criteria for task completion, modeled expectations, and set a date by which the task should be completed. Mallory Johnson and Jane Atticus even displayed and communicated expectations for the day through a daily agenda written on the board. Lynn Bailey and Mallory Johnson both utilized mentor examples/student exemplars to further communicate task expectations with their student learners. Based on

identified student readiness through assessments and task completion, educators then provided scaffolding techniques as student learners worked toward mastery of content.

Technology was utilized as a tool to further scaffold, deliver, and help learners explore the E/LA content. Activities and quizzes set up to provide immediate progress feedback further informed the instructional decision making of educators. All educators utilized their interactive display as they modeled expectations and provided skill lessons based on student readiness identified through crafted performance tasks, activities, and/or quizzes. Technology utilization was blended with paper and pencil tasks as one-to-one access was limited by check out availability of the laptop/IPad carts for Mallory Johnson and Jane Atticus. Educators continually reflected on their technology-based practices to further support learning. The educators further reflected upon their technology-based learning practices and cautioned colleagues to utilize technology appropriately and effectively in the learning process. Their reflections were shared in the implications of this study. Educators found the technology utilized further engaged their Digital Natives.

Active and engaged participants in the learning process. Technology-based learning naturally engaged Digital Natives as educators found the technology to be what they know. "Technology is… that is where they are" (Jane Atticus, January 9, 2015). "Technology isn't intimidating to them" (Lynn Bailey, October 30, 2014) because "it's their digital generation" (Lynn Bailey, October 23, 2014). "…More confident when they're interacting with a computer", educators found providing technology-based learning experiences "keep their learning on track" (Mallory Johnson, January 14, 2015). The Digital Natives were also active and engaged participants in their learning process as

they were provided with and made independent choices involving social interaction and collaboration.

The choice to socially interact and collaborate with peers was given by all educators in the classroom. Student learners chose to work independently or collaborated to get assistance from a peer or their educator. There were times when student learners were asked to work independently for educators to assess their independent understanding. "We can talk with other people at first, but then we need to show that we can do it on our own" (Periwinkle, October 30, 2014). Through the technology-based learning and social interaction and collaboration choices, student learners demonstrated varied independent and dependent learning states.

Student learners revealed varied dependent and interdependent states in their learning process. The varied states were revealed through completing tasks independently and as they sought validation of their work progress or answers to posed questions. Outside of school the student learners had access to E/LA content they utilized to study or get caught up. Access to the county online learning platform of Lynn Bailey and Jane Atticus afforded opportunities for student learners to access material outside of school. The learning tasks set up by Lynn Bailey and Jane Atticus their county online learning platforms also enabled student learners to work at their own pace, shared in their responsibility, and crafted the capability for more independency. The use of Google Drive by Lynn Bailey and Mallory Johnson afforded opportunities for willing student learners to work independently or collaboratively outside of school when absent, needing to catch up, or wanting to review material. The varied states of student learners were reflected through technology and collaboration.

Differences between cases. Although many similarities were found across the cases, there were also differences. These differences were shared to further develop naturalistic generalizations people can learn for themselves or to apply to other situations (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). The similarities and differences across the cases led to the findings related to research questions, revising assumptions, implications for future practices and policies, relationship of findings to previous research, limitations of findings, conclusion, and recommendations for future research included in Chapter VI.

Accessibility to Resources. The cases varied in their technology resource accessibility. Lynn Bailey's classroom contained daily one-to-one access to technology while the classrooms of Mallory Johnson and Jane Atticus varied based on school availability through check out of laptop/IPad carts for student use. Technology accessibility impacted each case differently.

Student learners at Masters Academy had daily access to their self-provided laptops, tablets, smartphones, and/or other technology tools. As a result, Lynn Bailey introduced a new technology tool or two each week for learners to add to their repertoire. "I just try to give the kids choices and show them the different—specifically presentation tools—that are out there and let them choose" (Lynn Bailey, October 30, 2014). Mrs. Bailey also utilized a county online learning platform where she uploaded all for students to access at any location which aided absent or behind students. Even when Mrs. Bailey was absent she was able to upload assignments into the county online learning software for learners to complete. Although students have access to Mrs. Bailey during the school day and through email, she additionally gave her personal cell phone number to students

for texting purposes. The accessibility of technology resources seemed limitless as students were allowed the freedom to choose technology choices and were bounded only by the criteria set forth by Mrs. Bailey.

Mallory Johnson implemented technology tools as she first independently learned how to use them. Technology opportunities were more structured as student learners utilized Google Drive to submit writings to their educator, Write to Learn® to provide immediate feedback to their prompted writing samples, and Success Maker® for opportunities to work on skills and concepts at individual readiness and pace. Students who were absent or behind and had Internet access could submit assignments through Google Drive at home. Students who sought extra credit opportunities and had Internet access were given opportunities to work in Study Island or were given assignments through Google Drive. Accessibility of technology resources were limited by check out availability of the laptop/IPad carts, more structured access of programs purchased within the county, and educator knowledge of technology tools.

Jane Atticus primarily utilized the county online learning platform for students to access predetermined E/LA content. Although the county online learning platform was accessible anywhere, it was noted that several students in her classroom did not have technology and/or Internet access outside of school. Accessibility of technology resources were limited by check out availability of the laptop/IPad carts; more structured access to predetermined links within the notes, activities, and quizzes posted onto the county online learning platform; educator knowledge of technology tools; and varied student access to technology outside of school.

***Best practices in instructional decision making*.** The cases also differed in their content delivery and technology-based decisions. Having one-to-one access to technology, Lynn Bailey's instructional practices significantly differed from Mallory Johnson and Jane Atticus in the element of student choice. Educator knowledge of technology differed across the cases and was reflected in each case's technology-based learning environment.

Lynn Bailey shared how technology has revolutionized her content delivery and technology-based decisions as she consistently evaluated her technology-based learning tasks for authenticity and prepared student learners for their future endeavors. Lynn Bailey shifted her instructional practices and teacher role to address the 21st century needs of leaners. She shared her rationale that "…you can either embrace it and take kids really far in the world they are going to face, or you can fight it. I've just chosen to embrace it" (Lynn Bailey, November 18, 2014). The embracement of technology resulted in freedom of choice for student learners. Drawing from her technology knowledge, Lynn Bailey showed "… them the different—specifically presentation tools—that are out there and let them choose" (Lynn Bailey, October 30, 2014). Included in choice was acknowledgement that "…not every kid feels as comfortable with it as other kids" so Mrs. Bailey provided other options for learners based on their interests and passions (Lynn Bailey, October 30, 2014). As learning tasks were shared through technology means, Lynn Bailey was able to provide valuable feedback to individuals. "I can do voice feedback and can have thirty conferences at one time because every child is sitting at their desk with ear buds in listening to my feedback instead of my running around like a crazy person trying to help thirty kids" (Lynn Bailey, November 18, 2014). All in all, the

one-to-one access to technology drastically shifted her content delivery and decision making practices.

Mallory Johnson also differed in her scaffolding techniques and technology utilization. Lessons were scaffolded by first introducing the concept to the whole group, usually through her interactive display. She then provided opportunities for learners to work in groups, partners, and then assessed their independent understanding of the content. She also utilized structured programs (Study Island, Success Maker®, Write to Learn®) to further independent content understanding. Mallory Johnson's best practices were limited by check out availability of the laptop/IPad carts and educator knowledge obtained from professional development opportunities and conversations with colleagues.

Jane Atticus primarily utilized technology as a tool to help her promote increased independence, manage the larger class size, and meet the needs of her learners. Past experiences with dependent learners, resulted in the implementation of the online county learning platform to increase independence of learners. The larger class sized became manageable as learners engaged in tasks through the platform. Jane Atticus monitored the progress of students through the immediate quiz scores posted in the county online learning platform, whole class discussions of knowledge gained from the concept exploration, and conferencing with small groups and one-on-one. Jane Atticus also shared that while technology tools were explored and utilized with learners, she doesn't "…think it's the end-all, be-all" as there are times when students must "…sit down and just grit your way through what's there" (Jane Atticus, January 9, 2015). Jane Atticus' best practices were limited by check out availability of the laptop/IPad carts and educator knowledge obtained personally and from professional development opportunities.

Active and engaged participants in the learning process. The active and engaged participants in the learning process differed across cases. The increased choice in technology uses and collaboration and social interaction revealed more interdependent states of learning in Lynn Bailey's classroom. The classrooms of Mallory Johnson and Jane Atticus contained more structured technology use and collaboration and social interaction in class resulted in varying dependent and independent states of learning.

Mrs. Bailey set the criteria for the learning task and provided students with choice in demonstration of content mastery. After setting forth the criteria and with a plethora of technology-based or other student-preferred choices available, students often worked interdependently with each learner assisting others as needed throughout the completion of the learning task at hand. Bill and Periwinkle shared Google Drive was a favorite tool utilized to collaborate with peers as it afforded the opportunity to work outside of the classroom as well (October 30, 2014). Learners actively engaged in their learning process as they utilized their preferred technology tools.

Varied states of learning were displayed as Mrs. Johnson afforded technology-based and other opportunities for students to work independently or with group members at their table. When technology was not utilized for a task, collaboration and social interaction increased between learners. Sarah shared she worked independently when needing to work at slower pace than peers or in a small group when working in areas of strength to share knowledge with peers (December 15, 2014). When utilizing structured technology programs (Google Drive, Success Maker®, Write to Learn®), students completed tasks more independently only to collaborate when seeking validation of progress or to share expertise to a peer in need. Outside of school, students could

complete extra credit opportunities through Study Island and Google Drive. Varied in their states of learning, students were actively engaged in their learning process through technology-based and other opportunities supported by choice in social interaction and collaboration.

The structured county online learning platform utilized by Jane Atticus and choice in social interaction and collaboration resulted in varied states of student learning. Most students worked independently by choice, only collaborating to get assistance from a peer or their educator. "I just like to work by myself because it helps me focus better and when I work with a friend I'm really talkative and I like to talk, so I get off track" (Allie, January 20, 2015). "I like doing partners" because "it's just like you don't have to talk to a big group. It's just you and him. And if you get your favorite bud. I can just do it faster with my friends" (Tinkerbell, January 20, 2015). "I usually work in groups because if I don't understand I can ask my partner and see if he understands" (Jeremy, January 20, 2015). Student learners varying in their states of learning were more independent from their teacher, but preferred peer support as they completed the tasks within the county online learning platform.

Synthesis of Within-Case and Cross-Case Theme Analysis: Research Implications

This chapter presented a within-case and cross-case theme analysis through obtained observations of the learning environments; student in-depth interviews and three-interview series of educators; and an analysis of learning environment documents (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Yin, 2014). As the researcher moved between inductive and deductive reasoning to constitute the findings in this study (Merriam, 2009), the following themes emerged:

accessibility to resources, best practices in instructional decision making, and active and engaged participants in the learning process. The researcher analyzed data gathered through a within-case and across-case theme analysis to further develop naturalistic generalizations people can learn for themselves or to apply to other situations (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). Findings related to research questions and previous research, revising assumptions, implications for future practices and policies, limitations of findings, conclusion, and recommendations for future research are included in Chapter VI.

Chapter VI

Interpretation and Implication

Introduction

This qualitative study sought to describe how technology-based learning impacts

the learning environment of student learners and their educators in middle grades E/LA

instruction and how those experiences impact learner autonomy. This research sought to

inform educators and others whose decisions regarding professional development,

instructional practices, and instructional resources might influence the learning

experiences for educators and their student learners. The use of the multisited, multiple

case study approach aided in the exploration, discovery, and interpretation of an in-depth

understanding through insight into the educator and student learner participants' contexts

and empowered them to share and interpret their experiences in their naturalistic setting

(Creswell, 2013; Merriam, 2009). Three varying northern Georgia middle grades E/LA

educators were chosen to participate in the study. The researcher maximized variation in

the educator participant samples across a variety of counties and grade levels to aid in the

description of multiple perspectives that later evolved into a wider application scope to

readers of this study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009;

Seidman, 1991). Through in-depth interviews of student learner participants (Bloomberg

& Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam,

2009; Seidman, 1991); three-interview series of educator participants (Siedman, 1991);

observation checklists with field notes (Bloomberg & Volpe, 2012; Creswell, 2013;

Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014); and document

analysis of the educator's lesson plans and websites and/or online learning platforms and

student tasks, assignments, and/or work samples (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014), the researcher sought to answer the following research questions:

1. How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

2. How does the technology-based learning environment impact learner autonomy?

Each narrative vignette provided findings of the educator participant demographic and contextual information, technology journey, and technology-based learning environment. Building upon the narrative vignettes of Chapter IV, additional thematic findings within the cases and across the cases specific to the research questions explored in this qualitative study were presented in Chapter V. The researcher moved between inductive and deductive reasoning to constitute the findings in this study through the formation of organized themes (Merriam, 2009). The researcher analyzed data in this order: (a) immersed, reread, and examined the data obtained; (b) identified text most directly related to the research questions of this study; (c) generated categories and coded within the data (see Appendices I and J); (d) generated data summary tables (see Appendix L); (e) identified themes and patterns from this data (see Appendix M); and (f) presented the findings of the study (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall and Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014). The researcher developed naturalistic generalizations people can learn for themselves or apply to other situations through a within-case and across-case theme analysis (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014).

In this chapter, the researcher will first describe findings related to the research questions and offer links between this study's findings to previous research conducted. The researcher then asserts revisions to her assumptions and provides implications for future practices and policies as it relates to educators and others. Limitations of findings and a conclusion to the study were drawn by the researcher. Finally, the researcher will provide recommendations for future research.

Findings Related to Research Questions and Previous Research

The researcher maintained objectivity while reviewing the data in the within-case theme analysis and cross-case theme analysis and literature related to these findings in regard to the research questions of this study (Bloomberg & Volpe, 2012; Creswell, 2013; Merriam, 2009; Yin, 2014). In this chapter, the researcher will report findings related to the research questions through reviewed: (a) student learner, classroom learning environment, and learner autonomy literature; (b) data summary tables (see Appendix L); (c) theme findings (see Appendix M); and (d) similarities and differences across the cases (see Table 4).

Research question one. *How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?* The technology-based learning environment provided student learner and educator accessibility to resources and aided educators, through their content, pedagogy, and technology understandings, as they implemented best practices in instructional decision making. Lynn Bailey, Mallory Johnson, and Jane Atticus promoted accessibility to resources through: (a) an organized physical structure to aid in easy access of needed resources within the room, (b) a physical arrangement of

tables/desks to encourage social interaction and collaboration, (c) visibility of the

educator, and (d) varied technology (i.e., interactive TVs/whiteboards, wireless

tablets/IPads, and various Web 2.0 tools for collaborative learning and communication

tools). The educators implemented best practices in instructional decision making

through their content, pedagogy, and technology understandings demonstrated through:

(a) clear criteria/expectations set, (b) content scaffolding based on student learner

readiness assessed through collaborative and individual learning tasks, and (c)

appropriately and effectively utilized technology. These technology-based impacts on the

learning environment of student learners and educators were further linked to the review

of literature in the following discussion.

The accessibility of resources was first crafted through the physical learning

environment choices of the educator. The physical classroom layouts of Lynn Bailey,

Mallory Johnson, and Jane Atticus (see Figures 4, 5, and 6) demonstrated the

organization of E/LA materials along the walls of the classroom with the tables/desks

throughout the center of the main floor space. All teachers shared, and observations

confirmed, the arrangements of the tables/desks encouraged and supported social

interaction and collaboration. Observations and interviews also concurred the

accessibility to needed E/LA or technology resources with ease and social interaction and

collaboration encouraged by the student learner seating arrangements. The physical

arrangement of the classroom enabled learners to also engage in "dialogue with [their]

teacher" (Jane Atticus, January 23, 2015). The mobility of the educators in the room were

also noted in observations as they addressed the whole class and then moved from group

to group, student to student. These fore mentioned learning environment structures were

reflected in the research of active classroom environment structure and roles of educators in the learning process (Coppola, 2004; Elkind, 1976; Deubel, 2003; Fosnot, 1996; Hung, 2001; Jarvis, 2005; Jonassen, 1991; Rakes et al., 2006; Reed, 1996; Sandholtz et al., 1996; Suryaningrum et al., 2014; Von Glasersfeld, 1996) and how the physical structure of classrooms support educator mobility and social collaboration (Belland, 2014; Deubel, 2003; Elkind, 1976; Hung, 2001; Jarvis, 2005).

Varied technology was accessible to educators and their student learners across the cases. Interactive TV/whiteboard displays were located in an area visible to all learners and were utilized by the teacher to deliver the E/LA content and Internet access presented access to other technology-based resources. The learners in Lynn Bailey's room accessed their daily choice of self-provided laptops, tablets, smartphones, and/or other technology tools, and the school's Internet provided access to Web 2.0 tools, presentation tools, collaboration tools, and the county's online learning platform. Mallory Johnson's room provided access to an interactive white board and seven student desktops, with check out process of the school's computer lab and tablet/laptop carts and student response systems available. Caleb shared the E/LA sources located in the room "…have ways for me to find what I need—what information I need" and acknowledged on "the laptops you can use different search engines" (Caleb, December 15, 2014). Jane Atticus' room provided access to an interactive white board and four student desktops, with check out process of the school's computer lab and tablet/laptop carts available. Researchers (Hsu et al., 2014; Kervin et al., 2013; Sheskey, 2010) substantiated the constructed interactive classroom found across the cases, specifically the access to wireless tablets, interactive whiteboards, student-response systems, and Web 2.0 tools.

Additionally, accessibility to technology made it possible for all educators to provide access to E/LA content to student learners outside of the classroom. Lynn Bailey and Jane Atticus utilized their county online learning platforms to provide content outside of school, while Mallory Johnson provided opportunities through Study Island and Google Drive. With availability of these resources, the most difficult task of educators then became their determination of the utilization and integration of the technology tools in the classroom (Davies, 2011; Davies & West, 2014; Rakes et al., 2006; Sheskey, 2010), so the educators sought certain understandings of content, pedagogy, and technology (Koehler et al., 2014; Shulman, 1986).

As confirmed through the research of Shulman (1986) and Mishra and Koehler (2006), accessibility to these fore mentioned technology resources aided educators, through their content, pedagogy, and technology understandings, as they implemented best practices in instructional decision making. A sentiment was echoed by Mallory Johnson and Jane Atticus, as stated by Lynn Bailey (November 18, 2014) "…I'm always thinking about where we're going with this. What's the point and purpose". Technology further aided content delivery and student learner demonstration of content mastery through educator consideration of the "...best way to give my students this information", "learning styles" of learners, "research-based" tool, and student "choice on assignments" (Mallory Johnson, January 14, 2015). Such educator's considerations and balances in their instructional decision making were reflective of the following theories and practices: Gardner's (2006) Multiple Intelligences (MI), Emotional Intelligence (EI), and Tomlinson's (1999, 2001) Differentiated Instruction (DI). Furthermore and keeping in

mind the content and pedagogy understandings of their learners, the educators first set forth criteria for their learners.

All educators provided student learners with the criteria for task completion, modeled expectations, and set a date by which the task should be completed. Mallory Johnson and Jane Atticus even displayed and communicated expectations for the day through a daily agenda written on the board. As a whole group, educators utilized their interactive display as they modeled expectations and provided skill lessons. Lynn Bailey and Mallory Johnson also utilized mentor examples/student exemplars with the class to further communicate task expectations. These set criteria and educator roles of the active classroom were reflective of the reviewed literature of researchers (Deubel, 2003; Elkind, 1976; Hung, 2001; Sandholtz et al., 1996; Wood, 1995). With certain criteria/guidelines set, flexibility across the cases occurred through learner readiness and interest and technology-based collaboration and demonstration of content mastery (Bill, November 6, 2014; Periwinkle, October 30, 2014; Lynn Bailey, November 18, 2014).

Consistent with the review of related literature and research (Coppola, 2004; Elkind, 1976; Deubel, 2003; Duffy & Jonassen, 1992; Fosnot, 1996; Hung, 2001; Jacobs, 2010a; Jarvis, 2005; Jonassen, 1991; Rakes et al., 2006; Reed, 1996; Sandholtz et al., 1996; Suryaningrum et al., 2014; Von Glasersfeld, 1996), technology was utilized as a tool to aid educator in this study as they delivered and provided scaffolding to help learners explore the E/LA content through independence or collaborative groups encouraging social interaction. Lessons were differentiated through scaffolding and grouping techniques "…where I guess you could say the students who learn faster are in that group or sometimes she splits us" (Sarah, December 15, 2014). All educators shared

in their interviews, their student readiness was identified through observations when mobile in the classroom and through student work samples. Lynn Bailey and Jane Atticus monitored progress of learners through mobility and observation in the classroom and learning tasks and quizzes set up through their county online learning software. Through uploaded learning tasks on the county online learning platforms of Lynn Bailey and Jane Atticus and the utilization of Success Maker® by Mallory Johnson, provided immediate progress feedback which further informed the instructional decision making of educator. The student work was then utilized by educators to craft individualized lessons to reinforce content. Belland (2014) also found such effective technology-based applications accommodate one-to-one scaffolding. The practices of these educators were further substantiated through the review of literature in regard to differentiated instruction and questioning of students throughout their learning processes as the educators were mobile and accessed student progress (Ackermann, 1995; Coppola, 2004; Cunningham, 1992; Deubel, 2003; Gould, 1996; Jarvis, 2005; Serdyukov & Serdyukova, 2009; Tomlinson, 1999, 2001; Tomlinson & Edison, 2003; Tomlinson & Imbeau, 2010; Tomlinson & McTighe, 2006; Von Glasersfeld, 1995; Wertsch & Toma, 1995; Wood, 1995).

A strong sense of personal responsibility in their teaching and continually reflecting and analyzing their best practices in instructional decision making was indicative of the autonomous educator (Little, 1995). The autonomy of educators and autonomy of students were interdependent, thus educator autonomy was a prerequisite for the development and promotion of learner autonomy (Little, 1995). When determining effective technology integration, the educators in this study all shared choices they

personally made as well as how they gained knowledge to support the proper integration of technology.

Lynn Bailey shared her understanding of technology with the researcher, "I still try to stay on top of things" through professional development and learning from the Digital Natives (October 23, 2014). In regard to technology tools integrated in the classroom, Mrs. Bailey introduced a new technology tool or two each week to model effective utilization of technology and provided learners with more choices in their learning (Bill, November 6, 2014). "I've used it first, so when they ask I actually know how to help them use the tools. And then they teach me a lot, too" (October 23, 2014). Constant evaluation of tasks also occurred to ensure that even in the use technology, "…the learning is authentic" (Lynn Bailey, November 18, 2014). Mallory Johnson shared the willingness to try to new things led her drive to learn new tools to effectively incorporate in her classroom (December 12, 2014). Mrs. Johnson sought the assistance of "computer savvy people", the "system leader and media specialist", and "administration" to obtain additional training and professional development in effective integration of technology (December 12, 2014). She further reflected that her technology utilization comes from how "I've been taught", which mirrored the research of Little (1995), and knowledge of "research-based" tools (December 12, 2014). Jane Atticus' transition from a private school setting with no technology to a public school setting with technology resulted in huge transitions in her instructional practices (January 9, 2015). As she "ventured out" to learn effective technology practices, she incorporated technology in bits and pieces as learners and she were "both kind of learning at the same time" (January 9, 2015). Edutopia, PBS, picking "a lot of people's brains", and more recent professional

development training in the county's online learning platform led to the shift in providing

learning through uploaded notes, activities, and quizzes (Jane Atticus, January 20, 2015).

In her technology-based knowledge growth, she has experienced frustrations.

"Sometimes I get in there and it didn't work out the way I wanted it to" (Jane Atticus,

January 23, 2015) and other times didn't think technology was "the end-all, be-all" (Jane

Atticus, January 9, 2015). Researchers (Asmari, 2013; Chan, 2001; Holec, 1981; Lamb,

2011; Little, 1995; Oguz, 2013) attributed these shared experiences of personal autonomy

trainings to the developed supportive learning environments for autonomous learners

shared throughout this research study.

Technology-based learning impacted the learning environment of student learners

and educators through the accessibility to resources, and it aided educators in the

implementation of best practices in instructional decision making. The physical learning

environment was structured and organized to encourage social interaction and

collaboration, aid in educator visibility and accessibility, and provide accessibility to

E/LA resources. Varied technology available led to other resource and E/LA content

availability via the Internet within the classroom and outside of school. Technology-

based learning, and its provided accessibility to resources, further impacted the

educators' implementation of best practices in instructional decision making through

content, pedagogy, and technology understandings. This was further demonstrated as the

educators: (a) set clear criteria/expectations, (b) engaged in content scaffolding based on

student learner readiness as assessed through assigned collaborative and individual

learning tasks, and (c) utilized technology appropriately and effectively through the

knowledge gained in autonomous experiences and trainings. In addition to the

exploration of how technology-based learning impacted the learning environment of student learners and educators, the researcher explored how the technology-based learning environment impacted learner autonomy.

Research question two. *How does the technology-based learning environment impact learner autonomy?* The technology-based learning environment, crafted by educators through accessibility to resources and best practices in instructional decision making, promoted active and engaged participants in the learning process. These Digital Natives were naturally engaged in technology-based learning tasks, were provided with and made independent choices involving social interaction and collaboration, and demonstrated varied interdependent and dependent states in their learning process. These findings were further linked to the review of literature in the following discussion.

Lynn Bailey, Mallory Johnson, and Jane Atticus acknowledged their Digital Natives were "constantly connected" (Palfrey & Gasser, 2008, p. 5) as the Internet was their "dominant media of choice" (November, 2010a, p. 12). "They truly are Digital Natives and when we're doing things and talking in their language they become so much more involved in the class" (Lynn Bailey, November 18, 2014). "Technology is… that is where they are" (Jane Atticus, January 9, 2015). "When you look at like computer screens, it kind of like, to me, it stays in my mind better" (Allie, January 20, 2015). Researchers (Baker, 2010; November, 2010a; Palfrey & Gasser, 2008; Prensky, 2010; Sheskey, 2010; Wilmarth, 2010) found this understanding of the Digital Natives and their curricular and instructional desires helped educators bring relevance into their classroom.

Educators took standardized curriculum and brought further relevance to their Digital Natives as the active classroom learning environments encouraged social

interaction and collaboration through technology-based, behaviorist and constructivist standards (Ackermann, 1995; Bednar et al., 1992; Boden, 1980; Cunningham, 1992; Deubel, 2003;Elkind, 1976; Fosnot, 1996; Gould, 1996; Jarvis, 2005; Jonassen, 1991, 1992; Rakes et al., 2006; Reed, 1996; Sandholtz et al., 1996; Sheskey, 2010; Von Glasersfeld, 1995, 1996; Wertsch & Toma, 1995; Wood, 1995). All educators encouraged and provided opportunities for their student learners to engage in social interaction or collaboration. The social interaction and collaboration helped "…us learn together like what's going on… and [with] doing our work better" (Lauren, December 15, 2014). "If we can't find something, we can ask someone at our table…" (Caleb, December 15, 2014) and "...we help each other if we don't understand things or we might ask the teacher or something" (Lauren, December 15, 2014). "It's just like you don't have to talk to a big group. It's just you and him. And if you get your favorite bud. I can just do it faster with my friends" (Tinkerbell, January 20, 2015). In areas of strength, students sought social interaction opportunities to share their knowledge with peers (Sarah, December 15, 2014). "I shared the knowledge of how to create or share a document or add pictures or stuff like that" with my peers through Google Drive (Sarah, December 15, 2014). Although given collaborative opportunities, "they don't always go to a partner" (Jane Atticus, January 23, 2015). When required to read texts/passages, student learners worked independently because of their slower reading pace so their peers would not "…get behind and have to wait for me" (Sarah, December 15, 2014). Allie preferred "to work by myself because it helps me focus better" (January 20, 2015), while Jeremy and Tinkerbell found comfort through partners when assistance was needed. These shared experiences of the educator and student learner participants were further substantiated by

Vygotsky's (1978) emphasized social interaction and collaboration, Cronbach and

Snow's (1981) ATI, Hooper and Hannafin's (1988) balanced instructional treatments of

flexible heterogeneous and heterogeneous grouping, Gardner's (2006) MI, Salovey and

Mayer's (1990) EI, and Tomlinson's (1999, 2001) DI.

"I just try to give the kids choices and show them the different—specifically

presentation tools—that are out there and let them choose" (Lynn Bailey, October 30,

2014).

> They know where to find things and become very independent. Sometimes they
>
> give me a look of 'I've got this', 'You don't need to come over here', 'I can do
>
> this by myself', and 'You don't need to come over here because I've got all the
>
> tools. Everything's here for me and what you haven't given me I know where to
>
> find it.' And so they do not need me as much. Sometimes that can be a little sad
>
> because sometimes they can give me that look a lot of 'Get away from me. I don't
>
> need you. (Lynn Bailey, November 18, 2014).

Bill and Periwinkle shared Google Drive was a favorite tool utilized to collaborate with

peers as it afforded the opportunity to work outside of the classroom as well (October 30,

2014). Mallory Johnson provided opportunities outside of school for student learners to

independently send work through Google Drive or complete extra credit opportunities

through Google Drive or Study Island. Sarah liked the option of Google Drive at home as

she "can just log in at home and finish [an assignment] real quick …so I don't have to

turn it in late" (Sarah, December 15, 2014). The way Jane Atticus set up the notes,

activities, and quizzes on the county online learning platform afforded students the

opportunity to be more responsible and independent (Allie, January 20, 2015; Jane

Atticus, January 23, 2015; Jeremy, January 20, 2015; Tinkerbell, January 20, 2015). The

county online learning platform enabled learners to "…go as quickly through them as

their brain will let them. And those that need more time can pause" (Jane Atticus, January

9, 2015). "High learners are going through (snaps fingers) and they do not have to wait

on anyone else, and my lower learners don't have to feel self-conscious about not

understanding…" (Jane Atticus, January 20, 2015). These excerpts revealed varying

degrees of autonomy, moving from varying degrees of dependence to greater varying

degrees of independence (Holec, 1981; Mutlu & Eroz-Tuga, 2013; Reinders, 2010) as

educators supported the varied interdependent and dependent states of learning through

access to a wide range of resources through technology (Asmari, 2013; Mutlu & Eroz-

Tuga, 2013; Raya & Fernandez, 2002). Additionally, these findings were reflective of

these autonomous learner characteristics: (a) initiative displayed and contributions to the

learning process as active participants in their learning (e.g., determining content,

selecting resources, determining pace and time allotments, deciding and learning how to

learn, planning different activities conducive to learning, assessing progress/evaluation of

content mastery); (b) choices made and responsibility taken for their learning through

setting their goals, planning, and monitoring and evaluating their own progress; and (c)

working cooperatively and collaboratively with peers and educator (Asik, 2010; Asmari,

2013; Chan, 2001; Holec, 1981; Lamb, 2011; Little, 1995; Mutlu & Eroz-Tuga, 2013;

Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008). Simply stated, the

access to technology coupled with best practices in instructional decision making of

educators, afforded opportunities for students learners to take responsibility for their

learning and further developed their autonomy (Asmari, 2013; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002).

These educators no longer denied the widespread availability and immersion of technology in the lives of Digital Natives (Ally & Prieto-Blazquez, 2014; Oh & Reeves, 2014; Prensky, 2010; Sheskey, 2010) and shifted in their instructional decisions and effectively integrated technology, which established a learning environment that encouraged independent and productive student learners who were engaged (Bransford et al., 1990; Brown et al., 1996; Chan, 2001; Holec, 1981; Lamb, 2011; Lave & Wenger, 1991; Little, 1995; Oguz, 2013; Reinders, 2010). These Digital Natives were naturally engaged in technology-based learning tasks, were provided with and made independent choices involving social interaction and collaboration, and demonstrated varied interdependent and dependent states in their learning process. The technology-based learning environment, crafted by educators through accessibility to resources and best practices in instructional decision-making, promoted active and engaged participants in the learning process.

The researcher sought how the technology-based learning environment impacted learner autonomy.

Revising Assumptions

The researcher brought assumptions to the study from her personal and professional educational experiences and outlined them in Chapter I. Based on the findings outlined in the preceding section, the researcher found it necessary to revisit assumptions directly related to the study's findings. The researcher desired to be enlightened through a review of literature regarding: student learner pedagogy, classroom

environments where students were encouraged to engage in social interaction and collaboration, shifted student learner and educator roles, and opportunities presented for students to develop and take ownership of their learning. All of these ideals were explored and provided the desired insight through the review of literature and data analysis of the multisited, multiple case study.

As a Digital Native, the researcher was also curious about the rise in technological resource availability and desired to uncover its potential to enhance teaching and learning for student learners and their educators. Through an exploration of other educators and their student learners differing in context and participant experiences, the researcher further gleaned how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. The technology-based learning environment provided student learner and educator accessibility to resources and aided educators, through their content, pedagogy, and technology understandings, as they implemented best practices in instructional decision making. The technology-based learning environment, crafted by educators through accessibility to resources and best practices in instructional decision making, promoted active and engaged participants in the learning process.

The researcher also assumed this multisited, multiple case study's rich descriptions would provide insights that may implicate future practices and policies (Creswell, 2013; Mardis et al., 2014; Merriam, 2009; Stake, 2005; Yin, 2014). The research sought to inform educators and others whose decisions regarding professional development, instructional practices, and instructional resources might influence the

learning experiences for educators and their student learners. These insights are outlined in the following implications section.

Implications for Future Practice and Policy

This study describes how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. This research informed educators and others whose decisions regarding professional development, instructional practices, and instructional resources might influence the learning experiences for educators and their student learners. The implications for future practice and policy are also supported through the words of the educator and student learner participants of this study.

For educators. Good teaching remained good teaching. This study confirmed technology offered an aid for educators in their implementation of best practices in instructional decision making. Throughout this study, educators were continually called to embrace, learn, and model effective ways to integrate technology to better support Digital Natives in the futures they will face. Learners "…need to understand so many aspects of the digital world and how to use it for their benefit" (Lynn Bailey, November 18, 2014) and "…how to be more responsible and not distracted by every little thing" (Sarah, December 15, 2014).

Further reflecting upon their technology-based learning practices, educator participants cautioned colleagues to utilize technology appropriately and effectively in the learning process. "…If the content isn't there and authentic learning hasn't occurred, then technology is worthless" (Lynn Bailey, November 18, 2014). "Not researching how

to use it, not having the background knowledge, and then just throwing the students in it is just not going to be effective at all" (Mallory Johnson, January 14, 2015). "I guess if you were using technology just for the sake of using technology without any kind of forethought or where do I want this to end up, then yes it's all pointless" (Jane Atticus, January 23, 2015).

Where should one start? The utilization and integration of technology was limited to the educator's autonomy (Little, 1995). When educators experienced personal autonomy in their trainings, they were more likely to develop supportive learning environments for autonomous learners (Asmari, 2013; Holec, 1981; Lamb, 2011; Little, 1995; Oguz, 2013). All in all, it's a choice and as educator, one "…can either embrace it and take kids really far in the world they are going to face, or you can fight it. I've just chosen to embrace it" (Lynn Bailey, November 18, 2014).

For others. The learning experiences of educators and their student learners were further limited by the technology purchased and lack of follow through in training of proper implementation. Purposeful training would enhance the learning environment for educators and their student learners. Training needs identified in this study were inclusive of: Digital Native understandings, implementation of best practices in instructional decision making, and effective integration of technology. Supports through training are needed as educators attempt to embrace change and shift in their instructional practices.

Limitations of Findings

As primary instrument in this qualitative study, the researcher utilized member checking and peer debriefing aids to ensure the data obtained was as accurate as possible

and triangulation to ensure the data obtained and findings match (Bloomberg & Volpe,

2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin,

2014). Although precautions were taken, these limitations in findings occurred:

- The multisited, multiple case study were limited to the educators and their
  student learners in three, middle grades E/LA settings with the number of
  student learner participants varying as the researcher analyzed student
  learner data to reach saturation (Bloomberg & Volpe, 2012; Creswell,
  2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam, 2009;
  Seidman, 1991).

- Interviews, observations, and document findings could have been affected
  by health, mood, and/or ulterior motives of participant responses
  (Merriam, 2009; Seidman, 1991).

- Documents included information which was unusable or not
  understandable (Creswell, 2013; Merriam, 2009).

- The county online learning platform limited the researcher to viewing
  assignments only as student learner.

Recommendations for Future Research

Several areas of inquiry occurred as the researcher analyzed the data. The

researcher recommends the following considerations of researchers:

1. With student performance emphasized nation-wide, technology-based learning
   environments should be explored in their relationships to educational outcome
   predictions and/or optimized learning potential for student learners. Does a
   relationship exist between technology-based learning environments and

educational outcome predictions? Does the technology-based learning environment optimize the learning potential for student learners?

2. With educator autonomy being a prerequisite for learner autonomy, professional development would provide educators with much needed guidance in the shift from current practices to practices more inclusive of Digital Natives. What training would best equip educators to effectively integrate technology in the learning environment?

3. With this case study being limited to three middle grades E/LA classrooms, further research should be conducted inclusive of other content areas and grade levels.

Conclusion

This multisited, multiple case study describes how technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. Through in-depth interviews of student learner participants (Bloomberg & Volpe, 2012; Creswell, 2013; Lincoln & Guba, 1985; Marshall et al., 2013; Merriam, 2009; Seidman, 1991); three-interview series of educator participants (Siedman, 1991); observation checklists with field notes (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014); and document analysis of the educator's lesson plans and websites and/or online learning platforms and student tasks, assignments, and/or work samples (Bloomberg & Volpe, 2012; Creswell, 2013; Marshall & Rossman, 2006; Merriam, 2009; Seidman, 1991; Yin, 2014), the researcher explored three varying northern Georgia middle grades E/LA educators and their learner

participants. The following themes have emerged: accessibility to resources, best practices in instructional decision making, and active and engaged participants in the learning process. The technology-based learning environment provides student learner and educator accessibility to resources and aided educators as they implemented best practices in instructional decision making through their content, pedagogy, and technology understandings. The technology-based learning environment, crafted by educators through accessibility to resources and best practices in instructional decision making, promoted active and engaged participants in the learning process.

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Appendix A

2010-2014 State of Georgia Technology Inventory Survey Results

	2013-14 Survey Results	2012-13 Survey Results	2011-12 Survey Results	2010-11 Survey Results
High-Speed Internet Access	Schools: 100% Classrooms: 96.67% Central Offices: 100%	Schools: 100% Classrooms: 89.17% Central Offices: 100%	Schools: 99% Classrooms: 96.3% Central Offices: 100%	Schools: 99% Classrooms: 97.23% Central Offices: 100%
Number of Wireless Access Points	8,918	7,000	6,283	5,112
Percent of Classrooms with Number of Instructional Computers Available (10+, 6-9, 3-5, 1-2, 0)	10+: 9.47 % 6-9: 9.75% 3-5: 35.83% 1-2: 42.11% 0: 2.85%	10+: 8.85% 6-9: 10.31% 3-5: 34.94% 1-2: 52.83% 0: 2.69%	10+: 6.87% 6-9: 9.86% 3-5: 34.74% 1-2: 45.13% 0: 3.35%	10+: 5.37% 6-9: 6.75% 3-5: 27.34% 1-2: 52.83% 0: 7.72%
Instructional Computers Available for Student Use	Desktops: 472,847 Laptops: 212,556 Tablets: 117,426 Netbooks: 74,307 Ultrabooks: 2,761	Desktops: 304,644 Laptops: 125,792 Tablets: 60,485 Netbooks: 62,838 Ultrabooks: 4,066	Classroom: 383,271 All-school Mobile Labs: 109,124 All-School Stationary Labs: 141,672 Media Centers: 41,876 Other Locations: 24,465	Desktops: 402,008 Laptops/ Notebooks: 151,758 Netbooks: 23,437
Top Three Peripheral Equipment Utilized	Student Response Devices: 664,809	Student Response Devices: 719,725	Student Response Devices: 639,772	Student Response Devices: 516,800

	Data/Video Projectors: 97,020	Data/Video Projectors: 98,021	Data/Video Projectors: 96,951	Data/Video Projectors: 87,820
	Interactive Whiteboards: 73,147	Interactive Whiteboards: 70,081	Interactive Whiteboards: 62,732	Interactive Whiteboards: 52,231

This table was created through the synthesis of the "2013-2014 Annual State Technology Inventory Survey", "2012-2013 Annual State Technology Inventory Survey", "2011-2012 Annual State Technology Inventory Survey", and "Annual State Technology Inventory Survey- December 2010" (Georgia Department of Education, 2011, 2012, 2013a, 2014a).

Appendix B

IRB Approval

PIEDMONT COLLEGE

Since Eighteen Hundred and Ninety-Seven

October 6, 2014

RE: Mary Welch

To whom it may concern:

Mary Welch is an EDD candidate at Piedmont College and has been approved to conduct human studies research by the Piedmont College Institutional Review Board on June 20, 2014 under the direction of Dr. Randy Hollandsworth. The approved IRB # is 1402006.

If you have any questions, I may be contacted at rleslie@piedmont.edu.

Sincerely,

Ronald Leslie, PhD.
Senior Fellow in Education
Director of Institutional Review Board (IRB)
Piedmont College
RL/tnc

POST OFFICE BOX 10 • DEMOREST, GEORGIA 30535 • PHONE: (706) 778-3000 • FAX: (706) 778-0701

Appendix C

Expert Review Panel Protocol

Expert Review Panel Instructions

Title of Dissertation: "An Exploration of the Technology-Based Learning Environment in Middle Grades English/Language Arts and Its Impact on Learner Autonomy"

Research Questions:

1. How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?
2. How does the technology-based learning environment impact learner autonomy?

Instruments in Review: Student Learner Participant Interview, Educator Participant Three-Series Interview, and Observation Checklist

Instructions for the Review

In your review of the interview questions, please keep in mind the content validity and clarity of the questions being asked of the participants as you:

1. Rate the extent to which the interview question corresponds with the identified research question(s).
2. Indicate whether you would suggest accepting, modifying, or omitting the question from the interview.
3. Provide commentary or suggestions you have for the interview questions. This may include ways to modify the interview question or rationale behind a question's omission from the study.
4. At the conclusion of each interview instrument, indicate whether you feel the research questions were addressed thoroughly by the interview questions. Also, provide commentary or suggestions in regard to additional items or modifications needed to be made to the interview instruments.

In your review of the observation checklist, please keep in mind the content validity and clarity of the research study indicators being asked of the researcher as you:

1. Rate the extent to which the research study indicator corresponds with the identified research question(s).
2. Indicate whether you would suggest accepting, modifying, or omitting the indicator from the observation checklist.
3. Provide commentary or suggestions you have for the research study indicators. This may include ways to modify the research study indicator or rationale behind an indicator's omission from the study.
4. At the conclusion of the instrument, indicate whether you feel the research questions were addressed thoroughly by the observation checklist. Also, provide

commentary or suggestions in regard to additional items or modification needed to be made to the interview instruments.

This protocol procedure and template were adapted with permission from Dr.

Casey Nixon, 2014.

Instrument in Review: Student Learner Participant Interview

Research Question One: How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

Research Question Two: How does the technology-based learning environment impact learner autonomy?

Interview Questions Corresponding with Research Question One

Student Learner Participant Interview Question*	Rating of Extent the Interview Question Corresponds with Research Question One	Decision	Commentary/Suggestions
1. Tell me about how your current English/Language Arts classroom is structured physically, or set up.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
5. How is technology utilized in this class to teach the English/Language Arts content? To demonstrate your understanding of the English/Language Arts content?*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

6. Tell me about how learning tasks, or assignments, are determined in this English/Language Arts class.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
7. In what ways are you allowed to work (independently, one-on-one or small groups with educator, partners, small groups, whole class) to demonstrate your understanding of the content?*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
10. Do you have any additional things you would like to share with me?* [Ask additional questions for clarification as needed based on findings.]*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

*Note: These interview questions correspond with both research questions.

Interview Questions Corresponding with Research Question Two

Student Learner Participant Interview Question	Rating of Extent the Interview Question Corresponds with Research Question Two	Decision	Commentary/Suggestions
2. Why is your English/Language Arts classroom physically structured in this manner?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
3. What technology do you currently own and/or use outside of and in school?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
4. For what purposes and how often do you use (outside of and in school) the technology you have shared?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
5. How is technology utilized in this class to teach the English/Language Arts content? To demonstrate your understanding of the English/Language Arts content?*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
6. Tell me about how learning tasks, or assignments, are determined in this English/Language Arts class.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

7. In what ways are you allowed to work (independently, one-on-one or small groups with educator, partners, small groups, whole class) to demonstrate your understanding of the content?*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
10. Do you have any additional things you would like to share with me?* [Ask additional questions for clarification as needed based on findings.]*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

*Note: These interview questions correspond with both research questions.

Overall, the Student Learner Participant Interview Instrument _____ strongly _____ somewhat _____ does not correspond(s) with the research questions. Commentary/Suggestions:

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Instrument in Review: Educator Participant Three-Series Interview

Research Question One: How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

Research Question Two: How does the technology-based learning environment impact learner autonomy?

Interview Questions Corresponding with Research Question One

Educator Participant Interview Question*	Rating of Extent the Interview Question Corresponds with Research Question One	Decision	Commentary/Suggestions
1. How do you define English/Language Arts? Learner autonomy? Technology? Technology integration? [The educator participant and researcher will discuss and acquire shared understandings of these defined terms specific to this research study.]*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
2. Tell me about how your current English/Language Arts classroom is structured physically, or set up.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
4. Tell me about your technology journey as an educator and how you came to utilize technology in your E/LA class instruction practices regularly.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

5. Do you have any additional things you would like to share with me?* [Ask additional questions for clarification as needed based on findings.]*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
8. Share with me concrete details and examples of your current technology-based learning practices in this English/Language Arts classroom.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
9. Explain how technology is utilized in this class to teach the English/Language Arts content. Also explain how technology is utilized to demonstrate understanding of the English/Language Arts content.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
10. Tell me about how learning tasks, or assignments, are determined in this English/Language Arts class.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
11. In what ways do student learners allowed work (independently, one-on-one or small groups with educator, partners, small groups, whole class) to demonstrate their understanding of the content?*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

| 14. Considering past and present technology-based learning practices in your English/Language Arts content delivery, how does technology-based learning impact your E/LA learning environment? The learning environment of your student learners? | _____ Strongly

 _____ Somewhat

 _____ Does Not | _____ Accept

 _____ Modify

 _____ Omit | |

*Note: These interview questions correspond with both research questions.

Interview Questions Corresponding with Research Question Two

Educator Participant Interview Question*	Rating of Extent the Interview Question Corresponds with Research Question One	Decision	Commentary/Suggestions
1. How do you define English/Language Arts? Learner autonomy? Technology? Technology integration? [The educator participant and researcher will discuss and acquire shared understandings of these defined terms specific to this research study.]*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
2. Tell me about how your current English/Language Arts classroom is structured physically, or set up.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

Question	Relevance	Action	
3. Why is your English/Language Arts classroom structured physically in this manner?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
4. Tell me about your technology journey as an educator and how you came to utilize technology in your E/LA class instruction practices regularly.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
5. Do you have any additional things you would like to share with me?* [Ask additional questions for clarification as needed based on findings.]*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
6. What technology do you currently own and/or use outside of and in school?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
7. For what purposes and how often do you use (outside of and in school) the technology you have shared?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
9. Explain how technology is utilized in this class to teach the English/Language Arts content. Also explain how technology is utilized to demonstrate understanding of the English/Language Arts content.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

10. Tell me about how learning tasks, or assignments, are determined in this English/Language Arts class.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
11. In what ways do student learners allowed work (independently, one-on-one or small groups with educator, partners, small groups, whole class) to demonstrate their understanding of the content?*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
12. Is there a right or wrong way to use the technology available in their learning process? How do they/you know?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
13. What knowledge and skills have student learners gained from the current use of technology in this English/Language Arts class that will be useful in their future learning?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
15. How do these technology-based learning experiences impact learner autonomy?	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

*Note: These interview questions correspond with both research questions.

Overall, the Educator Participant Three-Series Interview Instrument _____ strongly ____ somewhat _____ does not correspond(s) with the research questions.
Commentary/Suggestions:

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Instrument in Review: Observation Checklist

Research Question One: How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

Research Question Two: How does the technology-based learning environment impact learner autonomy?

Observation Indicators Corresponding with Research Question One

Observation Indicator*	Rating of Extent the Interview Question Corresponds with Research Question One	Decision	Commentary/Suggestions
1. The tables/desks and chairs allow flexibility for meeting in collaborative groups or working independently.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

2. An area is designated for isolated, independent work or needed breaks from tasks.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
3. The displays in the room reflect E/LA content.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
4. The room contains technology for educator and student utilization. The following technology were evident: ___ mobile/smart phone ___ laptop ___ desktop computer ___ tablet ___ Web 2.0 tools ___ Internet ___ data/LCD projector ___ printer ___ QR codes ___ vodcasts/podcasts ___ assistive technology ___ storage and retrieval systems ___ interactive white board ___ student-response system ___ wireless mouse/keyboard ___ audio/video recording tools ___ other(s):_____	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

5. There is a schedule, routine, and discipline in the classroom.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
6. The E/LA content is delivered through a mix of one-on-one, partner, small groups, and whole group instruction.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
7. The educator is mobile in the room.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
8. The educator utilizes flexible homogeneous and heterogeneous grouping of students based on content readiness.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
9. The educator assists and supports learners through scaffolding techniques.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
10. The educator coaches, guides, and models effective ways to integrate technology in the E/LA learning process.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
11. Educator supports learning and encourages social interaction and collaboration.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

12. The educator facilitates authentic learning tasks.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
13. The educator crafts anchored or situated learning opportunities.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
14. Student learners have specific jobs/roles in the E/LA classroom.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
15. Student learners are given opportunities to interact and collaborate with peers.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
16. Student learners have choices or a voice in the content delivery.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
17. Student learners are given choices or have a voice in their demonstration of content understanding.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
18. Student learners are given opportunities to explore, generate, and defend affirming and contradictory understandings of content.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

*Note: These observation indicators correspond with both research questions.

Observation Indicators Corresponding with Research Question Two

Observation Indicator*	Rating of Extent the Interview Question Corresponds with Research Question One	Decision	Commentary/Suggestions
6. The E/LA content is delivered through a mix of one-on-one, partner, small groups, and whole group instruction.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
7. The educator is mobile in the room.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
8. The educator utilizes flexible homogeneous and heterogeneous grouping of students based on content readiness.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
9. The educator assists and supports learners through scaffolding techniques.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
10. The educator coaches, guides, and models effective ways to integrate technology in the E/LA learning process.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
11. Educator supports learning and encourages social interaction and collaboration.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

12. The educator facilitates authentic learning tasks.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
13. The educator crafts anchored or situated learning opportunities.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
14. Student learners have specific jobs/roles in the E/LA classroom.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
15. Student learners are given opportunities to interact and collaborate with peers.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
16. Student learners have choices or a voice in the content delivery.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
17. Student learners are given choices or have a voice in their demonstration of content understanding.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
18. Student learners are given opportunities to explore, generate, and defend affirming and contradictory understandings of content.*	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

19. The roles of the educator continually shift between manager, resources person, instructor, and facilitator.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
20. The educator provides a variety of study methods within and outside of the classroom setting and allocates independent work time.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
21. The educator promotes equal responsibility for learning through learner-centered activities.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
22. The educator questions and observes the thinking and learning process of their students.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
23. The educator listens to student learners frequently (e.g., one-on-one conferencing, small groups, asks/answers questions of students, is responsive to student indicated needs of educator).	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
24. Student learners display initiative and contribute in the learning process as active participants in their learning process.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

25. Student learners choose to work cooperatively and collaboratively with peers and their educator.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
26. Student learners communicate, share, and defend their products to peers and their educator.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
27. Student learners can explain the capabilities and appropriate utilization of technology in their learning process.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
28. Student learners are able to establish and articulate learning objectives and goals well.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
29. Student learners engage in self-assessing and monitoring of their learning.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	
30. Student learners identify their learning needs.	_____ Strongly _____ Somewhat _____ Does Not	_____ Accept _____ Modify _____ Omit	

*Note: These observation indicators correspond with both research questions.

Overall, the Observation Checklist Instrument _____ strongly _____ somewhat _____ does not correspond(s) with the research questions.

Commentary/Suggestions:

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Appendix D

Participant Invitations

County Leader/Principal Invitation

Dear [County Leader/Principal],

I am writing to seek consideration in conducting one of my cases of study in one of the middle grades, English/Language Arts classrooms in [name of county/school] as I work on my dissertation titled "An Exploration of the Technology-Based Learning Environment in Middle Grades English/Language Arts and Its Impact on Learner Autonomy".

I am proposing to:
(1) send an invitation to all middle school E/LA teachers and choose the educator best matching the criteria of my study (see attached participant invitation),
(2) interview the chosen educator on three separate occasions (can be before/after school or their planning time) utilizing the educator three series interview template (see attached instruments),
(3) utilize an observation checklist to observe the natural learning environment on three separate occasions (see attached instruments), and
(4) conduct one interview a few students in the classroom that exemplify the characteristics of my study (see attached instruments).
I will share the information with the educator and student learners for them to check my accuracy. I believe that a total of 4 class periods will be needed to accomplish my research.

It would be my pleasure to share more information about my research with you. Is there a good time I might reach you?

Please do not hesitate to contact me at mwelch0921@lions.piedmont.edu or [work email] or (###) ###-#### (my cell phone). Feel free to also contact Dr. Randy Hollandsworth, my Dissertation Committee Chair, at (###) ###-#### ext. #### or rhollandsworth@piedmont.edu.

Thanks again for your guidance and consideration,
Mary Welch

Participant Invitation

Dear Fellow Educator,

I am writing to invite you to participate in a study that explores the manner in which technology-based learning impacts the learning environment of student learners and their educators in middle grades English/Language Arts instruction and how those experiences impact learner autonomy. I will be conducting this study as a doctoral student in the Department of Education at Piedmont College, under the guidance of Dr. Randy Hollandsworth.

The purpose of this study is to describe how the utilization of technology in middle grades English/Language Arts class instruction impacts the learning environment and student learners and their educators and how those experiences impact learner autonomy. I am looking for educators who: (a) teach in the middle grades English/Language Arts content area; (b) utilize, or promotes the utilization of, technology for content delivery or demonstration of mastery in his/her middle grades E/LA class instruction practices; (c) structure the classroom physically to guide and encourage social interaction and collaboration that promotes learner autonomy; (d) create a positive learning environment through Differentiated Instruction practices, as evidence through his/her administration observations and lesson plans that are inclusive of "high-quality curriculum, assessment to inform educator decision making, and flexible classroom management" (Tomlinson, & Imbeau, 2010, p. 13); and I learn and embrace effective ways to integrate technology and facilitate, coach, guide, and model technology integration and utilization of appropriate technology and media tools.

As I seek to understand the impacts and influence of technology utilization in class instruction, I will invite you to participate in a three-interview series, observations, document analysis, and subsequent interviews in case additional information or clarification is needed. The three-interview series will involve: (a) an initial interview to build context through the sharing of the learning environment, teaching experience and training and experiences related to educational technology, and common understandings of terms related to this study; (b) a follow up interview

to share stories and specific examples and your roles in your learning environment; and (c) a closing interview to explore your past events that led to where you currently are, concrete details of your present experiences, and future implications. Each interview will be tape recorded, transcribed, and returned to you for review to ensure accuracy. Observations will occur to discover the interactions of participants within this natural social setting. These will involve checklists of observations that will aid me in our subsequent interviews. During the observations relevant documents to the study (e.g., lesson plans, websites, student tasks, student assignments, and student work samples) will be requested by the researcher for further analysis.

Your name (and student learner participants' names) will not be utilized in the published findings or oral presentations of this study. Comments shared, observations made, and documents viewed will be used anonymously, and pseudonyms will be utilized to protect your name and the names of your student learner participants. As data are collected and themes emerge, I will ask you to review the data with me to make sure it accurately depicts your story. After the study has concluded, I will share the findings, interpretations, and implications with you.

This study aims to inform educators and others whose decisions regarding professional development, instructional practices, and instructional resources might influence the learning experiences for educators and their student learners. If you have any questions and/or would like to be one of my educator participants, please do not hesitate to contact me. I may be reached at (###) ### - #### or through email at mwelch0921@lions.piedmont.edu. I appreciate your consideration to participate and share your story.

Sincerely,

Mary Welch

Principal Investigator

Appendix E

Educator Participant Consent Form

I, _____, agree to participate in a research study titled
"*An Exploration of the Technology-Based Learning Environment in Middle Grades
English/Language Arts and Its Impact on Learner Autonomy*" conducted by Mary Welch
from the School of Education at Piedmont College under the direction of Dr. Randy
Hollandsworth, Associate Professor, School of Education, Piedmont College.

I. Purpose
I understand that I have been invited to participate in a research study. The purpose of
this study is to describe how the utilization of technology in middle grades
English/Language Arts class instruction impact the learning environment and how those
experiences impact learner autonomy. I was invited to participate because I am an
educator who: (a) teaches in the middle grades E/LA content area; (b) utilizes, or
promotes the utilization of, technology for content delivery or demonstration of mastery
in my middle grades E/LA class instruction practices; (c) structures the classroom
physically to guide and encourage social interaction and collaboration that promotes
learner autonomy; (d) creates a positive learning environment through Differentiated
Instruction practices, as evidenced through my administration observations and lesson
plans that are inclusive of "high-quality curriculum, assessment to inform educator
decision making, and flexible classroom management" (Tomlinson, & Imbeau, 2010, p.
13); and learns and embraces effective ways to integrate technology and facilitates,
coaches, guides, and models technology integration and utilization of appropriate
technology and media tools.

II. Procedures
If I decide to participate in this study, I will be interviewed three times for a period of 45
to 60 minutes on each occasion, and shortly after each observation to address minor
things for clarity and checking the researcher's understanding. The interviews will be
conducted either at my school or another place more convenient for me. The interviews
will be conducted with one to two weeks between each interview and observation if
possible. I understand the Principal Investigator, Mary Welch, will conduct the interviews
and they will be audio taped and transcribed. I also understand there will be observations,
with the Principal Investigator, Mary Welch, as participant observer, and each
observation will last approximately 60 minutes. The observations will focus on the
impact of the learning environment and how those experiences impact learner autonomy.
The observations will also be referenced in subsequent interviews. I also understand there
will be documents (e.g., my lesson plans; my website; my students' tasks, assignments,
work samples) the Principal Investigator, Mary Welch, will ask to gather, discuss, and
analyze to further supplement findings from the observations and interviews. I understand
these documents will be copied or shared in the study only with my permission and use of
a pseudonym.

III. Risks
I understand that risk from participating in this study is minimal and consists of possible discomfort discussing my personal beliefs in regard to my teaching and learning. I understand that I can skip questions that make me feel uncomfortable. I also understand that if I discuss or reveal something in an interview that I later determine is personal, I can ask that it not be included in the data of the study at any time.

IV. Benefits
I understand that participation in this study may benefit me professionally and personally. This experience will afford me the opportunity to reflect on and analyze my learning environment and how it impacts autonomy. Overall, the Primary Investigator hopes I gain information about how my learning environment impacted past, impacts current, and will impact future student learners, other researchers in this field, and myself.

V. Voluntary Participation and Withdrawal
I understand that participation in this study is voluntary. If I change my mind about participating, I have the right to drop out at any time. I will not lose any benefits to which I am otherwise entitled.

VI. Confidentiality
I understand that my records will be kept private to the extent allowed by law. The Principal Investigator, Mary Welch, will utilize pseudonyms for my school location, my student learners, and me. When this study is presented or its findings are published, my name and other facts that directly link to me will not appear. The data will be stored electronically on the Principal Investigator's personal computer under password protection, and the audio recordings and their transcriptions will be stored in a locked filing cabinet in the Principal Investigator's home from completion of interview transcriptions until January 1, 2019, at which time the audio recordings will be destroyed.

VII. Contact Persons
I understand I may contact the Principal Investigator, Mary Welch, at (###) ### - #### or mwelch0921@lions.piedmont.edu if I have any questions or concerns about this study. If you have further questions or concerns you may contact Dr. Randy Hollandsworth, Dissertation Committee Chair, at (###) ### - #### ext. ### or rhollandsworth@piedmont.edu. If you have further questions or concerns in regard to your rights as a participant in this study, you may also contact Dr. Ron Leslie, IRB Chair, at (###) ###- #### ext. ### or rleslie@piedmont.edu.

VIII. Copy of Consent Form to Participant
I will be given a copy of this consent form to keep for my records. My willingness to volunteer for this study and be audio recorded is confirmed through my signature below.

_____   _____
        (Educator Participant Signature)   (Date)

Appendix F

Parental and Student Learner Participant Consent Forms

Parent Consent Form

I, _____, agree to allow my child, _____, to participate in a research study titled "*An Exploration of the Technology-Based Learning Environment in Middle Grades English/Language Arts and Its Impact on Learner Autonomy*" conducted by Mary Welch from the School of Education at Piedmont College under the direction of Dr. Randy Hollandsworth, Associate Professor, School of Education, Piedmont College.

I. Purpose
I understand that my child's educator and child (student learner) have been invited to participate in a research study. The purpose of this study is to describe how the use of technology in the English/Language Arts class impacts the learning environment and how those experiences impact learner autonomy. My child was chosen as a participant because they experience the type of learning environment shared in the Principal Investigator's study.

II. Procedures
If I decide to allow my child to participate in this study, they will be interviewed one time for a period of 45 to 60 minutes. The interviews will be conducted at my child's school, audio taped, and transcribed. I also understand there will be observations of the class that will last approximately 60 minutes. I also understand there will be documents (e.g., student tasks, student assignments, student work samples) the Principal Investigator, Mary Welch, will ask to gather and analyze to further support the observations and interviews. The researcher may ask my child to clarify and verify the accuracy of the gathered information.

III. Risks
I understand the risk from participating in this study is minimal and may result in my child feeling uncomfortable as they discuss their beliefs in regard to their experiences in their class. I understand that my child can skip questions that make them feel uncomfortable. I also understand that if my child discusses or reveals something in an interview that they later determine is personal, they can ask that it not be included in the data of the study at any time.

IV. Benefits
I understand that participation in this study may benefit my child. This experience will allow my child to reflect on and analyze their class and how it impacts their learning. Overall, the Primary Investigator hopes you gain information about how your child's class has impacted them in the past, impacts them currently, and will impact their future learning experiences.

V. Voluntary Participation and Withdrawal

I understand that participation in this study is voluntary. If I change my mind about my child participating, we have the right to drop out at any time. My child will not lose any benefits to which we are otherwise entitled.

VI. Confidentiality

I understand that my child's records will be kept private to the extent allowed by law. The Principal Investigator, Mary Welch, will utilize pseudonyms for my school location, my child's educator, and my child. When this study is presented or its findings are published, my child's name and other facts that might point to my child or their educator will not appear. The data will be stored on the Principal Investigator's personal computer under password protection, and the audio recordings and their transcriptions will be stored in a locked filing cabinet in the Principal Investigator's home from completion of interview transcriptions until January 1, 2019, at which time the audio recordings will be destroyed.

VII. Contact Persons

I understand I may contact the Principal Investigator, Mary Welch, at (###) ### - #### or mwelch0921@lions.piedmont.edu if I have any questions or concerns about this study. If I have further questions or concerns I may contact Dr. Randy Hollandsworth, Dissertation Committee Chair, at (###) ### - #### ext. ### or rhollandsworth@piedmont.edu. If I have additional questions or concerns in regard to my child's rights as a participant in this study, I may also contact Dr. Ron Leslie, IRB Chair, at (###) ###- #### ext. ### or rleslie@piedmont.edu.

VIII. Copy of Consent Form to Participant:

I will be given a copy of this consent form to keep for my records. My child's willingness to volunteer for this study and be audio recorded is confirmed through my signature below.

_____   _____

 (Parent Signature)   (Date)

Student Learner Participant Consent Form

I, _____, agree to participate in a research study titled "*An Exploration of the Technology-Based Learning Environment in Middle Grades English/Language Arts and Its Impact on Learner Autonomy*" conducted by Mary Welch from the School of Education at Piedmont College under the direction of Dr. Randy Hollandsworth, Associate Professor, School of Education, Piedmont College.

I. Purpose
I understand that my English/Language Arts educator and students have been invited to participate in a research study. The purpose of this study is to describe how the use of technology in the English/Language Arts class impacts the learning environment and how those experiences impact learner autonomy. I was chosen as a participant because I experience the type of learning environment shared in the Principal Investigator's study.

II. Procedures
If I decide to participate in this study, I will be interviewed one time for a period of 45 to 60 minutes. The interviews will be conducted at my school, audio taped, and transcribed (typed up). I also understand there will be observations of my class that will last approximately 60 minutes. I also understand there will be documents (e.g., student tasks, student assignments, student work samples) the Principal Investigator, Mary Welch, will ask to gather and analyze to further support the observations and interviews. The researcher may ask me to clarify and verify the accuracy of gathered information.

III. Risks
I understand the risk from participating in this study is minimal and may result in my feeling uncomfortable as I discuss the experiences in my class. I understand that I can skip questions that make me feel uncomfortable. I also understand that if I discuss or reveal something in an interview that I later feel is personal, I can ask that it not be included in the data of the study at any time.

IV. Benefits
I understand that participation in this study may benefit me. This experience will allow me to reflect on and analyze my class and how it impacts my learning. Overall, the Primary Investigator hopes I gain information about how my class has impacted me in the past, impacts me currently, and will impact my future learning experiences.

V. Voluntary Participation and Withdrawal
I understand that participation in this study is voluntary. If I change my mind about participating, I have the right to drop out at any time. I will not lose any benefits to which we are otherwise entitled.

VI. Confidentiality

I understand that my records will be kept private to the extent allowed by law. The Principal Investigator, Mary Welch, will utilize pseudonyms (fake names) for my school location, my educator, and me. When this study is presented or its findings are published, my name and other facts that might point to my educator or me will not appear. The data will be stored on the Principal Investigator's personal computer under password protection, and the audio recordings and their transcriptions (typed copies) will be stored in a locked filing cabinet in the Principal Investigator's home from completion of interview transcriptions until January 1, 2019, at which time the audio recordings will be destroyed.

VII. Contact Persons

I understand I may contact the Principal Investigator, Mary Welch, at (###) ### - #### or mwelch0921@lions.piedmont.edu if I have any questions or concerns about this study. If I have further questions or concerns I may contact Dr. Randy Hollandsworth, Dissertation Committee Chair, at (###) ### - #### ext. ### or rhollandsworth@piedmont.edu. If I have additional questions or concerns in regard to my rights as a participant in this study, I may also contact Dr. Ron Leslie, IRB Chair, at (###) ###- #### ext. ### or rleslie@piedmont.edu.

VIII. Copy of Consent Form to Participant:

I will be given a copy of this consent form to keep for my records. My willingness to volunteer for this study and be audio recorded is confirmed through my signature below.

_____   _____

(Student Learner Participant Signature)   (Date)

Appendix G

Student Learner Participant Interview Protocol

Research Questions Addressed:
1. How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?
2. How does the technology-based learning environment impact learner autonomy?

Interview Topics:
- Student learner participant's demographic and contextual information
- Student learner participant's past and present learning experiences, environment, and educator and student expectations and roles in the technology-based, English/Language Arts classroom

Interview Questions:
Prior to conducting the interview, the student learner participant and researcher introduced themselves to each other and reviewed the consent procedures and research study (see Appendix F). The participant and researcher also discussed and acquired shared understandings of the following defined terms specific to this research study: English/Language Arts, learner autonomy, technology, and technology-based learning [See Definitions of Terms]. After obtaining informed consent, the following questions were proposed, audio recorded, transcribed, and member checked with the student learner participant.

Physical Learning Environment		
Interview Question	*Rationale and Key Contributors*	*Research Question(s) Addressed*
1. Describe the setup of your current English/Language Arts classroom.	- active classroom descriptors (Elkind, 1976; Suryaningrum et al., 2014) - effective technology enhanced environment (Jacobs, 2010b; November, 2010b; Perkins, 1992) - tools for interactive classroom (Hsu et al., 2014; November, 2010b; Sheskey, 2010)	1
2. How does this arrangement in your classroom help you learn?	- social interaction and collaboration (Bandura, 2000; Coppola, 2004; Elkind, 1976; Fosnot, 1996; Jarvis, 2005; Jonassen, 1991; Piaget, 1970; Rakes et al., 2006; Sandholtz et al., 1996; Von Glasersfeld, 1996; Vygotsky, 1978) - modeling and utilization of appropriate technology and media skills (Baker, 2010; Davies, 2011; Davies & West, 2014;	2

	Prensky, 2010; Rakes et al., 2006) - presents opportunities to take ownership of learning/develop autonomy (Asmari, 2013; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002) - varying degrees of dependence/independence (Holec, 1981; Mutlu & Eroz-Tuga, 2013; Reinders, 2010) - cultivation of supportive learning environment for autonomous learners (Asmari, 2013; Chan, 2001; Holec, 1981; Lamb, 2011; Little, 1995; Oguz, 2013; Reinders, 2010)	
Learning Environment: Technology-Based Learning Practices		
Interview Question	*Rationale and Key Contributors*	*Research Question(s) Addressed*
3. (a) What technology tools do you use outside of school for learning/entertainment? (b) What technology tools do you use inside school for learning?	- "constantly connected" (Palfrey & Gasser, 2008, p. 5) through Internet (November, 2010a) to communicate globally with peers through social media (Hsu et al., 2014; Prensky, 2010; Oh & Reeves, 2014; Palfrey & Gasser, 2008) - abilities of Digital Natives (Baker, 2010)	2
4. (a) For what purposes do you use (outside of and in school) the technology you have shared (in number three)? (b) How frequently do you use this technology (outside of school and in school)?	- possibilities of and interests in technology (Behera, 2013; Hockly, 2013; Hsu et al., 2014; Hussain & Adeeb, 2009; November, 2010b; Sheskey, 2010) - Awareness, Praxis, and Phronesis levels (Davies, 2011) - consistent with autonomous learner (Holec, 1981; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002) - varying degrees of dependence/independence (Holec, 1981; Mutlu & Eroz-Tuga, 2013; Reinders, 2010)	2
5. (a) How is technology used by your educator to help you understand the English/Language Arts content? By your classmates and you to teach each other	- technology utilized (Hsu et al., 2014; Husbye & Elsener, 2014; Jacobs, 2010b; Kervin et al., 2013; November, 2010b; Perkins, 1992; Sheskey, 2010) - support autonomous learner (Asmari, 2013; Mutlu & Eroz-Tuga, 2013; Raya &	1,2

the E/LA content? (b) How do you show that you understand the E/LA standards through the use of technology?	Fernandez, 2002) - modeling, support, and empowerment (Ally & Prieto-Blazquez, 2014; Bransford et al., 1990; Brown et al., 1996; Lave & Wenger, 1991) - LoTi (Moersch, 1995)	
Learner Autonomy		
Interview Question	*Rationale and Key Contributors*	*Research Question(s) Addressed*
6. (a) How are assignments determined by the educator in your English/Language Arts class? (b) How are assignments determined by the students in this English/Language Arts class?	- anchored/situated learning tasks (Ally & Prieto-Blazquez, 2014; Bransford et al., 1990; Brown et al., 1996; Lave & Wenger, 1991) - educator understanding of content, pedagogy, and technology; TPACK (Abbitt, 2011; Graham et al., 2009; Koehler et al., 2014; Mishra & Koehler, 2006; Shulman, 1986) - characteristics of autonomous learner (Chan, 2001; Holec, 1981; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008) - student choice/voice (Keller, 1987, 2008a, 2008b; Keller & Suzuki, 2004; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; November, 2012) - take responsibility for learning (Asik, 2010; Asmari, 2013; Holec, 1981; Little, 1995; Reinders, 2010) - learner-centered (Chan, 2001; Holec, 1981; Lamb, 2011; Little, 1995; Reinders, 2010)	1,2
7. Who makes the decision about how you will get the assignments/learning tasks in this class done? In which way(s) do you group (independently, one-on-one or small groups with educator, partners, small groups, and whole group) to accomplish this work?	- maximize social interaction (Belland, 2014; Deubel, 2003; Jarvis, 2005) - flexible learning environment (Belland 2004; Hung, 2001; Joan, 2013) - take responsibility for learning (Asik, 2010; Asmari, 2013; Holec, 1981; Little, 1995; Reinders, 2010)	1,2
8. (a) Is there a right way to	- take responsibility for learning (Asik,	2

use the technology available in your learning process? Share how you know. (b) Is there a wrong way to use the technology available in your learning process? Share how you know.	2010; Asmari, 2013; Holec, 1981; Little, 1995; Reinders, 2010) - LoTi (Moersch, 1995) - implementation of learner autonomy framework (Raya & Fernandez, 2002) - Awareness, Praxis, and Phronesis levels (Davies, 2011)	
9. What knowledge and skills have you gained from your current educator's use of technology in this English/Language Arts class that will be useful in your future learning?	- characteristics of autonomous learner (Chan, 2001; Holec, 1981; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008)	2
Additional Student Learner Participant Commentary		
10. Based on the experiences you've shared with me today, do you have any additional comments or experiences you would like to share with me? [Ask additional questions for clarification as needed based on findings.]	(will vary based on participant responses)	1,2

Appendix H

Educator Participant Three-Series Interview Protocol

Research Questions Addressed:

1. How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?
2. How does the technology-based learning environment impact learner autonomy?

First Interview Topics:

- Acquire shared understandings of the terms specific to this research study
- Educator participant's demographic and contextual information

Interview One Questions:

Prior to the conduction of the first interview, the educator participant and researcher introduced their selves to each other and reviewed the consent procedures and research study (see Appendix E). The participant and researcher also discussed and acquired shared understandings of the following defined terms specific to this research study: English/Language Arts, learner autonomy, technology, and technology-based learning (see Definitions of Terms). After obtaining informed consent, the following questions were proposed, audio recorded, transcribed, and member checked with the educator participant.

Building Context		
Interview Question	*Rationale and Key Contributors*	*Research Question(s) Addressed*
1. How do you define English/Language Arts? Learner autonomy? Technology? Technology integration? [The educator participant and researcher will discuss and acquire shared understandings of these defined terms specific to this research study.]	(see Definition of Terms)	1,2
2. Describe how your current English/Language Arts classroom is physically structured or arranged.	- active classroom descriptors (Elkind, 1976; Suryaningrum et al., 2014) - effective technology enhanced environment (Jacobs, 2010b; November, 2010b; Perkins, 1992)	1

	- tools for interactive classroom (Hsu et al., 2014; November, 2010b; Sheskey, 2010)	
3. What is your rationale for having your English/Language Arts classroom physically structured in the manner you described?	- social interaction and collaboration (Bandura, 2000; Coppola, 2004; Elkind, 1976; Fosnot, 1996; Jarvis, 2005; Jonassen, 1991; Piaget, 1970; Rakes et al., 2006; Sandholtz et al., 1996; Von Glasersfeld, 1996; Vygotsky, 1978) - modeling and utilization of appropriate technology and media skills (Baker, 2010; Davies, 2011; Davies & West, 2014; Prensky, 2010; Rakes et. al, 2006) - presents opportunities to take ownership of learning/develop autonomy (Asmari, 2013; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002) - varying degrees of dependence/independence (Holec, 1981; Mutlu & Eroz-Tuga, 2013; Reinders, 2010) - cultivation of supportive learning environment for autonomous learners (Asmari, 2013; Chan, 2001; Holec, 1981; Lamb, 2011; Little, 1995; Oguz, 2013; Reinders, 2010) - understanding of content, pedagogy, and technology (Koehler et al., 2014; Mishra & Koehler, 2006; Shulman, 1986)	2
4. (a) Tell me about your technology journey as an educator. (b) How did you come to utilize technology in your English/Language Arts instruction?	- understanding of content, pedagogy, and technology (Koehler et al., 2014; Mishra & Koehler, 2006; Shulman, 1986) - educator autonomy (Asmari, 2013; Holec, 1981; Lamb, 2011; Little, 1995; Oguz, 2013)	1,2
Additional Student Learner Participant Commentary		
5. Based on what we discussed today, are there any additional experiences, reflections, or comments you would like to share with me? (Ask additional questions for clarification as needed based on findings.)	(will vary based on participant responses)	1,2

Second Interview Topic:

- Educator participant's present instructional decision making and technology integration experiences, practices, and roles in their current learning environment

Interview Two Questions:

Prior to the conduction of the second interview, the educator participant and researcher engaged in a member check from the first interview and clarification of any data obtained. The following questions were proposed, audio recorded, transcribed, and member checked with the educator participant.

Learning Environment: Technology-Based Learning Practices		
Interview Question	*Rationale and Key Contributors*	*Research Question(s) Addressed*
6. (a) What technology tools do you use outside of school for learning/entertainment? (b) What technology tools do you use inside school to promote learning?	- "constantly connected" (Palfrey & Gasser, 2008, p. 5) through Internet (November, 2010a) to communicate globally with peers through social media (Hsu et al., 2014; Prensky, 2010; Oh & Reeves, 2014; Palfrey & Gasser, 2008) - abilities of Digital Natives (Baker, 2010) - possibilities of and interests in technology (Behera, 2013; Hockly, 2013; Hsu et. al, 2014; Hussain & Adeeb, 2009; November, 2010b; Sheskey, 2010)	2
7. (a) For what purposes do you use (outside of and in school) the technology you have shared (in number six)? (b) How frequently do you use them (outside of school and in school)?	- Awareness, Praxis, and Phronesis levels (Davies, 2011) - consistent with autonomous learner (Holec, 1981; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002) - varying degrees of dependence/independence (Holec, 1981; Mutlu & Eroz-Tuga, 2013; Reinders, 2010)	2
8. Share some examples and supporting details or physical/digital artifacts of current technology-based learning practices in your English/Language Arts classroom.	- technology utilized (Hsu et al., 2014; Husbye & Elsener, 2014; Jacobs, 2010b; Kervin et al., 2013; November, 2010b; Perkins, 1992; Sheskey, 2010) - support autonomous learner (Asmari, 2013; Mutlu & Eroz-Tuga, 2013; Raya & Fernandez, 2002) - modeling, support, and empowerment (Ally & Prieto-Blazquez, 2014; Bransford	1

9. (a) How do you (and student learners) utilize technology in this class to teach the English/Language Arts content? (b) How is technology utilized to demonstrate students' understanding of the English/Language Arts content/standards?	et al., 1990; Brown et. al, 1996; Lave & Wenger, 1991) - LoTi (Moersch, 1995)	1,2
Additional Student Learner Participant Commentary		
5. Based on what we discussed today, are there any additional experiences, reflections, or comments you would like to share with me? (Ask additional questions for clarification as needed based on findings.)	(will vary based on participant responses)	1,2

Third Interview Topics:

- Educator participants explore past events that led to current practices, concrete details of present experiences, and future implications.

Interview Three Questions:

Prior to the conduction of the third interview, the educator participant and researcher engaged in a member check from the second interview and clarification of any data obtained. The following questions were proposed, audio recorded, transcribed, and member checked with the educator participant.

Learner Autonomy		
Interview Question	*Rationale and Key Contributors*	*Research Question(s) Addressed*
10. (a) How are learning tasks, or assignments, understood, determined, and demonstrated by you in this English/Language Arts class? (b) How are learning tasks, or assignments, understood,	- anchored/situated learning tasks (Ally & Prieto-Blazquez, 2014; Bransford et al., 1990; Brown et al., 1996; Lave & Wenger, 1991) - educator understanding of content, pedagogy, and technology; TPACK (Abbitt, 2011; Graham et al., 2009; Koehler et al., 2014; Mishra & Koehler,	1,2

determined, and demonstrated by your student learners in this English/Language Arts class?	2006; Shulman, 1986) - characteristics of autonomous learner (Chan, 2001; Holec, 1981; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008) - student choice/voice (Keller, 1987, 2008a, 2008b; Keller & Suzuki, 2004; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; November, 2012) - take responsibility for learning (Asik, 2010; Asmari, 2013; Holec, 1981; Little, 1995; Reinders, 2010) - learner-centered (Chan, 2001; Holec, 1981; Lamb, 2011; Little, 1995; Reinders, 2010)	
11. Who makes the decision about how student learners will get the assignments/learning tasks in this class completed? In which way(s) do student learners group (i.e., independently, one-on-one or small groups with educator, partners, small groups, and whole group) to accomplish this work?	- maximize social interaction (Belland, 2014; Deubel, 2003; Jarvis, 2005) - flexible learning environment (Belland 2014; Hung, 2001; Joan, 2013) - take responsibility for learning (Asik, 2010; Asmari, 2013; Holec, 1981; Little, 1995; Reinders, 2010)	1,2
12. Is there a right and wrong way to use the technology available in the learning process? Share how you know.	- take responsibility for learning (Asik, 2010; Asmari, 2013; Holec, 1981; Little, 1995; Reinders, 2010) - LoTi (Moersch, 1995) - implementation of learner autonomy framework (Raya & Fernandez, 2002) - Awareness, Praxis, and Phronesis levels (Davies, 2011)	2
13. What knowledge and skills have student learners gained from the current use of technology in your English/Language Arts class that will be useful in their future learning?	- characteristics of autonomous learner (Chan, 2001; Holec, 1981; Lamb, 2011; Mutlu & Eroz-Tuga, 2013; Oguz, 2013; Raya & Fernandez, 2002; Reinders, 2010; Smith, 2008)	2

Research Question Reflections		
14. How has the use of technology-based learning practices impacted your English/Language Arts learning environment? (b) How has the use of technology-based learning practices impacted your student learners' learning environment?	(will vary based on participant responses)	1
15. Has the use of technology-based learning experiences impacted learner autonomy? Describe.	(will vary based on participant responses)	2
Additional Student Learner Participant Commentary		
5. Based on what we discussed today, are there any additional experiences, reflections, or comments you would like to share with me? [Ask additional questions for clarification as needed based on findings.]	(will vary based on participant responses)	1,2

Appendix I

Observation Checklist Protocol

Date:_____ Time In/Out :_____ Case/Participant Code_____

Observation Codes
Evidence: Evident I, Not Evident (NE), Not observed (NO)

Source Determinate(s): Student Learner Participant (SLP), Educator Participant (EP), Document Observed (DO), Physically Observed (PO)

Research Study Indicators	Evidence	Source Determinate	Field Notes
Physical Learning Environment			
1. The tables/desks and chairs allow flexibility for educator/student learners meeting in collaborative groups or working independently (as this relates to encouraging the use of technology).	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
2. A student-selected area is available for isolated, independent work or needed breaks from tasks.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
3. The displays/digital presence (e.g., computer/projected screens, bulletin/dry erase/white boards, posters, student showcase areas) in the room reflect E/LA content.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
4. There is an evident (posted/non-posted) schedule/routine to the class.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
Learning Environment: Technology-Based Learning Practices			
Educator Participant			
5. The E/LA content is offered through a mix of independent, one-on-one, partner, small groups, and whole group technology-based instruction.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
6. The educator is mobile in the room.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	

7. The educator utilizes flexible homogeneous and heterogeneous grouping based on content readiness.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
8. The educator assists and supports learners through technology-based scaffolding techniques.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
9. The educator coaches, guides, and models how to integrate technology in the E/LA learning process.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
10. Educator supports learning and encourages social interaction and collaboration.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
11. The educator incorporates the use of technology to facilitate authentic learning tasks.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
12. The educator incorporates the use of technology to craft anchored or situated learning opportunities.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
Student Learner Participants			
13. Student learners are given technology-based opportunities to work independently and interact and collaborate with peers.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
14. Student learners are given technology-based choices or a voice in content delivery.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
15. Student learners are given technology-based choices or have a voice in their demonstration of content understanding.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
16. Student learners are given technology-based opportunities to explore, generate, and defend affirming and contradictory understandings of content.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
Learner Autonomy			
Educator Participant			

17. The roles of the educator continually shift between manager, resources person, instructor, and facilitator.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
18. The educator provides a variety of technology-based study methods (e.g., homework; enrichment/remediation activities) within and outside of the classroom setting and allocates independent work time.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
19. The educator questions and observes the technology-based thinking and learning process of their students.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
20. The educator listens to student learners (e.g., one-on-one conferencing, small groups, asks/answers questions of students, is responsive to student indicated needs of educator).	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
Student Learner Participants			
21. When given technology-based learning tasks, student learners display initiative and contribute in the learning process as active participants in their learning process.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
22. When given technology-based learning tasks, student learners choose to work cooperatively and collaboratively with peers and their educator.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
23. Student learners communicate, share, and defend their technology-based products to peers and their educator.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
24. Student learners are able to establish and articulate learning objectives/goals and explain how technology will be utilized to achieve these.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
25. Student learners engage in technology-based self-assessing and monitoring of their learning.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	
26. Student learners identify their technology-based learning needs.	____ E ____ NE ____ NO	____ SLP ____ EP ____ DO ____ PO	

Appendix J

Category and Coding Scheme

1. Learning Environment: Physical Structure

   PLE1 Accessibility to resources

   PLE2 Structure encourages social interaction and collaboration

2. Learning Environment: Technology-Based Learning Practices

   BP1 Assess student progress towards content mastery

   BP2 Clear criteria/expectations of learning task

   BP3 Craft student choice in content delivery and demonstration of content

   understanding

   BP4 Educator mobility and shift in roles

   BP5 Modeling and proper utilization of technology tools

   BP6 Social interaction and collaboration encouraged

   BP7 Supports learners through scaffolding techniques and flexible grouping

   strategies

   BP8 Understanding of content, pedagogy, and technology

3. Learner Autonomy

   LA1 Active and engaged participants in the learning process

   LA2 Choose to work collaboratively/independently

   LA3 Communicate, share, and defend their products to peers/educator

   LA4 Engage in self-assessing and monitoring of their learning

   LA5 Establish and articulate learning goals and how to obtain them

   LA6 Varying degrees of independence/dependence

Appendix K

Sample Coded Interview Transcript

Bill Interview

November 6, 2014

[Researcher and Bill discussed researcher's definition and reached common understandings.]

Researcher: Describe the set up of your current English/Language Arts classroom.

Bill: [Well, it's sort of set up based around the technology standpoint. Masters Academy is based around technology. In our language arts class we don't really have any of the traditional language arts stuff. We don't have as many books as you would have in a regular English/Language Arts room. We have more technology things.] **PLE1**

Researcher: I'm looking more at the physical things you have in your classroom, like how they are positioned/placed.

Bill: [Our furniture in the classroom is placed so that the students will see the teacher better. Our teacher always tells us to get in a place where we can see her lessons,] **PLE1** let's say if it's not a lesson that may be as fun as other lessons. [We don't really use desks, we sit in tables that we work in groups or partnerships for projects.] **PLE2** [We have a TV instead of a projector screen. We look at most of our lessons from that. We do occasionally use the white board, and our teacher does have some books. She has quite a few, but not as many as previous language arts classrooms that I've been in.] **PLE1**

Researcher: Are there any other areas in the classroom set up?

Bill: [Well, there is an area set up with a few chairs for students to sit down and work if they aren't comfortable in their chairs. Maybe that helps them work better.] **PLE1**

Researcher: Is there a place for materials?

Bill: [We don't really use that many materials. We mostly use our laptops and that's about it. If we did get materials, it would probably be from a different classroom.] **PLE1**

Researcher: How does this arrangement in your classroom help you learn?

Bill: [The tables are set up in an easier way for students to see the lessons that's being provided on the TV. It helps them pay better attention to the lesson and the TV helps us understand better because with the technology she uses with the TV it's more visual than on a standard white board.] **PLE1** [The set up that she has makes it easier to learn.] **LA1**

Researcher: What technology do you use outside of learning for learning/entertainment?

Bill: At home, I always like to use the computer I built for homework. That's where I can find my math homework. [I go on my teacher pages every evening to find the homework that was assigned for that day.] **PLE1, LA1**

Researcher: What technology tools do you use inside of school for learning?

Bill: [Well, we generally use our laptops and we do use multiple applications provided by [county] that helps us learn better] **PLE1** [and collaborate if we're in groups like with Google Drive and [county online learning platform]. Those applications help us collaborate with peers and teachers.] **PLE1, LA2** It's a lot easier to take tests on [county online learning platform] than a hard copy test.

Researcher: For what purposes do you use, inside and outside of school, the technology you have shared?

Bill: Both in school and out? [We use Google Drive and [county online learning platform] so that we don't have to be physically talking with the person, we can actually be on the Google Drive and all be collaborating on the same project together.] **LA1, LA2, LA6** [With [county online learning platform] we can talk to our teachers instead of waiting til the next day to talk at school if we're confused about an assignment.] **PLE1, LA1, LA4, LA6** [Also with these applications we can take tests and do tasks that will save paper and some people can type faster than they can write so it kind of benefits them in their speed of work.] **LA1**

Researcher: How frequently do you use that technology in school and out of school?

Bill: We use our technology every day for pretty much every class. [Outside of school I use my technology to finish my school work that I didn't get done in school, doing homework, and working on projects.] **LA1, LA6**

Researcher: How is technology used by your teacher to help you understand the English/Language Arts content?

Bill: [The technology is used by our teacher with the TV and laptop for her lessons.] **PLE1, BP8** [Once a week she tries new things. One week it could be a [county online learning platform] quiz, another week a Prezi or PowerPoint.] **BP5, BP8** [She uses lots of technology so our lessons are made interesting and tries to use the technology to make the lesson more interesting.] **BP8**

Researcher: How is technology used by your classmates and you to teach each other the English/Language Arts content?

Bill: [With the Google Drive and technology, our teacher usually posts the assignments or lessons online. We can download those and show our friends and review with them what she taught us and we can also help them if they weren't there in class that day. We have the documents that we can give them.] **PLE1, LA1, LA6**

Researcher: How do you show that you understand the English/Language Arts standards through the use of technology?

Bill: [Usually every once or two weeks we have a [county online learning platform] test that our teacher puts on the web application [county online learning platform]. We go on our laptops and take the test. She can make them multiple choice or open-ended so there's questions. Then you hit submit quiz and it sends it to the teacher. But if it's multiple choice it will then automatically calculate your grade and give it to you.] **BP1, BP8, LA1, LA4**

Researcher: Can you think of other ways that you demonstrate your understanding through technology?

Bill: [Yes, we can. We do many projects that we do for our book clubs. Those projects show that we understand about the book, how to analyze the book, and the standards that are in the E/LA content.] **BP1, BP8, LA3**

Researcher: How are assignments determined by the teacher in your E/LA class?

Bill: [The assignments are determined by your interests—what books you choose for the book club—and depending on your level of brain power, or your level of understanding, and brings that into account when she's giving assignments.] **BP3, BP7, BP8**

Researcher: Can you think of other ways she determines assignments?

Bill: [She does it by interests, understanding, and what the standards tell her to do.] **BP8**

Researcher: How are assignments determined by you as student in her class?

Bill: [The assignments can be determined by which books the students choose for book club. Their different interests and when we're doing projects our teacher gives us the option of what we want to do. She says multimedia project, so it can be a PowerPoint, video, or any other technology. So that can be determined by the students.] **BP3, LA1, LA6**

Researcher: Who makes the decision about how you will get the assignments in this class done?

Bill: [It depends on the assignment. Lots of times she gives us choices on what we want to do, so the teacher lets us chose what we want to do and how to do it. She'll give us a due date and we'll plan out what we want to do each day.] **BP2, BP3, LA1, LA5, LA6**

Researcher: In what ways do you decide to group (i.e., independently, one on one….) to accomplish this work?

Bill: [Generally, I like to work in a partnership or by myself, depending on who the partner would be. Sometimes I would work in a group of three or four, depending on the project.] **BP6, LA2**

Researcher: Is there a right way to use the technology available in your learning process?

Bill: [I wouldn't say there's exactly a set right way because there are multiple ways you could use the technology to learn the content. Such as the different projects everyone can do a different thing. There is a right way in that it has to be done correctly to match the standard.] **LA5**

Researcher: How do you know what you just shared?

Bill: [I know that because that's what has been taught to us by teachers. Teachers have told us sort of what's expected of us and once they tell us what's expected we just go on and do our project or assignment.] **BP2, LA1**

Researcher: Is there a wrong way to use the technology you have available in your learning process?

Bill: [There is a wrong way. You can be listening to music and playing games instead of doing your work, but not many people do that because they know better.] **BP2**

Researcher: Again, how do you know that?

Bill: [Well, there are rules within [county] and our school of what we can and cannot do with our technology. And the teachers do have/can take away our technology and our parents have to come and pick it up. So there are rules about what you can and cannot do with your technology.] **BP2**

Researcher: What knowledge and skills have you gained from your current teacher's use of technology in your current English/Language Arts class that will be useful in your future learning?

Bill: [I've learned quite a bit about the [county online learning platform] test you can take that are given by the teacher. How they can have you turn in the assignments through [county online learning platform] in different formats. I've learned that with a project there are many other ways you can do things instead of just the… when I was in second and third grade I thought the only way you could do projects was through like a speech or PowerPoint or something like that. Ever since I've gotten older and the teachers at Masters Academy have taught me you can make many things like movies, animations, and stuff for your projects and stuff.] **LA1, LA6**

Researcher: Based on the experiences that you shared with me today, do you have any additional comments or experiences that you would like to share with me?

Bill: [The technology in the English/Language Arts classroom really helps me with learning. It's definitely not a hold back, and it helps students learn faster and teachers students more life skills than just writing on a piece of paper. You can learn new things that you never knew about technology and language arts. You can explore.] **PLE1, BP7, LA1, LA4, LA6**

Appendix L

Data Summary Tables

Research Question One: How does technology-based learning impact the learning environment of student learners and their educators in middle grades English/Language Arts instruction?

Category One: Learning Environment: Physical Structure

Source	PLE1	PLE2
LBTSI	X	X
LBSLPIP	X	
LBSLPIB	X	X
LBO	X	X
LBDA	X	
MJTSI	X	X
MJSLPIC	X	X
MJSLPIS	X	X
MJSLPIL	X	
MJO	X	X
MJDA	X	
JATSI	X	X
JASLPIA	X	X
JASLPIJ	X	X
JASLPIT	X	X
JAO	X	X
JADA	X	

Source Codes:
LBTSI- Lynn Bailey, Three-Series Interviews
LBSLPIP- Lynn Bailey, Student Learner Participant Interview: Periwinkle
LBSLPIB- Lynn Bailey, Student Learner Participant Interview: Bill
LBO- Lynn Bailey, Observations
LBDA- Lynn Bailey, Document Analysis
MJTSI- Mallory Johnson, Three-Series Interviews
MJSLPIC- Mallory Johnson, Student Learner Participant Interview: Periwinkle
MJSLPIS- Mallory Johnson, Student Learner Participant Interview: Sarah
MJSLPIL- Mallory Johnson, Student Learner Participant Interview: Lauren
MJO- Mallory Johnson, Observations
MJDA- Mallory Johnson, Document Analysis
JATSI- Jane Atticus, Three-Series Interviews
JASLPIA- Jane Atticus, Student Learner Participant: Allie
JASLPIJ- Jane Atticus, Student Learner Participant: Jeremy
JASLPIT- Jane Atticus, Student Learner Participant: Tinkerbell
JAO- Jane Atticus, Observations
JADA- Jane Atticus, Document Analysis

Descriptor Codes:
PLE1 Accessibility to resources
PLE2 Structure encourages social interaction and collaboration

Category Two: Learning Environment: Technology-Based Learning Practices

Source	BP1	BP2	BP3	BP4	BP5	BP6	BP7	BP8
LBTSI	X	X	X	X	X	X	X	X
LBSLPIP	X	X	X		X	X		X
LBSLPIB	X	X	X		X	X	X	X
LBO	X	X	X	X	X	X	X	X
LBDA	X	X	X					X
MJTSI	X	X	X	X	X	X	X	X
MJSLPIC	X		X			X		X
MJSLPIS	X	X	X	X		X	X	X
MJSLPIL	X	X	X		X			X
MJO	X	X		X	X	X	X	X
MJDA	X	X		X		X	X	X
JATSI	X	X	X	X	X	X	X	X
JASLPIA	X	X	X	X	X	X	X	X
JASLPIJ	X	X				X		X
JASLPIT	X	X						X
JAO	X	X	X	X	X	X	X	X
JADA	X	X		X			X	X

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Descriptor Codes:
BP1 Assess student progress towards content mastery
BP2 Clear criteria/expectations
BP3 Craft student choice in content delivery and demonstration of content understanding

BP4 Educator mobility and shift in roles
BP5 Modeling and proper utilization of technology tools
BP6 Social interaction and collaboration encouraged
BP7 Supports learners through scaffolding techniques and flexible grouping strategies
BP8 Understanding of content, pedagogy, and technology

Research Question Two: How does the technology-based learning environment impact learner autonomy?

Category: Learner Autonomy

Source	LA1	LA2	LA3	LA4	LA5	LA6
LBTSI	X	X	X	X	X	X
LBSLPIP	X	X	X	X		
LBSLPIB	X	X	X	X	X	X
LBO	X	X	X	X	X	X
LBDA		X	X	X	X	
MJTSI	X	X	X	X	X	X
MJSLPIC	X	X		X	X	
MJSLPIS	X	X	X	X	X	X
MJSLPIL	X	X		X		X
MJO	X	X		X	X	X
MJDA	X	X	X	X	X	X
JATSI	X	X	X	X		X
JASLPIA	X	X		X	X	X
JASLPIJ	X	X	X	X		
JASLPIT	X	X		X		
JAO	X	X	X	X	X	X
JADA	X		X	X		X

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Descriptor Codes:

LA1 Active and engaged participants in the learning process

LA2 Choose to work collaboratively/independently

LA3 Communicate, share, and defend their products to peers/educator

LA4 Engage in self-assessing and monitoring of their learning

LA5 Establish and articulate learning goals and how to obtain them

LA6 Varying degrees of independence/dependence

Appendix M

Theme Findings

Theme	Indicators	Data Source Example
Accessibility to resources	Educator/teacher	Educator structured and organized classroom where "everything's accessible to the students easily" (LBTSI, October 23, 2014); "Makes it easy so that I know where everything is and if I raise my hand, she'll be able to see me raise my hand so that I can ask her a question" (MJSLPIC, December 15, 2014)
	Peer collaboration	"…if you want to talk to your friends all you have to do is turn around. And like if you needed help on something, they just turn around and help you" (JASLPIT, January 20, 2015)
	Technology	"Sometimes I don't have enough time in class…. I can just log in at home and finish it real quick" (MJSLPIS, December 15, 2014); "We have lots—so much technology in the room and that it really helps because we can be interactive with technology and work in different websites and stuff to like learn E/LA more…" (JASLPIA, January 20, 2015)
Best practices in instructional decision making	Assess student progress towards content mastery	"I can look at the student's gains or areas of weakness. I can actually go into the program and set them up an additional kind of like independent study on those areas where they can actually just be looking and working on what they need to be working on" (MJTSI, December 15, 2014)
	Clear criteria/ expectations	"…they know what's required of them, how to get that done, and know where to find help if they need it, they know what's expected, and they rise to the occasion" (LBTSI, November 18, 2014)
	Understanding of content, pedagogy, and technology	Chooses assignments by "…how we learn or like the way each of us, where we are. Sometimes she puts us in groups where I guess you say the students who learn faster are in that group or sometimes she splits us" (MJSLPIS, December 15, 2014); "…I start with the standard and I think to myself, *How am I going to get these kids to understand that?*" (JATSI, January 23, 2015)

Active and engaged participants in the learning process	Choose to work collaboratively/ independently	"…collaborate if we're in groups like with Google Drive and [county online learning platform]. Those applications help us collaborate with peers and teachers" (LBSLPIB, November 6, 2014)
	Engage in self-assessing and monitoring of learning	"If we have a test and do bad on something, then we can already predict that we might go back over it to make sure we all understand" (MJSLPIC, December 15, 2014)
	Varying degrees of independence/ dependence	"…just them being able to be each on their laptops and just kind of independently working on their level or studying at their time at their independent levels, too" (MJTSI, December 15, 2014); "…my high learners are going through (snaps fingers) and they do not have to wait on anyone else, and my lower learners don't have to feel self-conscious about not understanding because after my twenty minute lecture they're still confused" (JATSI, January 20, 2015)

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