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Getting Connected: Understanding how digital tools support the collaborative practices of elementary teachers

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GETTING CONNECTED: UNDERSTANDING HOW DIGITAL TOOLS SUPPORT THE COLLABORATIVE PRACTICES OF ELEMENTARY TEACHERS

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
Educational Leadership

by
Elizabeth Demastes Haun
December 2017

Accepted by:
Dr. Russell Marion, Committee Chair
Dr. Dani Herro
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Dr. Robert Knoeppel
ABSTRACT

This phenomenological study investigated how six elementary teachers are utilizing digital tools and how they perceive these tools can meet their needs for professional collaboration. The study was designed using the theoretical framework of social constructivism and the belief that knowledge is created through social interactions, meaningful experiences, and collaboration with others. Teachers’ perceptions about the importance of collaboration and how they utilize technology to access resources, knowledge, and engage in critical dialogue with other professionals were investigated throughout the study. Data analysis using Moustakas’ (1994) modification of the Stevick-Colizzi Keen method revealed three overarching themes. Teachers are often choosing to use digital tools to engage in professional collaboration after school hours due to a lack of time during the school day. Personal relationships influence the frequency and ease with which teachers engage in digital collaboration. Teachers have positive perceptions about using digital tools for collaboration, but need additional training on how to utilize technology to create collaborative environments that support teacher growth and development. These findings have significant implications for school leaders as they plan professional development opportunities that support teachers’ needs for professional collaboration.
DEDICATION

I dedicate this dissertation to my husband, Dwayne, and son, Mason. I will be eternally grateful for Dwayne’s support and encouragement over the last six years. His sense of humor and motivational talks have kept me going during the most difficult times. Without his support, this would not have been possible. I am also grateful for Mason’s understanding when I had to miss baseball games and spend our Saturdays working on research. I would also like to dedicate this dissertation to my parents and siblings for always believing in me. To my sister, Susan, and brother-in-law, Chad, for always being there when I needed them most. To my mom, Bonnie, for teaching me what it means to sacrifice for those you love. To my dad, Mike, for encouraging me to pursue my dreams. To my father, Jimmy, for teaching me the value of hard work and perseverance.
ACKNOWLEDGMENTS

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I would like to thank my assistant principals, Beth Foster and Kerrie Kish for always having my back and the teachers at Anderson Mill for “keeping it in the road” when I had to be away from school. I would also like to thank the principals and teachers who gave up their time to participate in this study. I feel truly blessed to work with such dedicated professionals.

Finally, I would like to thank my dissertation chair, Dr. Russell Marion, and committee members, Dr. Dani Herro, Dr. Hans Klar, and Dr. Robert Knoeppel for guiding me through this process. I am thankful for Dr. Herro for inspiring me to learn more about digital collaboration; Dr. Knoeppel for sharing his expertise on effective teaching and professional development practices; Dr. Klar for his influence on principal leadership and development; and Dr. Marion for his expertise in educational leadership and network analysis. A will forever be grateful for Dr. Marion’s sound advice and for always being available when I needed him most.
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CHAPTER ONE
INTRODUCTION

Nelson Mandela (1995) once said, “Education is the most powerful weapon with which you can change the world” (p. 456). It is this principle that motivates people from different sectors of the world to take a vested interest in what we teach and how we teach our children. This principle also undergirds many of our educational reform movements as policymakers and educators seek to improve society by improving the quality of our schools. However, improving our schools has proven to be a daunting task.

To examine potential factors that contribute to school quality, one must examine internal factors such as class size, the physical environment, and classroom practices and external factors such as student ability, peer influence, and home life. Hattie (2003) studied the variance of the internal and external factors contributing to student success. The external factors of student achievement (50%), home (5-10%), and peer effects (5-10%) accounted for 60-70% of the variance in student achievement scores (p. 2). Of the internal factors of school (5-10%) and teachers (30%), teacher influence accounted for the largest variance (p. 2). In addition, Hattie’s (2009) synthesis of over 800 meta-analyses further supported teacher quality as the single most important factor influencing student achievement in the classroom. Hattie (2003) suggested that if we really want to improve schools; we must refocus our attention on educational reform efforts that target factors outside of our control and focus on improving teacher quality (p. 3).
Educational reform efforts such as No Child Left Behind (2001), Race to the Top (US Department of Education, 2009), and Every Student Succeeds Act (2015) have focused on improving internal factors that influence student achievement by providing more equitable opportunities for all students and improving teacher quality. These initiatives included federal and state accountability standards for students and teachers and student performance on standardized testing quickly emerged as a primary focus for teachers. Due to the pressures of these accountability measures, teachers became hyper-focused on preparing students for high stakes testing, and teacher professional development focused largely on content and test taking strategies (Longo, 2010). This approach produced an increase in student test scores but resulted in a diminished focus on creativity, problem solving, and innovation in the classroom (Ryan, James & Hogan, 2013; Henriksen, Mishra & Fisser, 2016). In addition, colleges and businesses reported students entering educational institutions and the workforce underprepared (Hochberg & Desimone, 2010). In response, educators began to focus on teacher quality and shifted teacher professional development practices from a fragmented skills-based approach toward more intensely structured professional learning communities (PLCs).

Highly effective PLCs include elements of reflective dialogue, de-privatization, focus on student learning, collaboration, and shared values (Louis, Marks & Kruse, 1996). The structure of professional learning communities offered a more collaborative approach to professional development than previous models and advocated for providing the time and space for professional dialogue and debate among teachers. (Desimone, 2011; Dobie & Anderson, 2015; Hill, 2004; Levine & Marcus, 2007; Little, 1993;
Hindin, Morocco, Mott & Aguilar, 2007). Since effective professional development and the presence of highly qualified teachers in the classroom are directly correlated with student achievement, many schools adopted PLCs as a core component of their professional development plans (Cohen & Hill, 2000; Desimone, 2011; Hochberg & Desimone, 2010; Jimmerson, & Haddock, 2015; Sanders & Rivers, 1996). The use of professional learning communities in schools provided teachers with the structure necessary to solve authentic problems through professional collaboration (Desimone, 2011; Schechter, 2010), which held promise for increasing student achievement.

In recent years, technological advances have increased the pathways for collaboration among teachers and other educational professionals. Digital tools, including collaborative technologies, offer teachers the opportunity to collaborate with other teachers and access knowledge and resources for the purpose of professional development and collaboration. The idea that teachers benefit from collaboration is grounded in social constructivism and the belief that learning does not occur in isolation but rather in the context of social interactions and reflection upon those experiences using mediating tools (Lee & Smargorinsky, 2000; Vygotsky, 1978). Specifically, Lee and Smargorinsky stated, “The inherently social nature of learning is a function of the cultural history of mediational tools; that is, tools have historical uses within particular cultures and thus serve to connect members of cultures through shared values” (p. 8). In today’s society, digital technologies provide a new set of mediating tools that enable teachers to engage in professional dialogue and critique concerning the practices of teaching and learning outside the boundaries of their classroom (Dash, De Kramer, O’Dwyer, Masters
& Russell, 2012; Dobie & Anderson, 2015; Holmes, 2013; Teräs, 2016; Wang, Chen & Levy, 2010). Downes (2005) and Siemens (2005) suggested that technology has changed the way we learn, what we learn, and how we learn. This is also true for teachers. Technology has changed the way teachers access knowledge and content. Teachers are no longer bound by the content and activities provided in student textbooks. They have access to resources and ideas that were not possible before the introduction of digital tools. In addition, collaborative technologies afford teachers new possibilities for professional collaboration.

**Statement of the Problem**

Increasing teacher quality is a complex multifaceted task that requires intentional focus on rich learning experiences through professional development and collaboration. Historical reform initiatives targeted teacher quality through efforts to improve student achievement. Educational research strongly supports the use of collaboration among teachers to impact teacher practices, attitudes, and beliefs that lead to improved student achievement (Hochberg & Desimone, 2010). However, despite the evidence from research, professional development opportunities and classroom practices have changed very little over time (Herrington & Daubenmire, 2016). A significant gap exists between what the research indicates and what is actually happening in practice. This may be attributed to the fact that teachers are under an extreme amount of pressure to increase student performance but are often not afforded the resources and time to engage in professional collaboration (Davis, 2015). Digital tools offer a viable avenue for teacher
collaboration that is not bound by these restrictions. However, teachers continue to report infrequent use of digital tools for collaboration with peers (Purcell, Heaps, Buchanan & Friedrich, 2013).

**Purpose of the Study**

The purpose of this study is to understand how elementary teachers are using technology as a mediating tool for professional collaboration and their perceptions about collaborative technologies. Elementary teachers were chosen for this study because they are the subgroup of teachers whom typically have the least amount of time within the school day devoted to professional development and collaboration (Leonard & Leonard, 2003). Elementary schools are structured differently than middle and high schools and often have schedules that do not provide common planning times for teachers. The barriers of space and time limit teachers’ access to other teachers, resources, and knowledge that makes traditional methods of professional collaboration difficult.

In the review of literature, educational scholars widely supported the use of collaboration as a means of increasing teacher quality. However, the literature on professional collaboration also revealed barriers, such as time, prohibit teachers from engaging in these practices on a regular basis (Ketterlin-Geller, Baumer and Lichon, 2015). It would be advantageous to gain a deeper understanding of how digital tools are bridging the gap between research and practice. This study is designed to investigate how digital technologies are serving as mediating tools for professional collaboration, thus increasing the potential for improving teacher quality.


Significance of the Study

The study of elementary teachers’ use of digital tools for collaboration is significant because it contributes to the field of literature on the collaborative practices of teachers, professional learning communities, and the use of digital tools for professional learning and collaboration. There is a significant amount of research on teacher collaboration, professional learning communities, how teachers are utilizing digital tools, and the affordances of collaborative technologies. However, this study is unique because it investigates how elementary teachers are choosing to use digital tools for collaboration with other professionals and their perceptions about how digital tools support their need for collaboration. The results of this study will contribute to the body of knowledge on how teachers are using digital tools, how these tools support collaboration, and teachers’ perceptions about how these technologies are meeting their professional needs. The results will also provide data for school leaders as they seek to improve teacher quality and student achievement; hence, closing the gap between research and practice.

Definition of Terms

To eliminate confusion and add clarity, the terms collaboration, professional development, professional learning community, connectivism, digital tools, and collaborative technologies are defined below. It is also important to note that the research in this study was conducted using the theoretical framework of social constructivism. This study leans on the work of Vygotsky’s social learning theory to understand how teaching and learning develop through collaboration and social interactions. Although
these terms may have alternate meanings, they are defined as they relate to the context of this study.


Collaborative technologies. Technology that allows the user to engage in information sharing, collaboration, and interaction to share knowledge and resources across space and time. Collaborative technologies support communication, collaboration, coordination, and learning within networks and among users.

Connectivism. A learning theory developed by Downes (2005) and Siemens (2005) for a digital age that explains complex learning in a rapidly changing social, digital world. Connectivism describes learning as an actionable knowledge that not only takes place with the individual, but within networks and databases. Learners must be able to distinguish important information from unimportant information and understand that the network itself is dynamic in nature. Information is created with the ebb and flow of new information that is generated within the network. Thus, connections within networks become the learning.

Digital tools. Digital tools are electronic devices or virtual spaces that generate, store, and process data for the user. Electronic devices such as computers, tablets, and
phones allow the user to access digital tools such as social media, Google applications, blog spaces, and other collaborative technologies.

Professional development. “Professional development is facilitated teaching and learning experiences that are transactional and designed to support the acquisition of professional knowledge, skills, and disposition as well as the application of this knowledge in practice” (NPDCI, 2008, as cited in Buysse, Winton & Rous, 2009, p. 239).

Professional learning community. “A group of educators that meets regularly, shares expertise, and works collaboratively to improve teaching skills and the academic performance of students” (Abbott, 2014, para. 1).

**Theoretical Framework**

The underlying theoretical framework for this study is Vygotsky’s Social Constructivism (1978) and the understanding that learning occurs through social interactions between individuals and their environment and reality is constructed through a process of concrete experiences, discussions, and reflection (Gilakjani, Leong & Ismail, 2013). According to the theory, learning occurs when individuals are exposed to ideas and concepts though interactions with a more knowledgeable other (MKO). This person or group holds more knowledge and experience than the learner does. However, it is not the mere dissemination of knowledge that engages the learner. Rather, the social interactions that occur between the MKO and the learner promote knowledge acquisition, reflection, and conceptualization. Vygotsky (1978) asserted that each person has a zone
of proximal development (ZPD) in which learning occurs. The ZPD is the zone between a person’s ability to perform a task under supervision and guidance and their ability to perform the task independently.

Central to the constructivist theory is the idea the individuals exist in a rapidly changing world and learning is contingent upon their experiences in their environments (Sanford-Brown Blogs, 2015). Collaboration affords the learner an opportunity to create reality based on his or her interactions with others and serves as an essential element in the learning process. Through collaboration, the learner engages in active experiences that allow meaning making within the reciprocal relationship.

“When it comes to online education, constructivism is more relevant than ever: Because online leaning demands collaboration, pupils can work together in chat rooms, online forums, blogs and webinars to create, invent and innovate knowledge on top of preexisting ideas” (Sanford-Brown Blogs, 2015, para 7). According to Baviskar, Hartle and Whitney (2009), “…knowledge possessed by an individual is connected in a comprehensive construct of facts, concepts, experiences, emotions, values, and their relationships with each other” (p. 543). The learner will either choose to reject the new information or incorporate it into his/her own constructs using four distinct processes: activating prior knowledge, creating cognitive dissonance, application and feedback, and reflecting on learning (Baviskar, et al., 2009).

Similarly, Downes’ (2005) and Siemens’ (2005) connectivism theory explains learning as an actionable process in which the learner encounters changes within the
knowledge framework that readily shifts as new knowledge is produced. The learner must be able to recognize the importance or unimportance of information within the network and discern when new knowledge changes the landscape. The ability to navigate the network is a critical skill that contributes to learning and an individual’s ability to locate information within the network. According to connectivism, competence is less about what a learner knows and more about his or her ability to access knowledge (Wade, 2012). Thus, the knowledge exists within the network and the learner acquires the knowledge by making social connections within the network. The role of a connectivist teacher is to provide students with the learning environment and allow them to collaborate and make connections with others as they naturally occur (Sanford Brown, 2015). There are many similarities between connectivism and constructivism and the two theories often overlap. Some critics question whether connectivism is truly a learning theory or whether it is merely an extension of constructivism into a digital world (Wade, 2012).
These two theories inform my research as I seek to understand how digital tools support the collaborative practices of teachers. Teacher learning occurs through collaboration with other professionals, yet these interactions are not always in a face-to-face environment. Understanding how these two theories complement each other within the context of teaching and learning, can add to the literature on teacher collaboration, and professional learning, and how digital tools support these practices.

Figure 1. Social constructivist theory asserts that learning occurs through our experiences, social interactions, collaboration, and the process of reflection. These interactions may occur in both virtual and physical contexts.
Research Questions

1. In what ways are teachers utilizing digital tools for collaboration?
2. What are elementary teachers’ perceptions about how digital tools meet their need for professional collaboration?

Organization of the Study

This research study is presented in five chapters. Chapter I includes background of the study, statement of the problem, purpose of the study, significance of the study, definition of terms, theoretical framework, research questions, limitations, and delimitations of the study. Chapter II includes a review of the literature on historical educational reform efforts, professional learning communities, teacher collaboration and digital tools. Chapter III describes the methodology used for this study. It includes an explanation of phenomenology, selection of the participants, demographic information, research procedures and an explanation of the study design. Chapter IV will present the study’s findings including, testing of the research questions, and results of the data analysis. Chapter V will provide a summary of the research study, a discussion of the findings, implications of the findings for practice, limitations, recommendations for further research and conclusions.
CHAPTER TWO

REVIEW OF LITERATURE

According to the US Department of Education (USDOE), approximately 30% of elementary students are performing below standard in the content area of reading. Historical reform initiatives called for high quality professional development for teachers that is content focused, sustained over time, and include elements of collaboration that positively impact student achievement. However, teachers report that they often do not have the time or the resources to engage in professional development practices that include collaboration. This literature review encompasses prior findings in the research on educational reform, increasing teacher quality through professional development, and using digital tools for collaboration with other professionals. The intent of my research is to gain an understanding of the gaps that exist between the research on effective professional collaboration and elementary teachers’ practices in the field. I also seek to understand how elementary teachers are using digital tools to engage in collaboration with other professionals. The discussion begins with a review of historical educational reform efforts that were designed to improve student achievement in the United States. Because this study is situated in the context of South Carolina, specific initiatives in the state of South Carolina are also included in the review. I will emphasize how these reform efforts target student achievement by focusing on improving teacher quality. After the historical context, I will present a review of the literature on professional development practices, professional learning communities, collaboration and the use of digital tools for collaboration. For the purposes of this study, I will focus on elementary
teachers’ practices and perceptions to gain an understanding of the gap that exists between research and practice.

**Historical Context**

In the 1980s, during Ronald Regan’s presidency, the National Commission on Excellence in Education produced *A Nation at Risk* (1983) in response to findings that American students were behind other industrialized nations in the areas of math and science. Secretary of Education, T. H. Bell, initiated the National Commission on Excellence in Education in response to a national belief that America’s schools were failing. The report explicitly called for educational reform to ensure equitable educational experiences and to equip students for gainful employment in the United States. The document reads,

> All, regardless of race, or class or economic status, are entitled to a fair chance and to the tools for developing their individual powers of mind and spirit to the utmost. This promise means that all children by virtue of their own efforts, competently guided, can hope to attain the mature and informed judgment needed to secure gainful employment, and manage their own lives, thereby serving not only their own interests but also the progress of society itself (US National Commission on Excellence in Education, 1983, p. 12).

Recommendations from the report included mandating the following: a) increased requirements for a high school diploma, b) implementing standards that are more
rigorous and increasing the expectation for student achievement, c) increasing the amount of time devoted to learning the basics, d) improving teacher quality, and e) providing the necessary resources to support the initiative (A Nation at Risk, 1983).

Additional reform efforts quickly followed with the No Child Left Behind (NCLB) Act of 2001 that was the reauthorization of ESEA. The primary goals of NCLB were to increase accountability for schools and districts, improve student achievement in the areas of reading and mathematics, and increase educational opportunities for the economically disadvantaged (NCLB, 2001; Yell, Katsiyannas & Shiner, 2006). The Act gave schools and districts recommendations for improving student achievement and tied the recommendations to federal funding, thus significantly increasing federal involvement in educational policy and practice (Yell, et. al, 2006). To receive funding, schools and districts were required to: a) establish standardized tests to measure student performance; b) align standards to assessments; c) report test scores for all subgroups, including students with special needs; and d) provide a plan for offering quality professional development opportunities for teachers (Levine & Levine, 2012). Schools and districts that accepted federal funds were subject to rewards and sanctions for improving student achievement. Sanctions could be as serious as removing the principal and having the school undergo reformation through a take-over process.

President Barack Obama and his administration later evaluated NCLB and found that while the law was passed with the intent of ensuring schools and districts were making efforts to improve student achievement with the support of federal grant dollars,
the law actually became a system of punishments for schools that were underperforming (Every Student Succeeds Act, 2015). In 2015, President Obama signed the Every Student Succeeds Act (ESSA), a reauthorization of ESEA, in an attempt to push educational decision making back to the state level with less federal involvement (Conlan & Posner, 2016; ESSA, 2015; Shofner, 2016). The Act gave states flexibility in creating their own standards for learning, testing measures, and accountability systems in order to receive federal funds (Conlan & Posner, 2016; McGuinn, 2016; Shofner, 2016). The Act also allowed states to obtain the funds necessary to support their programs but still required a level of accountability for spending and student achievement scores. Even though ESSA reduced the amount of federal involvement in educational decisions, critics contended that educational decisions should rest solely at the state and local level. Critics of the Act asserted that tying funding to federal regulations for education met the standard for coercion and should be considered unconstitutional (Conlan & Posner, 2016; Haney, 2013; NFIB v. Sebelius, 2012; Shofner, 2016). There continues to be debate over whether federal involvement in education is constitutional. However, federal education grants prevail in our educational system and have historically been deemed constitutional by the U.S. Supreme Court. (Haney, 2013; Haubenreich, 2012; Shofner, 2016).

In response to ESSA (2015), the state of South Carolina developed a consolidated state plan for school improvement. The plan called for: a) consultation and coordination with stakeholders to ensure all children receive a fair, equitable, and high quality education; b) challenging academic standards and assessments; c) accountability, support, and improvement for schools; d) supporting excellence in educators through teacher
development and retention; and e) support for all students to obtain a high school diploma. In addition, South Carolina governor, Nikki Haley, signed the SC Department of Education’s Read to Succeed Act (R2S) in July of 2015 to increase student achievement in the area of reading with a specific focus on reading comprehension. The law required that all students have access to highly qualified teachers, administrators, school psychologists, a diverse selection of texts, time to read, and a literacy rich learning environment (SC Department of Education, 2015; Stephens-Smith, Warner & Padilla 2014). To ensure students were provided highly qualified teachers, the R2S Act required all elementary teachers to earn an endorsement in the area of literacy with the goal being that all teachers, in all schools, across all grades, possess the skills necessary to support their students’ reading development (SC Department of Education, 2015). Read to Succeed also called for employing a literacy coach in all elementary schools to provide teachers with professional development, professional learning communities, feedback, and coaching cycles. Coaching cycles focused on specific pedagogical skills and content knowledge, which allowed teachers to observe exemplar lessons in lab classrooms and receive feedback from the literacy coach when they practice the learned skills in their own classrooms.

It is widely acknowledged that teaching is not a static process in which rote skills can be applied to classroom practice, but rather it is a complex network of skills that requires teachers to navigate complex interactions among students, content, and pedagogical skill (Jimmerson & Haddock, 2015). Based on the work of scholars such as Vescio, Ross and Adams (2008), teacher development through professional learning
communities should be designed to promote collaboration, a clear and consistent focus on student learning, and reflective dialog. These elements mirror effective learning strategies outlined by social constructivism.

According to Forzani (2014), “Marshaling some consensus around teaching practices both core teaching practices and effective pedagogies for preparing novices in those practices would create a foundation for the sharing of knowledge and resources…” (p. 364). The Read to Succeed legislation provided South Carolina’s teachers with the opportunity to gain the knowledge and skills needed to meet the demands of an increasingly diverse student population. This was achieved through a combination of pedagogical professional development, collaboration within professional learning communities, participation in coaching cycles with specialized literacy coaches, and attainment of South Carolina’s R2S Endorsement.

Reform efforts since the beginning of the twentieth century have focused on providing equitable opportunities for students and increasing student achievement. These ideals have been targeted through increased rigor in the classroom, professional development for teachers, accountability measures, and standardization. Federal involvement in educational policy provided competitive grants to support these efforts, but these funds tied states to federal regulations and accountability measures that were punitive in nature (Conlan & Posner, 2016). Research indicates a strong correlation between teacher effectiveness and student achievement in the areas of reading and mathematics (Jimmerson, & Haddock, 2015). Therefore, it is important for educators to
maximize professional development efforts and continue to evaluate the effectiveness of these efforts on increasing student achievement. Within the framework of professional development, collaboration emerges as a key component for increasing teacher effectiveness. For the purposes of this study, I will focus on the element of collaboration and how elementary teachers perceive digital tools can support their needs for professional collaboration.

**Professional Development**

According to the National Staff Development Council’s *Learning Forward* (2015), the purpose of teacher professional development is for educators to develop the skills, knowledge, and practices to improve student learning. A review of educational reform initiatives revealed teacher quality and effective professional development as common threads among the recommendations for districts and schools to improve student achievement (A Nation at Risk, 1983; Borko, 2004; ESSA, 2015; National Staff Development Council, 2015; NCLB, 2001; US Department of Education, 2009; SC Department of Education, 2015). *Learning Forward* outlines seven standards for developing effective staff development practices:

1) Learning communities. Develop learning communities that are committed to continuous improvement, collective responsibility and goal alignment.

2) Leadership. Develop capacity, advocate, and create support systems for professional learning.
3) Resources. Prioritize, monitor, and coordinate resources for educator learning.

4) Data. Utilize data from a variety of student, educator, and system sources to plan, assess, and evaluate professional learning.

5) Learning designs. Integrate theories, research, and models of human learning.

6) Implementation. Apply research on change and sustained support for professional learning for long-term change.


These seven standards provide a framework for educators as they focus on creating and evaluating professional development programs developed for teachers.

Similarly, in a study of effective professional development, Desimone (2011) identified five common features of effective professional development programs: a) content focused, b) active learning, c) duration, d) coherence with curriculum and standards, and e) collective participation (p. 69). The conceptual framework for effective professional development in Desimone’s study included the following: a) teachers experience the professional development; b) the professional development increases the teachers’ knowledge and skills, changes their attitudes and beliefs, or both; c) teachers use the new knowledge, skill, or attitude to improve content, approach to pedagogy, or both; and d) instructional changes boost student learning and achievement (Desimone, 2011, p. 70). These features are prevalent throughout the research on professional
development and are considered indicators for effective professional development programs (Dana, Dawson, Wolkenhauer & Krell, 2013; Dogan, Pringle & Mesa, 2016; Hargreaves, 2000; Sebenoler, 2014).

The research also indicates that professional development programs which focus on content and how students learn content are far more successful in changing teacher practices and attitudes than those focused on programs (Birman, Desimone, Porter & Garet, 2000; Borko, 2004; Dana, et. al, 2013; Desimone, 2011; Desimone, Smith & Phillips, 2013; McConnell, Parker, Eberhardt, Koehler & Lundeberg, 2013). Hochberg and Desimone (2010) stated, “The ability of professional development activities to foster improvements in student learning depends on the knowledge and skills that teachers have and can acquire” (p. 92). In fact, teachers preferred learning activities that focused on specific, relevant content that is directly related to student learning. In order for content to be specific and relevant, it must be directly connected to the subject and skills that a teacher is actively using in his/her classroom (Birman, et. al., 2000). Previous research indicated content-focused professional development was far more likely to affect teacher knowledge and skills or attitudes and beliefs, or both (Desimone, 2011).

In contrast, in a study of thirteen math professional development sessions, Hill (2004) found that while all sessions contained elements of effective professional development, most teachers reported that they lacked content relative to their teaching assignments. In addition, The Teaching and Learning International survey reported that the number of teachers participating in professional development practices focused on
teaching methods, student performance assessment, and classroom management was lower in the year 2000 than in 1998 (National Center for Educational Statistics, 2013). However, professional development trends seem to be moving in a more positive direction since the inception of NCLB. According to the National Center for Educational Statistics’ (NCES) Teaching and Learning International Survey (2013), teachers reported 72% of their professional development activities focused on content in their specific subject area and 80% on state and district curriculum. The move toward a more content-rich approach to professional development holds promise for affecting teachers’ knowledge, skills, and ability to improve student outcomes.

Desimone’s (2011) second component, active learning as a means for professional development, provides opportunities for teachers to get involved in the learning experience by observing, analyzing, questioning, or experimenting with new knowledge or instructional strategies. Through active learning, teachers employ the techniques and perspectives of inquiry-based learning that lead to improved teaching practices (Little, 1993). In fact, Timperley (2008) found teacher engagement in active learning experiences during professional development was most successful when the learning connected to the needs of the teachers’ students. If teachers perceived the professional development to address existing problems, they were far more likely to be engaged and active in the learning process (Desimone, 2011; Hill, 2004; Levine & Marcus, 2007; Timperley, 2008). This was evidenced in Desimone’s (2011) study where active learning strategies such as observing or analyzing proved to be more successful than static exercises where teachers were inactive passive learners. Desimone (2011) also found that teachers
reported more job satisfaction when their professional development activities met their specific needs, rather than a one-size-fits-all approach (Stearns, Banerjee, Moller & Mickelson, 2015; Tan & Caleon, 2016; Vescio, et al., 2008). In addition, actively engaging with pedagogical content knowledge through an inquiry-based approach to professional development increased the likelihood of teachers changing their classroom practices to influence student achievement (Dogan, et al., 2016; Vescio, et al., 2008).

Another crucial element in teacher learning activities that resulted in changes to teacher practice was the duration of the professional learning experience (Battersy & Verdi, 2015; Desimone, 2011; Hill, 2004; Tan & Caleon, 2016). Desimone (2011) found that effective professional learning activities generally consisted of a minimum of twenty hours of contact time (p. 69). However, NCES’s Teaching and Learning International Survey (2013) revealed that teachers spend, on average, about 8 hours per year in professional development. This is far less than the recommended twenty hours. In the same survey, teachers who spent more than 8 hours in professional development were more likely to report that the professional development improved their teaching (NCES, 2013). The number of teachers reporting that professional development practices improved their teaching increased with the amount of time spent in professional development activities: more than one time per week (45%), 2 to 3 times per month (23%), one time per month (15%), fewer times per year (7%; NCES, 2013).

District and school leaders must make intentional efforts to provide sustained professional development opportunities for teaches. Without their commitment,
professional learning often takes place in a disjointed manner and fails to deliver the kinds of support teachers need (DuFour & Eaker, 1998; DuFour, DuFour & Eaker, 2008; Goddard, Goddard, Kim & Miller, 2015). Principals and district leaders can be instrumental in providing an organizational structure and climate that promotes active learning and is content focused and sustained over time. In fact, sustained professional development has been found to be largely dependent on the professional learning experience and the organizational supports that principals and other school leaders provide (Timperley, 2011).

Professional development activities should also maintain coherence by connecting learning activities with the current standards, curriculum, and student performance. Teachers often report traditional professional development sessions as mundane, time-consuming work activities that are disconnected from the problems they face in their classrooms (Dimmock, 2016; Forzani, 2014; Goddard, et al., 2015; Hindin, et al., 2007; Vescio, et al., 2008). Traditional models of professional development relied heavily on experts disseminating knowledge to teachers with the expectation for them to transfer the knowledge or skill into their teaching practices. However, they often ignored issues such as how to meet the needs of students with disabilities or English language learners. In a survey conducted by the NCES (2013), teachers reported 80% of their professional development opportunities centered on state or district curriculum, while only 26% focused on meeting the needs of ELL students. Herrington and Deubenmire (2016) reported that these kinds of practices and expectations contributed to the existing gap between research findings and teacher practice. Their research efforts suggested shifting
the idea of providing professional development for teachers to a more engaged expectation of building professional development with teachers, thus empowering teachers to take more ownership in their learning.

The work of Dimmock (2016) supported the need for a more coherent approach to staff development. He built his study on the work of Stenhouse (1975) and asserted a “need for coherent and holistic frameworks that are viable, connected, integrated, and synergistic…” in order to reduce the gap between educational research and teacher practice (Dimmock, 2016, p. 6). To achieve these ideals, leaders at the school and district level must begin to shift their practices to reflect the current research on effective staff development practices if we ever hope to have a positive impact on student achievement. Professional development practices must begin to transcend a transmissive dissemination of knowledge to models that allow teachers to be actively engaged in their own growth and development (Forde, McMahon, Hamilton & Murray, 2016, p. 15).

Collective participation proved to be another essential piece of effective professional development programs. When teachers were able to join collectively for the purpose of collaboration and problem solving, they were able to engage in relevant and effective professional development (Birman, et al., 2000; Desimone, 2011; Hochberg & Desimone, 2010; Sanders & Rivers, 1996). This learning theory was based on the work of Vygotsky (1978), social constructivism, and the understanding that cognitive development and knowledge are created through social interactions. Professional learning
communities (PLCs) emerged from the theory of social constructivism and have been widely studied in educational research for the last two decades (Hindin, et al., 2007).

Educators such as Vescio et al. (2008) advocated that professional learning communities offer all of the elements of effective staff development. Because of pressures to improve student achievement and research supporting the impact of professional learning communities on student achievement, many schools shifted toward a collective approach to problem solving and professional development (Battersby & Verdi, 2015; DuFour & Eaker, 1998; Hindin, et al., 2007; Tan & Caleon, 2016; Vescio, et al., 2008).

Shifting from traditional professional development models toward PLCs has been a slow process. Since the mid to late 90s, researchers have expressed concern over transmissive types of professional development. However, Wennergren (2016) reports, “In a review over the last 15 years, teachers describe their professional learning sessions as demeaning and mind-numbing occasions, in which they took a passive role” (p. 260). Shifting the focus from traditional professional development to more engaging PLCs provides opportunities for teachers to take ownership of their learning through goal setting, knowledge acquisition, and collaboration with other professionals (DuFour, 2004; Sjoer & Meirink, 2016; Wennergren, 2016). Some of the most effective PLCs included a parallel focus on both teacher and student learning (Lieberman & Mace, 2009; Wennergren, 2016). In a 2016 study, Wennergren studied how teachers engaged in PLCs with a trusted friend. The study examined the importance of building relationships of
trust and respect in order to engage in meaningful professional development (p. 276). Wennergren emphasized understanding that “…engaging in collaboration about activities is not the same as collaboration about learning”. Guskey and Yoon (2009) suggested that simply providing more time for professional development and collaboration does not produce more effective practices. We must learn to evaluate our professional development practices to ensure they are well organized, carefully structured, purposefully directed, and focused on content (Guskey, 2002; Guskey & Yoon, 2009).

Although the research is clear on the elements of effective professional development, Guskey (2009) reported that a gap exists between “…our beliefs about effective professional development and the evidence to support it” (p. 224). PLCs were designed to change the dynamics of school reform initiatives by providing a framework for changing the culture of schooling in America (DuFour & Eaker, 1998, p.24). Vescio et al. (2008) suggested that effective PLCs should include: a) shared values and norms, clear and consistent focus on student learning, c) reflective dialogue, d) deprivatization, and e) focus on collaboration (p. 81).

The National Staff Development Council’s Learning Forward (2015) provides a model for effective professional development practices that directly connects effective professional development to an increase in student learning. However, the relationship between professional learning and student results clearly hinges on the quality and authenticity of professional development opportunities. Research supports the idea that effective PLCs include elements of collaboration about teaching and learning among
professionals, as well as the time needed to engage in these activities (Dogan, et al., 2016; Hindin, et al., 2007; Ketterlin-Geller, Baumer & Lichon, 2015). However, when asked in a survey to identify barriers to engaging in professional collaboration with other teachers, U.S. teachers reported lack of time at a rate higher than the national average (NCES, 2013). For teacher practices to change, they must engage in focused and meaningful professional learning that includes time for collaboration (Bredeson, 2003).

Collaboration

In their research on situated learning theory, Lave and Wenger (1991), found co-participation and collaboration in learning communities to be the axis for increasing knowledge among participants. Their work is rooted in Vygotsky’s (1978) theory that peer conversation was influential and even necessary for constructing meaning. This notion was further supported by Lave and Wenger’s study that found teachers’ professional dialogue to become more complex as they engaged more readily in professional collaboration with their peers (p. 248). Vygotsky asserted that bringing individuals together with varying levels of experience and expertise affords them the opportunity to learn at their own proximal level of development. By having teachers work collaboratively with teachers who have more or less experience and expertise than themselves, they are afforded the opportunity to benefit from the collective wisdom generated from the group (Battersby & Verdi, 2015). However, for collaboration to result in the generation of ideas, teachers must have established trust, a positive atmosphere, and a spirit of cooperativeness among all participants within the learning community.
(Darling-Hammond & McLaughlin, 2011; Levine & Marcus, 2007; Postholm, 2016). In a qualitative study of Norwegian educational reform movements, Postholm (2016) found collective participation and collaboration to be the two most relevant factors in effective professional development programs. Elements such as trust, cooperation, and a positive working environment were also found to contribute to overall job satisfaction among the teachers in the study (p. 9). Postholm and other scholars concluded that without these elements, teachers could be reluctant to openly sharing their successes and failures within the group (Grossman, Wineburg & Woolsworth, 2001; Hindin, et al., 2007; Levine & Marcus, 2007; Wennergren, 2016).

Although collaboration is known to be an effective practice among educators, researchers have found internal and external barriers that prevent teachers from freely engaging in professional dialogue and critique (Ketterlin-Geller, et al., 2015; Sjoer & Meirink, 2016; Wennergren, 2016). Internal barriers can be described as the personal inhibitions that prevent teachers from openly sharing with their colleagues for fear of rejection or ridicule (Wennergren, 2016). In a study of the personal interactions of teachers who engaged in collaboration with a critical friend, Wennergren found that teachers were more reluctant to take risks while an observer was in their classroom and tended to avoid critical reflections of themselves and others. They were more comfortable doing activities in collaboration than engaging in collaborative learning. Wennergren suggested that even though teachers reported collaboration as an important practice, teachers’ reluctance to engage in critique of themselves or others as an indicator that they preferred comfort to risk taking (p. 268). He asserted that teachers must view obstacles
and mistakes as learning opportunities and understand that “the key issue in a PLC is the authentic improvement in teaching with a clear relationship to student outcomes” (p. 276).

External barriers that affect collaboration included scheduling issues, lack of time, and an unsupportive school culture. Ketterlin-Geller, Baumer and Lichon (2015) suggested that school level leaders take responsibility for working with teachers to build a school culture that promotes and values collaborative practices. They found this type of environment eliminated external barriers and “promoted a shared sense of responsibility for student success and enhanced school culture” (p. 57). School leaders can support the collaborative practices of teachers by providing the structure, resources, and time for teachers to engage in rich dialogue and critique of their own work and the work of others (Levine & Marcus, 2007; Sjoer & Meirink, 2016). Darling-Hammond and McLaughlin (2011) asserted that “teachers learn by doing, through collaboration, looking closely at student needs, and then sharing what they see with other teachers, schools, and the larger community” (p. 3). These types of rich collaborative experiences enabled teachers to work more efficiently by pooling their resources, time, and talents with the collective knowledge that resulted from professional dialogue and critique (Ketterlin-Geller, et al., 2015, p. 51). However, these conditions must be supported by a school culture that values inquiry-based professional development. In a study of the collaborative practices of primary teachers, Sjoer and Meirink (2016) found that with the absence of these supports, restraining factors such as teachers’ failure to ask questions, differences in teachers’
learning needs, fear of criticism, and lack of experience hindered the collaborative process of teachers.

In an earlier study, Hochberg and Desimone (2010) examined how teacher accountability and school reform initiatives have affected professional development practices among teachers. The findings of their work indicated that effective professional development must have, “improvement of teachers’ knowledge and the fostering of beliefs that are consistent with the current reform initiatives” (p. 91). However, teachers’ beliefs and knowledge do not always align with reform initiatives and serve as barriers to change. Hochberg and Desimone suggested that, “The ability of professional development to succeed as a mechanism for improving student achievement may depend in large on its ability to bridge divides among teachers’ knowledge, beliefs, and practices” (p. 92).

School reform efforts have been focused on closing the achievement gap among students. Levine and Marcus (2007) found that teachers recognized the complexity of educational reform and began to engage in the types of complex learning experiences [collaboration] that affected student achievement in an authentic way (p. 135). Lieberman and Mace (2009) suggested that teachers begin to rise above the oppressive notion that school reform is a policy handed down from above and feel empowered to go public with their expertise and knowledge to begin reform at the classroom level. Providing teachers with the time and space to engage in these types of critical analyses can only increase their capacity to improve student achievement (Darling-Hammond & McLaughlin, 2011;
Levine & Marcus, 2007). “The puzzle and challenge for educators and policy makers is how to build strong professional communities in teaching that are authentic, well supported, and include fundamental purposes, and benefit teachers and students alike (collegial professionalism), without using collaboration as a device to overload teachers, or to steer unpalatable policies through them” (Hargreaves, 2000, p. 166). This type of collaboration requires intentional planning, time, and resources. Technology and digital tools may support these kinds of practices.

**Collaboration through Digital Tools**

In the age of connectivity, digital tools are being used in a variety of ways in education. For the purpose of this study, I will focus on how Web 2.0 tools have provided a collaborative medium for teachers by affording access to knowledge, resources, and expertise within social networks. The English Oxford Living Dictionary (2016) defined Web 2.0 as “the second stage of development of the Internet, characterized especially by the change from static web pages to dynamic or user generated content and the growth of social media.” Web 2.0 tools such as Twitter, Google Docs, Facebook, Padlet, Wiki and Blog Spot opened avenues for teachers to connect with experts outside of their classrooms for the purpose of professional collaboration. Essentially, Web 2.0 tools allowed teachers to become *connected* (Garcia, Elbeltagi, Brown & Dungay, 2015).

The idea that connectivity allowed individuals to engage in networks that actually generated knowledge is grounded in the work of Downes’ (2005) and Siemens’ (2005)
connectivist theory of learning. Connectivism was birthed in a period when technology was rapidly changing the way in which we learn, how we learn, and where we learn (Downes, 2005; Garcia, et. al., 2015; Siemens, 2005). Downes described digital learning communities as nodes or connection points within a network. The unique quality of digital learning communities was that it allowed the learner to engage in multiple nodes or networks and to traverse between them (Downes, 2005). Through this same lens, Siemens (2005) acknowledged that learning became a knowledge of process and contributed to the complexity of digital learning communities. Web 2.0 tools allowed for dynamic connections between people and information that allowed teachers to consume and produce knowledge to fit their professional needs (Garcia, et al., 2015; Yang & Liu, 2004), make decisions about the information acquired (Siemens, 2005), and distribute that knowledge across networks (Downes, 2005).

Critics of connectivism as a theory argued that no new principles exist in the theory, but rather connectivism is a curricular approach built on the work of constructivism, behaviorism, and cognitivism (Kopp & Hill, 2008). Whether connectivism is acknowledged as a theory or a curricular approach, we can glean knowledge from the principles of digitally connected learning. Recent research holds promise for supporting digital professional development as an effective means for teacher learning (Aksal, Gazi & Bahcelerli, 2013; Daukīlas & Kasperiuniene, 2015; Kop & Hill, 2008).
To gain insight on how teachers are utilizing digital tools at home and in their classrooms, researchers at the Pew Research Center and American Life Project conducted a study of 2,462 Advanced Placement (AP) and National Writing Project (NWP) teachers. In the study, teachers reported, “digital tools have had a major impact on their ability to access content, resources, and materials for teaching (92%); share ideas with other teachers (69%); and interact with parents (67%)” (Purcell, et al., 2013, p. 2).

Although the study investigated many aspects of how technology is being used in education, it also captured data on how teachers were utilizing digital tools for their own professional learning. Data from the study revealed, “…the greatest impact of the internet and other digital tools on their role as teachers has been access to more content and material for use in the classroom and a greater ability to keep up with developments in their field” (p. 51). However, they were less likely to engage in social networking sites to exchange ideas with other teachers. In fact, only 28% of teachers reported they use social networking sites more than one time per month to exchange ideas with other teachers (p. 54). This was significant, because 84% to 94% of teachers reported using digital tools to access content, materials, or follow developments in their field more than one time per month (p. 54).

In addition to investigating how teachers are using online tools, the study also investigated teachers’ perspectives about the impact technology has on their professional lives. Although teachers reported technology had positive effects on their ability to access resources, they also reported feeling the major impact of additional work required to familiarize themselves with greater amounts of content, resources, materials, and the
technology itself (Purcell, et al., 2013). Interestingly, 62% of teachers reported their schools do a good job of providing teachers the resources and support they need to incorporate digital technologies into their curriculum and pedagogy, and 68% agreed that their school did a good job of providing formalized training for the use of these digital tools (p. 56). These results were slightly lower with teachers who work with lower income students than those who served populations that are more affluent. However, 85% of teachers reported that they often seek their own opportunities to learn how to use digital tools in the classroom and for their own learning needs (p. 57).

From the research of Purcell et al. (2013), we have specific evidence of how teachers are using digital tools in their classrooms and for their own professional learning. Additional studies have investigated how teachers are utilizing digital tools for professional collaboration and extending their own professional learning. In a cross-cultural comparative analysis of small group collaboration using Twitter, Choi, Im, and Hofstede (2016) found participants to be largely willing to engage with digital tools for the purpose of collaboration. The use of mobile devices such as tablets and cell phones provided significant leverage in supporting communication between participants throughout the study (p. 308). The only caution that emerged from this study is the understanding that cultural perspectives exist in digital environments, just as they do in face-to-face environments (p. 10).

In another study, Tsiotakis and Jimoyiannis (2016) studied how teachers are using Web 2.0 tools for professional development. They found digital tools to offer an
engaging participatory environment in which teachers shared ideas and content though digital collaboration. Dana, Dawson, Wolkenhauer and Krell (2013) launched an action research study to investigate how online professional development met the needs of virtual schoolteachers. In their study, they found that teachers engaged in critical reflection through meaningful dialogue and collaboration (p. 255). The results of the study indicated that action research through online professional development was an effective process for transforming teacher practice (Dana, et al., 2013). However, the researchers stated, “technology does not cause this transformation. Deliberate use of technology to support effective professional development practices is essential” (p. 255). This further supported advocates of connectivism who asserted that digital tools do not create knowledge and connectivity but support the foundation for such actions (Downes, 2005; Siemens, 2005; Yang & Liu, 2004).

In a mixed-methods (phenomenological and comparative) study, McConnell, Parker, Eberhardt, Koehler and Lunderberg (2013) compared professional development facilitated through video conferencing with that of traditional face-to-face methods. The researchers found that many companies were choosing to engage in video conferencing to save time and money on travel expenses (p. 273). In their analysis of results, video conferencing proved to be an effective method for establishing all of the elements associated with effective professional development practices. Interestingly, participants reported a preference for face-to-face interaction but found video conferencing to contain the same factors they stated as their reason for preferring face-to-face experiences. Negative factors associated with video conferencing emerged in three categories: lack of
technical skill, distractions in offsite environments, and the lack of rapport with the audience. The authors suggested that training and initial face-to-face meetings could eliminate these hindrances for those considering video conferencing as an option for professional development (p. 275).

Throughout the research on professional development, collaboration through professional learning communities surfaced as one of the most significant influences on teacher learning (Desimone, 2011; DuFour, 2004; DuFour & Eaker, 1998; Herrington & Daubenhmire, 2016; Timperley, 2008). This collaboration occurred through face-to-face interactions and connections in digital spaces. With the development of digital tools such as Web 2.0, teachers are now able to connect with other professionals in ways that defy the identified barriers of space and time (McConnell, et al., 2013).

Professional development practices among teachers have been studied quite extensively over the last several decades. However, despite nation-wide efforts to provide high quality professional development that improves student learning and engagement, efforts have not significantly impacted student achievement (Timperley, 2011). In an attempt to shift professional development practices from a traditional one-size-fits-all model to a more authentic engagement in action research, educators began to engage in professional learning communities (PLCs) based on the work of scholars such as Vescio et al. (2008), Timperley (2011), and Battersby and Verdi (2015). PLCs offered teachers the opportunity to engage in more authentic staff development, opportunities to collaborate with other teachers, and the opportunity to take more individualized approach
to professional learning. The studies mentioned above investigated how digital tools provided the same elements of professional development as traditional face-to-face models. However, little work has been done on how digital tools support the collaborative practices of elementary teachers as they engage in professional development in the content areas. This is significant because reform efforts targeted on increasing student achievement call for professional development and collaboration to increase teacher effectiveness (Akiba & Lang, 2016).

If technology is shaping how we learn, where we learn, and what we learn, it is important for educators to consider how digital tools can support professional development among teachers. Based on the theory of social learning, the development of knowledge is enhanced and dependent upon the social interactions of people (Farnsworth, Kleanthous & Wenger-Trayner, 2016), whether face-to-face or through digital mediums. “If we want better classroom learning for students, we have to create superb professional learning and working conditions for those who teach them” (Hargreaves, 2000, p. 175). Digital tools may be the key to connecting teachers with the resources they need to engage in collaborative activities that improve teaching and learning.

Conclusion

In the review of literature on historical educational reform efforts, professional development, collaboration, and digital tools, a great deal of research can be found to support teacher quality as the predominate factor that positively influences student achievement in the classroom. Administrators and educational leaders across our nation
have inundated teachers with professional development strategies, including professional
learning communities, which focus on collaboration and problem solving. However,
these efforts are not sustained because teachers are not afforded the time and resources to
support such practices. The emergence of digital technologies has shifted the acquisition
of knowledge and connectivity for teachers at such a rapid pace that research is limited in
both breadth and depth. Scholars such as Seashore-Lewis, Leithwood, and Wahlstrom
(2011) have clearly established successful leadership practices to include developing
people through distributed leadership. This requires an effort on the part of school leaders
to understand the current research on professional development, investigate what is
actually happening in practice, and take action based on an understanding of the needs of
the teachers they lead. The purpose of this study is to gain an understanding of how
elementary teachers at three schools in the upstate of South Carolina are using digital
tools as a medium for professional collaboration and to understand how they perceive
these tools are meeting their needs. This in-depth look at teacher practices will provide
insight for school leaders as they continually seek to improve student achievement and
teacher quality.
CHAPTER THREE

METHODOLOGY

The primary goal of this phenomenological study is to answer the questions of why and how elementary teachers are using digital tools as a medium for engaging in professional collaboration and to gain insight into the teachers’ perceptions of how these tools support their needs. This study is qualitative in nature as the intent is to gain an understanding of teachers’ practices and perceptions pertaining to their use of digital tools. Creswell (2009) describes qualitative research as “…a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem” (p. 4). A phenomenological approach to qualitative research was a legitimate choice for this study because I was interested in gaining an in-depth understanding of the lived experiences and perceptions of elementary teachers. This chapter is divided into seven main sections: a) phenomenology, b) selection of participants, c) instrumentation, d) data collection, e) data analysis, f) credibility and dependability, and g) limitations.

Phenomenology

According to Creswell (2009), “Phenomenological research is a strategy of inquiry in which the researcher identifies the essence of human experience about a phenomenon as described by participants (p. 13). Phenomenological research originated from the work of philosophers such as Immanuel Kant, G.W.F. Hegel, and Ernst Mach but was formally introduced by Edmund Husserl in the early 1900s (Moran, 2000). Since that time, phenomenological research has grown in popularity and is recognized as a valid method of qualitative inquiry in the social sciences.
According to Glesne (2016), the inherent nature of phenomenological research is to explore, “…the subjective meaning and essences of another’s experience of a phenomenon” (p. 20). Moustakas (1994) wrote, “In accordance with phenomenological principles, scientific investigation is valid when the knowledge sought is arrived at through descriptions that make possible an understanding of the meanings and essences of experience” (p. 84). Phenomenological research includes four stages or processes: a) Epoche, b) phenomenological reduction, c) imaginative variation, and d) synthesis (Moustakas, 1994).

Phenomenological research is characterized by first-person accounts and rich descriptions of life experiences (Moran, 2000; Moustakas, 1994). Husserl adopted the Greek term Epoche to describe the process of abstaining or removing one’s bias and prejjudgments to purify the consciousness of the researcher (Moustakas, 1994). The Epoche is the first stage of phenomenological research, because the process requires the researcher to reflect on their personal experiences and notions, become conscious of their own perception, and look at the phenomenon as if seeing it for the first time. Moustakas refers to this as an experience between the researcher and the phenomenon that builds meaning and understanding through a purified consciousness (p. 85). Specifically,

The challenge of the Epoche is to be transparent to ourselves, to allow whatever is before us in consciousness to disclose itself so that we may sew with new eyes in a naïve and completely open manner. Thus, in the process being transparent in the viewing of things, we also become transparent ourselves (p. 86).
The Epoche requires the researcher to acknowledge consciousness while meditating on the phenomenon and lived experiences, attuning to just what appears (Giorgi, 1997; Moustakas, 1994).

The second stage of phenomenological research is phenomenological reduction. During the reduction process, the researcher engages in a process of bracketing and horizontaling every statement or observation to analyze a phenomenon to exhaustion (Moustakas, 1994). This allows the researcher to reduce individual experiences to a description of the universal essences… and develop a composite description of the essence of the experience for all of the individuals” (Creswell, 2013, p. 76). Through bracketing and horizontalization, the researcher examines individual experiences and perceptions to find common threads that capture the essence the phenomenon for the participants within the group (Creswell, 2013; Moustakas, 1994). Glesne (2016) describes this as “… investigating and articulating the parts and wholes that make up the content of some experience” (p. 291). During the process, the researcher evaluates every statement and detail, oscillating back and forth until themes or patterns emerge that have not been seen before (Moustakas, 1994, p. 97).

Imaginative variation is the third step in the research process. “The task of imaginative variation is to seek possible meanings through the utilization of imagination, varying frames of reference, employing polarities and reversals, and approaching the phenomenon from divergent perspective, different positions, roles or functions… with the aim to arrive at a structural description of an experience” (Moustakas, 1994, p. 98). According to Creswell (2013), it is the combination of the textural and structural
experiences that contribute to the essence of the phenomenon itself (p. 80). Moustakas outlines four basic steps to imaginative variation:

a. Systematic varying of the possible structural meanings that underlie the textural meanings;

b. Recognizing the underlying themes or contexts that account for the emergence of the phenomenon;

c. Considering the universal structures that precipitate feelings and thought with reference to the phenomenon, such as the structure of time, space, bodily concerns, materiality, causality, relation to self, or relation to others;

d. Searching for exemplifications that vividly illustrate the invariant structural themes and facilitate the development of structural description of the phenomenon (p. 99).

By teasing structural and textural themes, the researcher is able to move beyond the façade and delve into the depths of a participant’s rich experiences to understand that truth is derived through multiple pathways that emerge through experiences. The fourth step, synthesis, is the culminating experience of phenomenological research in which the essence of the phenomenon is revealed. However, it is imperative to understand that true essence is never truly revealed in totality but through the multiplicity of infinite experiences (Creswell, 2013; Moustakas, 1994). Specifically, “the fundamental textural-structural synthesis represents the essences at a particular time and
place from the vantage point of an individual researcher following an exhaustive imaginative and reflective study of the phenomenon” (Moustakas, 1994, p. 100).

Phenomenological research was chosen for this study to gain an in-depth understanding of how digital technologies are expanding collaborative opportunities beyond the context of the brick and mortar of the traditional schoolhouse. My positionality as a school administrator has influenced the design of this study, as I am passionate about increasing student achievement and improving teacher quality. Understanding teachers’ needs and giving them a voice in their own professional growth is a large part of that endeavor. Therefore, this study was designed to be qualitative in nature to gain an in-depth understanding of the everyday practices of elementary teachers, to tell their story, and contribute to improving teacher quality in our schools.

Selection of Participants

A convenience sample of participants was chosen from three elementary schools in the upstate of South Carolina. The fictitious school names, St. Joseph Elementary, Lucasville Elementary, and Andrews Elementary have been assigned to protect the privacy of the participating teachers and schools that might otherwise be identified. The schools were selected to be representative of demographic and socioeconomic diversity within the context of their geographic locations. Since the intent of qualitative research is to gain an in-depth understanding of the participants experiences and perceptions (Glesne, 2016), it was important to ensure that the leadership at each school was willing to support the research project before asking teachers to volunteer. An e-mail was sent to each of the three principals that gave a description of the study and asked for permission.
to work with the teachers within their schools. In the next few paragraphs, I will provide demographic data about each of the three schools used in the study.

St. Joseph Elementary had approximately 440 students with 31 certified teachers, Lucasville Elementary had 725 students with 50 certified teachers, and Andrews Elementary had 520 students with 37 certified teachers. St. Joseph Elementary and Andrews Elementary received Title I funding due to the percentage of students eligible for free or reduced lunch (89% and 84%), and Lucasville Elementary was eligible for Title I funding (67% eligible for free or reduced lunch), but was not classified as a Title I school at the time of the study. St. Joseph Elementary and Andrews Elementary were located in high poverty areas and operated afterschool programs that offered free childcare and tutoring for students until 6:00 pm. All three elementary schools were located within the same school district and offered similar opportunities for both students and teachers among the schools. Teachers and students at all three schools had access to laptop computers and Internet service.

Research Procedures

A combination of questionnaires and semi-structured interviews were used to capture data for the study. Teachers at each elementary school were asked to complete an electronic questionnaire using Google Forms (Appendix B) during a regularly scheduled faculty meeting. Teachers were given an informed consent document that explained the purpose of the study, their role should they choose to participate, and any foreseen risks or benefits to participation. Teachers were asked to bring their computers to the faculty meeting and complete the questionnaire online if they were willing to participate. Each
participant was e-mailed a link to the Google Form so they could access it using the wireless Internet connection in the schools’ library. Willing participants completed the questionnaire within an hour at each of the three locations. Teachers who may have been absent or unable to attend the faculty meeting were e-mailed the informed consent and the link to the Google Form to complete later. Eighty-nine percent (106 out of 118) of the teachers agreed to participate and completed the questionnaire.

The questionnaire was designed to collect data on how teachers are using digital tools and identify teachers who had experience using collaborative technologies. Specifically, questions were designed to capture: a) the types of digital tools teachers were using, b) the intention for which the teacher was using the tool, c) how teachers are using collaborative technologies, d) specific time of day teachers were using digital tools, and e) with whom they were making connections. To gain insight into how elementary teachers are using digital tools to engage in collaboration with other professionals, it was important to capture data on each teacher’s use of digital tools to ensure that the participants selected for the study were actually engaging with technology on a regular basis.

The results of the questionnaire were carefully analyzed to determine participants for the study. Data collected from the questionnaire were coded to identify potential participants for the study. To analyze the data, I first removed all questions that asked for demographic data and those that focused on the availability of technology rather than teachers’ use of technology. Eight questions were identified as relevant to teachers’ use of technology and participant responses for those questions were coded. The eight
questions captured teachers’ self-reported a) comfort level using technology; b) use of
digital tools on a weekly basis; and c) previous experience using collaborative
technologies to connect with other teachers. Each participant’s answers were examined
and an average score was calculated for each question. Participant responses that were
above the average range were considered significant and the response was coded. For
example, participants were asked to rate their comfort level using technology on a scale
of one to ten. The average participant rated their comfort level at seven. Therefore, any
participant response that was an eight or higher was coded as significant. After the data
were coded, the participants’ coded responses were calculated and averaged. Of the 118
participants, the average score of significant responses was four. Therefore, any
participant that had five or more significant responses were considered as potential
participants for the second phase of the study. Table 1 provides a description of how the
data were coded.
Table 1

Questionnaire Coding Protocol

<table>
<thead>
<tr>
<th>Questions Identified for Coding</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort Level using Technology</td>
<td>Scores of 8 or Higher (above average)</td>
</tr>
<tr>
<td>Number of Digital Tools used Weekly</td>
<td>Scores of 7 or Higher (above average)</td>
</tr>
<tr>
<td>How Teachers are Utilizing Technology</td>
<td>Scores of 7 or Higher (above average)</td>
</tr>
<tr>
<td>Collaboration using Technology</td>
<td>Yes</td>
</tr>
<tr>
<td>Connections outside of School</td>
<td>Scores of 6 or Higher (above average)</td>
</tr>
<tr>
<td>Technology used for Connecting</td>
<td>Scores of 7 or Higher (highest score)</td>
</tr>
<tr>
<td>Collaboration using LMS</td>
<td>Yes</td>
</tr>
<tr>
<td>Participant Described Collaboration</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note. Selection criteria = 5 or more coded responses (above average)

Out of 118 questionnaire responses, 16 participants were identified as potential candidates for the study. Those 16 participants were categorized by school and two teachers from each school were randomly selected to participate in the study. An e-mail was sent to each of the six teachers, and all agreed to participate in an interview for the study. Arrangements were made to meet each teacher at a specified time to conduct the interviews. Five of the interviews were held at the teachers’ schools, and one participant requested that we meet at a local coffee shop for the interview. A semi-structured
Interview approach was used to help draw out the participants’ experiences and perceptions through conversation (Creswell, 2009).

At the time of the interview, participants were given another copy of the informed consent document. All six participants were willing to have the interview audio recorded, and two reported being excited about participating in the study. The interview times ranged from approximately 22 to 36 minutes in length. The audio recordings were transcribed using the transcription service rev.com. A copy of the company’s statement of confidentiality is included in Appendix C.

**Data Analysis**

Data analysis was conducted using Moustakas’ (1994) modification of the Stevick-Colaizzi-Keen method (p. 121). Using a transcendental phenomenological approach, I used inductive analysis to complete first round coding. During the first round, or initial coding, I reread each verbatim transcript to gather a sense of understanding of how teachers are using digital tools, their collaborative practices, and their perceptions about using digital tools for the purpose of professional collaboration. I then began the initial coding process. Initial coding can be defined as the initial sorting and refining of data that helps patterns and themes to emerge from a data set (Glesne, 2016). In a process called Epoche, I considered my own thoughts and experiences with the phenomenon and consciously removed any preconceived expectations to grasp the participants’ experience (Moustakas, 1994). Next, I reread each line of the interview transcript in a process of phenomenological reduction and considered its significance related to the description. During this phase, I coded the transcripts for all repetitive and overlapping statements as
well as those that stood out as unusual or unique. Saldana (2015) suggested that coding is not an exact science but rather a method of summarizing, distilling, and condensing data that adds value to the research story.

During second round coding, I organized the data into themes (horizontalizing) that captured the essence of the participants’ experiences. This was competed for each participant’s interview transcript and individual textural and structural descriptions were constructed. Verbatim comments were coded using an in vivo coding method to capture the actual voice of the participants in a synthesis process. In vivo coding, or the act of pulling phrases or descriptors out of text, was used to identify any common phrases or metaphors used by the participants during the interviews and observations (Saldana, 2015). In vivo coding allows for unique patterns or themes to emerge that might typically go unnoticed in transcribed text (Glesne, 2016, p. 196). Next, imaginative variation was used to construct a rich description of teachers’ perceptions and practices.

Participants’ practices were analyzed to gain an understanding of how they are utilizing digital tools. First highlighters were used to identify digital tools that were found within the transcripts. A list was constructed of each digital tool that was mentioned by the participants to gain an understanding of the types of digital tools that were being used on a regular basis. The tools were grouped into four main categories: a) tools used for communication, b) learning management systems, c) social media, and d) Google Applications.

Digital technologies that were used to send and receive information between teachers for the purpose of sending or receiving content for lesson planning; information
related to scheduling, student information, or other daily job related tasks; and student behavior were coded as communication. Any use of learning management systems to send or receive information were coded under the category of learning management system. All examples of websites or applications that were used for sharing information or networking were grouped together using the code social media and teachers’ use of technology developed by Google were grouped together and coded Google Applications (Table 2).

Table 2
List of digital tools used by participants

<table>
<thead>
<tr>
<th>Communication</th>
<th>Learning Management System</th>
<th>Social Media</th>
<th>Google Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail (6)</td>
<td>Its Learning (5)</td>
<td>Facebook (5)</td>
<td>Google Slides (1)</td>
</tr>
<tr>
<td>Text (6)</td>
<td>Moodle (1)</td>
<td>Blogs (3)</td>
<td>Google Docs (6)</td>
</tr>
<tr>
<td>Power Point (1)</td>
<td>Blackboard (1)</td>
<td>Pinterest (3)</td>
<td>Google Forms (2)</td>
</tr>
<tr>
<td>Nearpod (1)</td>
<td></td>
<td>Twitter (3)</td>
<td>Google Drive (2)</td>
</tr>
<tr>
<td>Remind 101 (1)</td>
<td></td>
<td>Instagram (1)</td>
<td></td>
</tr>
<tr>
<td>Class Dojo (1)</td>
<td></td>
<td>Padlet (1)</td>
<td></td>
</tr>
<tr>
<td>Kahoot! (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Number in parentheses denotes the number of participants who reported using the tool.

Next, the digital tools were listed and the data were analyzed to determine how the tools were being used. From this process, four themes emerged. Participants were
utilizing digital tools to share resources and ideas with others, access resources and ideas from others, create materials, or engage in collaboration. To determine these themes, each of the transcripts were coded individually and then collectively. First, each digital tool that was highlighted in the first round of coding was identified and notes were taken in the margin of the transcripts on how and for what purpose the participant was utilizing the tool.

Throughout the coding process, member checking was used to clarify any vague or unclear responses from the interview transcripts. For example, one participant described going back and forth on e-mail with a colleague to discuss lesson plans. E-mail was coded in the first round as a communication tool. During the second round of coding, notes were taken in the margin that the teachers were going back and forth about lesson plans. Since it was unclear from the interview transcripts what the teachers were going back and forth about, the participant was contacted to gain clarification. In this case, the participant clarified that she was using e-mail to access and share resources with her teaching partner about an upcoming lesson they would both teach. Therefore e-mail was coded in the first round as a communication tool and in the second round as a tool to share and access resources. This process continued as each technology was considered and the context in which it was being used was classified.

Digital tools that were used to send content, ideas, or resources from one teacher to another were coded as sharing resources. The participants reported many examples of sharing resources using digital technologies and often referenced how digital tools made this process easier for teachers. Participants referenced sharing their lesson plans with
other teachers in their grade level, district, and with teachers in other states via e-mail. Teachers also shared experiences with uploading lesson plans to learning management systems or sharing Nearpod and Kahoot! activities with other teachers.

Tools that participants used to receive content, ideas, or resources from other teachers were coded accessing resources. Teachers reported accessing resources and ideas from social media sites such as Pinterest and Twitter, general Internet searches, and through learning management systems such as Its Learning. In many cases, participants mentioned both sharing and accessing information using the same tools. In these circumstances, the tools were coded for both the category of sharing resources and the category of accessing resources.

Tools that were used to create or co-create materials, documents, or content for lessons were coded as creating. Most often teachers reported using Google Applications for creating or co-creating materials with other teachers in a digital environment. However, in some cases, teachers reported working with another teacher in a face-to-face environment to co-create lessons using a digital tool. In both cases, the tools were coded as creating since the digital tool was used to produce a product.

Tools that were used as a medium for collaboration between two or more teachers were coded as collaborating. To code for collaboration, criteria were established using the definition of collaboration that included engaging in an interactive process of problem solving and decision-making (Wood & Gray, 1991). The definition of collaboration was used to delineate true collaborative practices from those that were better defined as teamwork. For example, one teacher described using text messaging to collaborate with
teachers within her grade level. However, after engaging in conversations during the
interview and member checking after the interview, it was determined that the teachers
were merely sending and receiving information about daily routines and not engaging in
activities that could be classified as collaboration. In this case, text messaging was coded
as *sharing* and *accessing*. In another example, a teacher mentioned that she and a
colleague often sent text messages to each other after school hours to determine the best
strategies for teaching place value. The teacher described sending and receiving text
messages with another teacher to determine if the strategies they used in the previous
lesson would work with students in their lowest math groups. She described discussing
options and debating how each option would serve the lowest students in their
classrooms. In this case, text messaging was coded as *collaborating*, because evidence of
problem solving could be determined from her description of the activity. Table 3.2
provides a summary of the participants’ use of digital tools for *sharing*, *accessing*,
*creating*, and *collaborating*. 
Table 3

Participants Self-Reported Use of Digital Tools

Note. Data table shows the number of digital tools reported by each participant for the digital tool usage categories of sharing, accessing, creating, and collaborating.

Since the purpose of the research study is to hone in on how elementary teachers are choosing to use digital tools for collaboration, close examination was given to understanding teachers’ practices and perceptions of collaborative technologies. Each tool coded as collaborating was tallied and the percentage of participants using the tool was calculated. E-mail (83%), text (50%), social media sites (50%), and Google Docs (50%) were listed as the top four tools teachers used as a medium for professional
collaboration. Other tools included learning management systems (33%) and blogs (33%).

Table 4
Use of Digital Tools for Collaboration

![Use of digital tools for collaboration chart]

Note. Table indicates the digital tools participants most often used for engaging in collaboration with other professionals.

Next, participants’ perceptions were analyzed by highlighting key words and phrases that teachers used to describe both face-to-face and digital collaboration. Next, the transcripts were read again to capture the participants’ personal experiences with collaboration in both physical and virtual spaces. Participants’ personal encounters were recorded and the language they used to describe their experiences were coded to identify
any themes or patterns that might emerge. Participant responses were categorized as either positive or negative based on the information provided during the interview process and member checking procedures. Responses were coded as positive if the participant listed a benefit or used positive language such to describe digital collaboration. Examples of positive language included terms such as good, better, or easier. Responses were coded as negative if the participant listed a disadvantage or used negative language to describe digital collaboration. Examples of negative language included terms such as difficult, confusing, or impersonal. A table of participant responses can be found in Appendix D.

During this process, two themes emerged. Participants reported preferring face-to-face collaboration when they were working with personal or sensitive issues and participants expressed an overall positive perception of digital tools. Phrases from participant comments were recorded and used to develop a textural description of their experiences with collaboration, the use of digital tools, and their perceptions of how digital tools can be used to support the collaborative practices of teachers.

Member checking was completed using these same steps to ensure trustworthiness by checking confirmability, credibility, and dependability of the coding structure. For the purpose of member checking, the participants were e-mailed a copy of the actual transcript and given the opportunity to make changes or clear up any mistakes that may have taken place during the transcription process. The participants were able to give feedback and I was able to confirm that I accurately captured the essence of their personal experiences. During phone conversations, the participants were able to answer
questions and provide details that may have been missing during the initial interview process. Then, data analysis was used to create composite textural and structural descriptions of the phenomenon during the coding process. Participants were also able to verify that I correctly identified their practices and perceptions related to the phenomenon.

Moustakas refers to imaginative variation as “free play of fancy” (1994, p. 98). Using imaginative variation, I considered all the themes that were identified in the coding process. I considered these themes from different perspectives and focused on constructing meaning from the participants’ experiences. I focused on how the themes in the data related to the review of literature on collaboration, best practices in professional development, the use of digital tools and the theoretical framework of social constructivism. I made notes, kept memos of my thought process, and used these notes to reflect on the lived experiences of the participants.

Finally, a synthesis process and a combination of each of these analysis procedures were used to formulate an understanding of how teachers are utilizing digital tools and their perceptions about how these tools can support professional collaboration. The qualitative nature and design of this study captured the lived experiences and perceptions of the participants allowing them to tell their story. This methodological approach creates a clear connection between the textural and structural descriptions, the research questions, the design of the study, and the lived experiences of the participants.
**Trustworthiness/Reliability**

According to Yin (2014), it is important to establish construct validity, external validity and reliability for qualitative analysis. This study’s external validity is limited in size and scope of generalizability. However, it is important to note that the intent of this study is not to assert that the findings can be generalized to all elementary teachers but rather that the findings can be used for analytical generalizations. Member checking, a crucial element of trustworthiness, was used to have each participant verify the contents of the interview transcript for accuracy (Lincoln & Guba, 1985) and provide triangulation for the study. Member checking via e-mail and phone calls between the participants and myself was used to verify accuracy, provide assurance that I captured the participants’ ideas and perceptions accurately, and provide corroborating evidence for triangulation (Creswell, 2013).

**Summary**

This phenomenological study was designed to gain an understanding of how elementary teachers are utilizing digital tools for collaboration and their perceptions about these practices. The qualitative study was designed using convenience sample of six participants from three elementary schools in the Upstate of South Carolina. A combination of questionnaire and interview protocols were used to capture data on participant practices and perceptions. Data from the study were analyzed using Moustakas’ (1994) modification of the Stevick-Colaizzi-Keen method (p. 121) and used to create textural and structural descriptions of the phenomenon. Epoche, phenomenological reduction, imaginative variation, and synthesis guided the data
analysis process and revealed three distinct themes. According to the results, participants are primarily utilizing digital tools to access resources or knowledge, share resources or knowledge, create materials, or engage in collaboration, which is consistent with prior research findings on how teachers are choosing to use digital tools (Purcell, et al., 2013). When evaluating how teachers are utilizing digital tools for collaboration, the participants in this study reported using a variety of tools such as social media, e-mail, text messaging, and Google Docs to support collaboration with other professionals. The data also revealed teacher preferences for face-to-face collaboration when dealing with sensitive or personal issues and overall positive perceptions about the ability of digital tools to meet teachers’ needs for professional collaboration. Careful analysis of these themes and participants’ personal accounts of their lived experiences add to the literature on professional collaboration, digital learning, collaborative technologies, and guide school leaders in providing teachers with the resources and time to engage in such practices.
CHAPTER FOUR

RESULTS

This phenomenological study examined how six elementary teachers in the Upstate of South Carolina are utilizing digital tools and their perceptions about how these tools meet their needs for professional collaboration. The results are organized by participant in order to present a rich description of the teachers’ personal practices, experiences, and perceptions within the context of digital collaboration. Actual quotes from the interview transcripts have been used to highlight teacher voices and express the lived experiences of the participants in the study.

Anna

Anna is a fourth grade math and science teacher at Andrews Elementary School that serves approximately 520 students from an impoverished area in the Upstate of South Carolina. She holds a Master’s degree and has over twenty years of teaching experience. In the initial questionnaire, Anna rated her comfort level with technology a nine out of ten. She reported using technology such as e-mail and Google Docs to connect with other teachers within her grade level, at her school, and with teachers across the state of South Carolina. In addition, she reported previous experience with blogging, using learning management systems, and using technology as a medium for collaborating with other teachers.

Anna’s Use of Digital Tools

Anna reported using digital tools to share resources, access resources, create materials, and engage in collaboration. She most often uses e-mail, text messaging,
Power Point presentations, Nearpod presentations, and Its Learning to share information with other teachers. She described sharing information about students as well as information about the day-to-day operations of school. For example, Anna mentioned that she often uses a group e-mail to ask questions such as, “Do you want to get together and draw pink and blue cards [scheduling] for the end of the year?” or “Do you think we should do this tomorrow at this time?” She also uses Nearpod, an online interactive presentation and assessment tool, to share presentations and content with her teammates on a regular basis. Anna stated that she enjoys the freedom of being able to share resources such as Nearpod or Power Point presentations after school hours since she does not have a lot of planning time during the school day. She commented, “We have a common planning time 45 minutes every day. Once you go to the bathroom, check your e-mail, check your box, and say hey to a couple of people, you just don’t have that much time left.” Anna shared that technology makes sharing resources “so much easier.”

Anna reported accessing resources from other teachers using Power Point and Nearpod presentations, Pinterest, Teachers Pay Teachers, Facebook, Google Docs, blogs, text messaging, and Its Learning. She stated, “a lot of the little tricks with math…you don’t come up with on your own. I definitely like getting ideas from teachers who have different methods or more experience than me.” Anna mentioned that although she does not have a Facebook account, she often uses someone else’s account to access materials and resources for her math lessons. She recalled a time when she accessed a multiplication rap from a friend’s Facebook account to make her math lesson more engaging for students. Anna commented that technology has provided “a bigger array of
things to choose from.” In fact, she mentioned that technology has significantly changed how she accesses materials for her lessons. “I’ve thrown a lot of those [old books] away, because you can just get online and find it. It’s actually a lot quicker than it is to go and find it in my file cabinet.” Anna also commented that technology has had a positive influence on her teaching strategies. “If I look at my plan book and I see that it is going to be a boring day… then I’ll go on Pinterest or a blog and find something [exciting].”

When asked about her experience with Google Applications, Anna shared that she often uses Google Docs and Google Slides to create materials for her classroom. In fact, she often works with a colleague to create, edit, and revise materials that they can both use in their classrooms. Anna shared some of her experiences using Google Docs with a friend. She stated, “She’ll just send me things that I’ll look through and edit for her and then she does the same thing for me.”

Anna’s Use of Digital Tools for Collaboration

In the interview process, Anna was asked to define collaboration. She stated, “It’s the sharing of ideas and the give and take of opinions, ideas, and methods to make sure we are all at the same point or that we’re all hitting the standards.” She went on to describe her personal experiences with digital collaboration with a trusted friend. Anna noted that she collaborates more with a friend that teaches in a neighboring district than she does with the teachers within her school. Their close friendship began when they were both teaching the same grade level and the same subjects at another school in the county. She noted, “I feel like if I didn’t have her to bounce ideas off that I would not be as creative or as organized as a teacher.”
While teaching at the same school, Anna and her friend were able to engage in frequent face-to-face collaboration. However, now that they are not teaching at the same school, they rely heavily on digital tools to collaborate about content, instructional strategies, and classroom management. Typically, they e-mail or text each other at night or after school when they are planning for the next day. Anna shared a story about a time that she and her friend were collaborating about a math activity and how the instructional strategies would need to be adjusted to meet the needs of her diverse group of learners. Referring to her friend, Anna stated, “She teaches a gifted class. She needs all those depths of knowledge… that I’m not doing on the first or second lesson. She’ll say, ‘Do you think I’m going too fast if I do it this way? How can we adjust it for your students?’” Anna elaborated on the value of working with a trusted friend to collaborate. Specifically she stated, “I feel like it makes me a better teacher.”

**Anna’s Perceptions about Using Digital Tools for Collaboration**

Anna expressed a preference for face-to-face collaboration when she recalled her experiences from her previous school. She shared that she really enjoyed having the time to sit down with other teachers to plan their lessons. She recalled a time when she worked with another teacher to learn the best strategies for explaining to students why we have different seasons in a year. She shared a story about how another teacher had to give her a demonstration of how to teach the lesson to her students. She recalled, “She would stand up with a yardstick and say, ‘this is the Northern Hemisphere and this is the Southern Hemisphere and it goes around the sun like this.’ You can’t get a demonstration like this on text or e-mail.” Another concern she shared was that sometimes she finds
there is a gap between what she wants to say and how it comes across when using technology for collaboration, because you cannot communicate facial expressions and tone of voice digitally.

Although Anna shared fond memories of experiences with face-to-face collaboration, she also voiced positive perceptions about using digital tools for collaboration. She mentioned that digital tools allow her to connect with other teachers outside of school hours and on the weekends. She also mentioned that the accessibility of being able to connect with teachers who may be more knowledgeable helps make her a better teacher. For Anna, digital tools provide a medium for her to continue to collaborate with a trusted friend even though they no longer teach at the same school.

Reese

As a media specialist at St. Joseph Elementary, Reese teaches students in kindergarten through fifth grades and reports a comfort level of nine out of ten with the use of technology. She holds a Master’s degree, has five to ten years of teaching experience, and values collaboration with other media specialists and teachers. She self-reports collaborating with other professionals in her school, district, state, the United States, and in other countries using e-mail, Facebook, and Padlet. Reese shared that she routinely engages in collaboration with teachers to ensure that she can support students’ learning goals with the proper instruction and resources in the media center.

Reese’s Use of Digital Tools

During the interview, Reese shared that she uses Google Docs on a regular basis to assist her in her job responsibilities as a media specialist. She creates forms for
teachers to provide input on what books they need from the library for their classrooms. She also uses Google Docs for organizational purposes. Each month she creates a Google Doc for teachers to sign up for a time to visit the library. She stated, “This allows every teacher in the school to see what times are available in one glance.”

Reese often uses Its Learning, e-mail, Facebook, and Twitter to share and access materials with other teachers. Reese reported using Its Learning to access resources for her lesson plans. “I go on Its Learning to see what teachers are doing and look at their long range plans so that my plans match what they are doing in the classroom.” She expressed having positive experiences using Its Learning, because it provides immediate accessibility to every teacher’s lesson plans in one central location. In addition, she mentioned that as a media specialist she is responsible for knowing the teaching standards for each grade level within the school. She stated this can be difficult at times, but Its Learning makes it “so much easier because it is all right there in one place.”

Reese talked about using Twitter to access and share ideas from conferences she has attended. She jokingly said, “My friends can always tell when I’ve been at a conference, because that’s when I start Tweeting out again.” She stated that Twitter helps her to get ideas from librarians all over the United States. Reese shared an example of how she has used Twitter to join book chats with other librarians to get ideas about which books to recommend to her students. In this particular instance, she joined the Twitter chat as a passive participant to gather information that she could use in her personal lessons. Reese admitted that she rarely takes the risk of actively participating in online discussions, because she has a “really hard time with putting things out there that I
know are going to be there for everyone to read.” Her personal inhibition with expressing herself digitally typically results in passive participation in online communities.

**Reese’s Use of Digital Tools for Collaboration**

Reese describes collaboration as “working together to better meet the needs of students.” By collaborating with other teachers, she becomes a better teacher, because she “can get tons of ideas that you would never have had if you hadn’t talked to other people.” She refers to collaboration as a chance to “bounce ideas off of each other” and “really grow.” Reese reported using e-mail, Padlet, Facebook and Google Docs to engage in collaborative activities with other teachers.

Reese shared some of her experiences using e-mail to collaborate with teachers in her building. She stated that she often sends a group e-mail to teachers to spark conversation about how she can create lessons to support their classroom instruction. She stated that she has tried to convince teachers that using e-mail to collaborate can save them time. “We can do this in five minutes or we can sit through a meeting and it’s going to last an hour and we’re going to get the same things accomplished.” She also shared that using e-mail to collaborate can be difficult at times, because “…people either forget or they are afraid to click reply all instead of reply, then the conversation gets stopped.”

Reese belongs to four different librarian groups on Facebook. She mentioned that she often gets unique ideas from other teachers within these groups. “It really challenges me to change how I see the space I have and what I could do within that space.” She stated that the opportunity to engage in dialogue and ask questions in these virtual spaces allow her to “step outside of the box” in her own classroom. In addition to Facebook, she
has used Padlet, an online bulletin board, to collaborate with teachers within her school. She mentioned that she first used Padlet to model for other teachers how to use the application with students, but then it just “caught on.” She stated that learning to use different technologies to collaborate with teachers could be “challenging, but fun at the same time.”

**Reese’s Perceptions of Using Digital Tools for Collaboration**

Reese shared positive experiences with using digital tools for collaboration. However, she also expressed that it can be challenging at times. Although Reese seeks opportunities to engage in collaboration, she admits that she is often uncomfortable taking the risk of sharing her opinions and ideas in both face-to-face and virtual environments. She specifically stated that she felt safer sharing her ideas when the forum was anonymous. She mentioned, “…if you are not comfortable voicing those concerns, you can put it out there [digitally] and it’s not as bad as you watching their faces like, Oh my gosh, they really hate this idea.” She believes that digital collaboration gives you more time than face-to-face collaboration to “really think about it and give others the opportunity to voice their opinions” before you share your ideas. However, when she had personal relationships with members of a group, she was more likely to take risks and share her ideas. Reese commented, “It helps when you get to know each other first.”

Reese mentioned that while she enjoys digital collaboration, she has to be mindful to avoid sarcasm in her communication with others so she doesn’t “come across the wrong way.” She shared an account of a time when teachers in her school were offended by someone’s sense of humor in an e-mail correspondence. She commented that while
she embraces digital collaboration, some of “the old-school teachers are afraid of it.” She feels these teachers “just need to embrace it, because at some point we are going paperless and they are going to be stuck.”

Overall, Reese had positive perceptions about the ability of digital tools to support professional collaboration. Reese believes digital collaboration is important because teachers “don’t have time to sit down and talk to each other” due to lack of time during the school day. Often teachers’ planning times are encumbered with meetings or mandatory training sessions so they have to connect with teachers outside of the school day. To have a chance to collaborate, teachers must look at collaboration as necessary and not just as “something that takes up extra time.” She also believes that teachers need more training on how to utilize digital tools. She stated, “Just because they can do it, doesn’t mean they do it the right way.” She believes teachers need additional training to show them the value of using digital tools as a time saving alternate to face-to-face collaboration.

Sophia

Sophia, a National Board Certified Teacher, has between 15-20 years of teaching experience and currently serves as a media specialist at Lucasville Elementary School. She holds a Master’s degree in Library Media Science and reported a comfort level of ten with using technology to connect with teachers within her school, district, state, and across the United States. In her capacity as media specialist, she serves students in kindergarten through fifth grades in 40 classrooms using a flexible schedule system, which allows her to collaborate with teachers on a routine basis.
Sophia’s Use of Digital Tools

Sophia uses digital tools such as e-mail, Facebook, Its Learning, and Edu blogs when working with teachers and other media specialists. She described using Its Learning to upload resources that assist teachers with planning their lessons and instructional strategies. She stated, “We put information on there hoping that teachers will come and ask for more information. We kind of use it as a hook.” She also described using Edu blogs to share information with other teachers about books she has read. She noted that teachers use Edu blogger to make book recommendations for each other and for students. Recently she worked with a group of teachers to write book recommendations on non-fiction texts about presidents. They called it the Presidential Buffet. Teachers had access to the blog and used it as a resource for finding appropriate books for their students. She also noted utilizing Facebook to get ideas about activities that other schools are using in their libraries.

E-mail has proven to be an effective tool for Sophia to share information about upcoming events in the library. She also uses e-mail to access information from teachers about the standards they are covering and the units they are teaching in order to incorporate them into her library lessons. However, she mentioned that sometimes she feels it is more effective to talk to a person face-to-face than to send an e-mail. “I have some teachers that I just erase the e-mail and I call them because it’s the inflection in your voice or your tone that makes a difference.” She believes, “You have to know the people really well to know which works best for them.”
Sophia’s Use of Digital Tools for Collaboration

During the interview, Sophia described collaboration as “two or more professionals working together on a common project to make sure kids have what they need.” She described using e-mail, Google Docs, Facebook Messenger, and text messaging to collaborate with other teachers. Sophia spoke about using Google Docs to work with a group of media specialists to create a library media manual. “Each of us could go in and make changes or add things. Everyone could see the changes so we didn’t have to meet in person. Everybody had their input on how they thought the manual should be.” She described the experience as very collaborative, because each teacher could add comments and suggestions as they worked together to create the final product.

Sophia shared that she often collaborates with teachers after school hours on Facebook Messenger, e-mail, or text. She described several examples of using Facebook Messenger and text messaging to collaborate with teachers late at night. “A fourth grade teacher texted me last night. That’s just kind of how it works now. She said, ‘Okay, tomorrow this is what I’m thinking,’ and it just went from there.” Sophia commented, “A teacher wouldn’t just pick up the phone and call me at two o’clock in the morning, but they may send me a Facebook message or a text. If I’m up, we just start planning.”

Sophia’s Perceptions of Using Digital Tools for Collaboration

Sophia finds using digital tools for collaboration is very dependent on the person’s comfort level using technology. She expressed that she personally enjoys digital collaboration, because “it saves so much time.” She noted, “I think it’s much easier for me to collaborate digitally with our teachers who just came out of college, than it is our
teachers who have been in the profession for a while.” As a media specialist, she has to be sensitive to the needs of the teachers with whom she works. “If I want teachers to collaborate with me then I have to make it as easy as I can for them.”

Sophia shared that she found value in professional collaboration because, “We all have things that we can bring to the table. So, if you are working together it is only helping your kids.” However, she expressed that lack of time was a common barrier to frequent collaboration among teachers. “There’s not enough time in the day to get done what we have to get done in the classroom compared to all the other things we would like to do.” Digital tools have created “another avenue other than us just sitting down for collaboration time.”

Sophia perceives that digital tools have positively affected her as a teacher.

I definitely think the ability to collaborate digitally has made me a better teacher just because, the time. Sometimes you do not have time to work with other teachers as closely as you’d like to, but the digital component adds a lot more time. So, it makes me feel like I can add more in the area of collaboration with other teachers.

Sophia believes that digital collaboration will increase in the future, as teachers become more comfortable with technology. She stated,

You know your planning time is awesome but it only goes so far. The more teachers we can get onboard to see that this is really an amazing time saver, we will have a lot more collaboration in the future….I think in the future this will be
much more the preferred way of collaboration compared to the way we have in
the past.

Overall, Sophia had positive perceptions about using technology to engage in
collaboration with other teachers. She feels that some teachers are more comfortable
using technology than others are, so her method of collaboration is dependent upon the
person with whom she is working. Sophia strongly believes that digital collaboration will
be the predominate method of communication in the future and that teachers need more
training on how to navigate collaborative technologies and virtual spaces.

Bonnie

As a Lego Lab instructor and technology trainer at Andrews Elementary School,
Bonnie has the unique opportunity to work with students and teachers. She serves
students in first through fifth grades and works with teachers across the district to train
them on effective use of technology in the classroom. She has 10-15 years of experience,
a Bachelor’s degree, and was enrolled in a graduate program. She rated her comfort level
with technology a 10 out of 10 on the initial questionnaire and reports using technology
to connect with other teachers in her school, district, and across the United States.
Although she collaborates with teachers in her capacity as a teacher, she also collaborates
frequently with other educators as a part of her graduate course requirements.

Bonnie’s Use of Digital Tools

As a Lego Lab instructor, Bonnie often uses digital tools to access and share
resources with teachers outside of her school. She stated that she enrolled in an online
STEAM course to “sharpen” her skills as a teacher. In the course, the instructor created a
discussion board where teachers could access and share resources with one another. Bonnie noted that the discussion board served as a great place for teachers to share information about grants that were available for STEAM teachers. Class Dojo has been a useful tool for Bonnie to communicate student behaviors to other teachers within her grade level. She also mentioned using Remind 101 to send reminders to other teachers about upcoming events or projects. Bonnie and the teachers in her school also utilize Its Learning to share and access assessment materials and other resources for their lesson plans. Bonnie believes that digital tools are a “real time saver” for teachers, because “they allow you to get the things you need when you need them.”

**Bonnie’s Use of Digital Tools for Collaboration**

During the interview process, Bonnie defined collaboration as “two or more teachers who are working together on a common goal…for the education of students.” Bonnie does not feel that she is able to collaborate with other teachers as often in her role as a related arts teacher as she did when she was a classroom teacher. She shared; there are no other teachers within her school or district who teach the same content, so she has had to rely on her online STEAM course and digital tools for professional collaboration. In her STEAM course, she has connected with people from across the United States and in other countries. The teachers utilize Blackboard (LMS) to post weekly discussion blogs and Google Docs to work on collaborative assignments. During the school day, she also utilizes technology to share and access resources with teachers within her school.

When asked about the importance of collaboration, Bonnie shared,
It think it’s really key for teachers, because it drives their best practices. So, if you are a teacher and you’re kind of in isolation and you don’t know other ways teachers are successful in teaching what you’re trying to teach, you kind of get stuck in your own rut and your own routine. Collaborating with other teachers can give you an opportunity to examine your own practices so you can be a better teacher.

Bonnie stated that she utilizes Instagram and Twitter to share project ideas from her classroom. She mentioned that she often posts pictures of her classroom instruction on Instagram or Twitter to share her ideas with other teachers. She reported the posts “fuel more discussions” among teachers about what is going on in her classroom. She noted, “You can find a lot of teachers who are willing to collaborate with you.” She also uses Skype as a digital tool to connect with teachers in other states. She shared an example of collaborating with a teacher from North Carolina to plan a reading lesson for her students. In addition, she routinely uses Google Docs as a “time saver” to work on collective projects with other teachers. Bonnie stated that there is not enough time in the school day to “do everything” and she feels teachers need more time for professional collaboration. She believes that administrators should require teachers to engage in collaboration during the school day. She stated, “Without administrative expectations for collaboration, it gets left off the plate and then we have to find another time to fit it in.” Bonnie felt that administrative expectations for collaboration during the school day would limit the amount of time she is spending outside of school to collaborate with other teachers.
**Bonnie’s Perceptions of Using Digital Tools for Collaboration**

Data from the interview transcripts and questionnaire responses indicated Bonnie had very positive perceptions about the ability of digital tools to support professional collaboration. In fact, she stated digital tools were “necessary for today’s teachers to keep up with all the changes in education.” She stated, “Collaborating with other teachers can give you an opportunity to examine your practices so you can become a better teacher, but you can’t do this if you don’t have time.” She stated, “with technology, you can do this [collaborate] any time.”

Bonnie reported that she feels one danger of digital collaboration is the risk of “losing some things in translation.” She had a personal experience with someone getting angry at her while engaging in an online discussion, because they misinterpreted her comments. “Sometimes your voice and your jokes don’t come across quite the way you intended them. Sometimes when you are collaborating with technology they don’t see the big smile on your face and they don’t understand…” She described feeling very embarrassed and upset that she has unintentionally offended her classmate.

Bonnie felt very strongly about the need for administrative support for teacher collaboration. She suggested several times that time was a huge factor in preventing teachers from engaging in collaboration with one another. However, Bonnie was able to describe opportunities for collaboration outside of school hours using Twitter, Instagram, Skype, and discussion boards. Although Bonnie recounted positive experiences using digital tools for collaboration, she cautioned, “…digital collaboration alone isn’t going to be something that improves the teacher’s effectiveness, but taking ideas that they’ve
gained through collaboration and then putting them into practice, that’s what’s going to improve teaching.”

**Janna**

A third grade teacher at St. Joseph Elementary School, Janna, is an early career teacher with less than five years of teaching experience. She holds a Bachelor’s degree and she has taught in both Florida and South Carolina. Janna rated her comfort level with technology an eight out of ten on the initial questionnaire and reported using e-mail and Google Docs for collaboration with teachers within her grade level, school, and district.

**Janna’s Use of Digital Tools**

Janna reported using Its Learning, Google Docs, and e-mail to both share and access resources for her classroom. She also uses Pinterest and Teachers Pay Teachers to search for activities and resources for her lessons. Janna reported using Google Docs to create and share lesson plans with her team. She feels that the digital format is beneficial because, “we don’t have to wait to get the e-mail and input it ourselves.” She also utilizes Its Learning to share documents with her team and with the administrative staff at her school. Janna stated that the teachers in her school upload their lesson plans, assessments, and resources to Its Learning so they can be accessible for other teachers. She stated, “I really like the ability to share assignments on there, so I’ll create a document and share it with the teachers. It really does make things easier for us.” In addition, she and the teachers in her grade level often send each other materials using e-mail. “We find a lot of things online and then we’ll e-mail it to each other.” The e-mail then sparks dialogue such as “Hey, do you think this will work for this lesson. What about this?” Janna
explained that she often uses Teachers Pay Teachers to access lesson plans, ideas, anchor charts, and classroom activities. She mentioned that sometimes she modifies the resources she purchases from Teachers Pay Teachers and other times she just prints it off and “it’s good to go.”

**Janna’s Use of Digital Tools for Collaboration**

Janna, defined collaboration as “sharing your ideas and thoughts about different topics, different subjects, and different ways of doing things, and then formulating a plan…” She explained that she often collaborates with her team to plan lessons and feels collaboration is a necessary element of her profession. She stated, “You can’t do this by yourself, you need collaboration, you need somebody to be there with you.” Janna primarily uses e-mail and Google Docs to engage in digital collaboration with other teachers. In one account, Janna described feeling very comfortable engaging in collaboration with another teacher about how to teach a math unit on time. She mentioned that the teacher e-mailed her a question about the unit and they “went back and forth” talking about the best strategies and activities to use in the unit. In another account, she described a time when she needed help with a reading strategy and was able to collaborate with another teacher in Florida to problem solve. She stated,

There was a strategy that we used in Florida that I had forgotten about so I e-mailed them down there and asked them about it again. We really didn’t call it close read there, but we would read through, we would underline the vocabulary, and then annotate. I kind of just forgot the process and they were able to help me.
In addition to e-mail, Janna described using Google Docs to work collaboratively with other teachers to create lesson plans for their students.

**Janna’s Perceptions of Using Digital Tools for Collaboration**

Janna shared her experiences using different approaches to collaboration at different schools. At her previous school, she primarily engaged in face-to-face collaboration with her team. In her current position, her team relies heavily on digital collaboration. Janna stated,

> I’m missing out sometimes on that link of hearing the other ideas from the teachers before we plan. I’m missing that a little bit…I feel like I am struggling a little bit more with the reading [instruction] here because I don’t really have that, where we talk about the entire lesson as a whole…I don’t get that deeper understanding when we would talk about it like we did the last few years [in Florida].

Janna expressed a concern that she was missing “a deeper understanding” of materials and teaching strategies using digital tools. In her experiences with face-to-face collaboration, she felt as though she was able to grasp the concepts and had a deeper understanding. Due to a lack of time in the school day, her team relies more heavily on digital collaboration outside of school hours and Janna feels that she is “struggling a little bit more.” However, she feels that digital collaboration has its advantages, as well. “You can just do it really any time you have your computer and Internet access…You can work with your team and get things done.”
Janna did feel that digital tools were able meet her need for professional collaboration to some degree. She shared that while she likes face-to-face interactions, incorporating digital tools “helps support us that much further.” Specifically, she stated “We are able to access it at home if we need to and it does make it a lot more convenient. I would say that it’s definitely helped us just collaborate a little bit more.”

**Layla**

Layla, an early career teacher with less than five years of experience, teaches fourth grade at Lucasville Elementary School. She holds a Master’s degree and reports a comfort level of ten with using technology. She routinely collaborates with other teachers within her grade level, school, district, state, and across the United States. She aspires to earn a PhD. and is currently working with a graduate level professor at a local university to publish research articles in peer-reviewed journals. She shared that she relies heavily on technology as a medium for collaboration within her graduate program, as well as within her profession.

**Layla’s Use of Digital Tools**

Layla described using e-mail, Google Drive, Its Learning, Pinterest, and Google Docs to share and access resources for use in the classroom. Teachers at her school have very little time to meet together during the school day so they often use Google Drive to share resources for their weekly lessons. Layla stated that using the Google Drive has helped them to stay more organized than when they were using a colored folder system. She stated, “That [colored folder system] wasn’t working, because people were losing
papers and we couldn’t find anything.” Layla found digital tools enhanced her organizational skills and made sharing information, “easier for everyone.”

Layla talked about using e-mail to send materials to other teachers in her grade level, but mentioned that they seemed to rely more heavily on placing documents in the Google Drive than sending them as attachments in an e-mail. Layla especially liked that Google Drive afforded teachers the ability to upload information from any location. “We added all our resources. We had people from all over Greenville adding, so it just became a melting pot of so many good ideas and resources.” Layla also reported a preference for Google Drive over Its Learning for storing and locating information. “With Its Learning, upload, upload, upload, but we couldn’t find things; they were all over the place so we were like, okay, Google Drive.”

Layla spent time discussing her perceptions of sites such as Teachers Pay Teachers. “I strongly dislike Teachers Pay Teachers, to be honest with you, because I just think it’s such an easy click and buy, and then we just give and go.” She was concerned that such easy access to materials could create negative habits if teachers were not careful to adapt the materials to meet the needs of their students. Specifically, she referred to purchasing anchor charts to hang in the classroom rather than utilizing the more authentic practice of creating the charts with the students as a part of the lesson. She noted that “just because resources are available, doesn’t make them effective. The teacher has to use those resources in the right way.”
Layla’s Use of Digital Tools for Collaboration

During the interview, Layla defined collaboration as “working together, while remaining an individual.” She explained that for her,

Collaboration is super individual. It’s being able to explain things to others, being able to hear others, to gain ideas, to give ideas, and being able to take them back to your own individual practice, your own individual life, and using those things to better yourself.

She shared that she feels you can learn many things from your own experiences, but you can also learn from the experiences of others. “People are good at different things… you can give back to those kids, because you’re pulling from everyone else’s strengths.”

Layla talked about how posting resources on Google Drive often sparked collaboration via text messaging. “I would post something on the Google Drive and other teachers would text me and say, ‘What are you doing with that? Oh, I did something different. Maybe we can…’” She felt texting back and forth allowed teachers to collaborate when they did not have time to meet face-to-face. She expressed that coaching, personal children, and other responsibilities inhibited face-to-face collaboration with the teachers in her grade level.

Layla’s Perceptions of Using Digital Tools for Collaboration

Layla shared that when she first started teaching, she primarily collaborated with other teachers to access resources concerning content and behavior management. She stated, “I think in the beginning it was a lot of, how do I even get started? At this point, I
think I’ve got that under my belt.” Now, she relies on collaboration to learn from the wisdom and experiences of others. Layla stated,

You learn a lot of wisdom through experience. There’s so many people that have so many good ideas that I want to learn from….How I grow as a teacher is to learn from other people and to pull from other people and use those things to modify my own practice.

Layla believes that collaboration has helped her become a more effective teacher because her “weaknesses have gotten stronger” by collaborating with teachers with different strengths than her own. She shared,

…This is not a job you can do alone. It is not a job that is for the faint of heart….I think collaboration is key, because when you do collaborate you get the full pieces of everything that you need and everything that you can give back to those kids, because you’re pulling from everyone else’s strength.

Layla shared that she uses a blend of face-to-face and digital collaboration on a routine basis with her teammates.

We end up doing more collaboration standing on the playground together, passing things around, phone calls at nighttime, e-mails back and forth….Now is it ideal? No. But, are we talking and are we sharing? Yes, but maybe not in the traditional ways.

Layla shared positive experiences with using digital tools such as Google Docs, Blend space, Moodle, and Its Learning. Her team used Google Docs to share and store materials and Layla expressed that this typically spurred conversation such as, “Oh, well,
what are you doing with that?” She also used Google Docs to share resources during a graduate class to get “good ideas and resources.” Although she has had positive experiences with digital collaboration, Layla also shared her desire to maintain some opportunities for face-to-face collaboration. She feared that relying solely on digital collaboration could result in a person losing their “personal skills and the ability to communicate orally.” She believes that sometimes “things need to be talked out.”

Layla expressed positive perceptions about both face-to-face and digital collaboration. She described how she has had positive experiences collaborating face-to-face with teachers within her district and digitally with teachers within her graduate course. She shared that her face-to-face experiences have taught her the value of collaboration and her experiences during her graduate course helped her to understand how “powerful” it could be to use digital tools for collaboration. “Now, that I understand how powerful that was there [graduate course], it has made me want to branch out a little. I’m more willing to seek that [digital collaboration] out than I was before I took the course.”

Although Layla is gaining more experience with digital collaboration, she described her need for face-to-face interactions concerning deeper issues,

I think for some of those deeper issues that we face as teachers, to collaborate one-on-one makes it so much more meaningful when you’re talking about the future of a student, or when you’re talking about placement issues and things like that. I mean, like … the literacy coach. I
would much rather [say], ‘Hey, I have a struggling reader. Could you give me some suggestions?’ I would much rather do that in person….

Layla stated, “It’s been a learned thing for me. I am more of a talker and I’m more of a people person. I would much rather talk it out in person that type it out or share it that way.” She expanded, “This has been a growth point for me and definitely something I’m working on. Technology makes things so much easier. We need to have a blend.”

Summary

The results of this study were organized by participant to capture the essence of each participant’s unique experiences using digital tools. As a whole, the six participants reported using a variety of digital tools to share and access resources with other teachers. They also reported using digital tools such as text messaging, e-mail, and Google Applications to engage in collaboration with other teachers after school hours. Overall, the participants reported positive perceptions concerning the ability of digital tools to offer an effective medium for professional collaboration. Personal relationships, the human element of body language and facial expressions, and training emerged as critical factors influencing the overall effectiveness of using a digital medium for collaboration among all six participants. These three themes are discussed further in Chapter 5.
CHAPTER FIVE

CONCLUSION AND DISCUSSION

The purpose of this research study was to gain an understanding of how elementary teachers are utilizing digital tools for collaboration and their perceptions about how these tools are able to support their need for professional collaboration. Decades of research studies have investigated teachers’ need for professional collaboration and identified elements of effective collaboration. However, little has been done to explore how digital tools have influenced the way in which teachers are engaging in collaboration with other professionals. This phenomenological study was designed to gain an understanding of the practices, perceptions, and lived experiences of those who are entrenched in the critical work of teaching our youngest children.

Clark Moustakas’ (1994) model of transcendental phenomenology undergirds the design of this study and the data analysis process. By engaging in the Epoch, I consciously considered my personal experiences and perceptions to remove any preconceived notions. I studied the questionnaire responses and the interview transcripts to grasp how teachers responded to each of the questions; next, I read the questionnaire responses and interview transcripts from individual participants to gain a more individualize perspective on their experiences with the phenomenon. Through the process of phenomenological reduction, I reflected on the research questions and began to break the responses into categories and themes. Then, I utilized imaginative variation to
develop the textural and structural descriptions that existed within the data. During synthesis, the final processes of transcendental phenomenology, three themes emerged:

1) Teachers are often choosing to use digital tools to engage in professional collaboration after school hours due to a lack of time during the school day.

2) Personal relationships influence the frequency and ease with which teachers engage in digital collaboration.

3) Teachers have positive perceptions about using digital tools for collaboration, but need additional training on how to utilize technology to create collaborative environments that support teacher growth and development.

**Relating Back to the Literature**

In the review of literature, researchers such as Desimone (2011), Little (1993), and Goddard, et al. (2015) established that quality professional development practices included collaborative learning among teachers. In addition, prior research on collaboration, such as Postholm’s (2016) study of Norwegian educational reform movements and Lave and Wenger’s (1991) study of study of professional dialogue among teachers, found frequent collaboration to be the most relevant factor in teacher professional development. The results of this study revealed supporting evidence that teachers have a strong desire to improve their teaching skills and seek opportunities to engage in these types of practices. This is evidenced by the participants’ practices, both during the school day and in their personal time.
Careful analysis of the data revealed that teachers are independently seeking ways to gather information, resources, and critical dialogue from other teachers to improve their teaching skills. To improve their practices, teachers need opportunities consistent with the principles of social constructivism such as social interactions, collaboration, personal experiences, and reflection. It is critical that teachers have opportunities to engage in social interactions with other teachers, collaborate, relate new ideas and practices to their personal experiences, and reflect on their current practices to foster professional growth. Investigating how teachers are utilizing digital tools provides insight into how teachers are seeking opportunities for professional growth and development. Data analysis in this study, revealed three themes that relate to teacher practices and perceptions concerning the use of digital tools. I will discuss each theme, how it relates to the research questions, and the participants’ experiences within the context of social constructivism.

**Participants’ Digital Collaboration beyond the School Day**

During phenomenological reduction, it was evident that teachers were using digital tools that could be categorized into four groups: a) communication technologies, b) learning management systems, c) social media, and d) Google Applications. Teachers self-reported using these tools in four specific ways: a) accessing resources or ideas; b) sharing resources or ideas; b) creating or producing materials; and c) collaborating. Participants’ use of digital tools to access and share resources was consistent with prior findings in the 2013 Pew Research Report (Purcell, et al., 2013). However, this study revealed additional insight into how teachers are choosing to use digital tools for
collaboration. Each participant gave accounts of utilizing digital tools to collaborate with other professionals beyond the scope of their workday. Teachers described collaborating late at night, while waiting on their children to finish extracurricular activities, and on weekends. Three common threads woven through each participant’s story were a belief that collaboration is important for professional growth, a concern that little or no time is allocated for collaboration during the school day, and a willingness to embrace collaborative technologies outside of the school day in order to collaborate with others.

According to the principles of social constructivism, true learning takes place when individuals are able to engage in rich social interactions with others and connect new knowledge and ideas to their personal experiences. For teachers to truly sharpen their teaching practices, they must have opportunities to engage in these types of experiences on a regular basis. However, based on the accounts of the participants in this study, teachers continue to lack the resources and time for professional collaboration. Downes (2005) and Siemens (2005) added another component to social constructivism with the idea of connectivism. According to the principles of connectivism, technology has significantly affected how and where we access knowledge. The participants in this study find collaboration so important that they are utilizing digital tools as a medium to connect with other professionals in their personal time.

Collaborative technologies were viewed by all six participants as valuable resources, because they provide access to both material and human resources. Throughout our conversations, it was evident that teachers were choosing to use their own time for collaboration because their employers did not afford them time for
collaboration during the school day. Although collaboration is a necessary practice for professional growth and digital tools offer an alternative to face-to-face collaboration, teachers continue to report that they do not have the time or training necessary to engage in these practices during the school day. Educational systems are not providing support for these types of practices, which forces teachers to rely on their personal time for professional growth without compensation.

From the research on effective collaboration, it is widely accepted that professional learning and collaboration are most effective when they are frequent and sustained over time (Timperley, 2011). In addition, this type of practice may lead to loss of family time or impact teachers’ overall job satisfaction. Additional research should be done to investigate how these practices are impacting teachers’ attitudes and job satisfaction.

**Relational Influence on Digital Collaboration**

The second theme that emerged during the synthesis process was that teachers were more likely to engage in digital collaboration with friends or other teachers with whom they had an established relationship. These findings support previous research on teachers’ reluctance to collaborate with unfamiliar peers (Wennergren, 2016). Among the participants, those who described collaborating with friends or co-workers were more likely to report rich collaborative experiences that were sustained over time. This is consistent with Lave and Wenger’s research findings (1991) that collaborative experiences between peers become more complex over time. When participants shared
examples of collaborating with less familiar individuals on public forums or social media, they reported that such experiences were infrequent or isolated occurrences.

According to the theory of social constructivism, learning hinges on the interactions among people and their environment and includes four distinct criteria: activating prior knowledge, creating cognitive dissonance, application of new knowledge with feedback, and reflection on learning (Baviskar, Hartle & Whitney, 2009). Without the components of feedback and reflection, deep learning will not occur. In a recent research study of how teachers access peer support through social network sites, Kelly and Antonio (2016) stated:

A significant finding is that the teachers in the groups studied did not typically engage in modelling of teaching practice, reflection on practice or feedback about practice. A theory-based explanation of this is that such discussion of practice requires, trust, stability, and collegiality within a group (p. 146).

In another study of virtual professional learning communities, McConnell, et al. (2013) found that when given the opportunity to build relationships prior to working in an online community, teachers were more motivated to participate in shared learning activities in both physical and virtual environments. Inhibition and personal fear seem to be at the forefront of the participants’ reluctance to engage in critical dialogue in both physical and digital spaces. Personal relationships contribute to teachers’ willingness to engage in feedback and reflection. Participant accounts of personal fear seem to revolve around fear of critique. One participant explained that she feels more confident sharing
ideas digitally because she is not face-to-face with an individual and does not have to “face their judgements.” Another participant expressed more comfort in sharing ideas face-to-face because the idea of putting her thoughts in writing made her uncomfortable. Another participant shared that she is generally a shy person and would describe herself as reserved in both physical and digital spaces. Interestingly, this data supports Wennergren’s (2016) research that found teachers reluctant to engage in uncomfortable situations that required them to analyze themselves or others when working with unfamiliar groups. The same study revealed the importance of a trusted friend in promoting dialogue and critical reflection. It is important to note that the internal barrier of personal fear seems to cross between digital and physical spaces.

Upon close examination of the participants’ experiences, personal relationships seem to be the paramount to overcoming personal fear and inhibition. In Anna’s case, she described being able to comfortably interact in both digital and physical spaces with a trusted friend. Janna expressed fear of digital collaboration, except in the case where she was interacting with her previous teaching partners in Florida, with whom she had personal relationships. If personal fear is preventing teachers from engaging in critical dialogue in virtual and physical environments, school leaders must develop environments that are safe places for teachers to have a fluid exchange of ideas, resources, and dialogue.

Despite these challenges, “technology is increasingly being touted as an optimal medium for the application of constructivist principles in learning” (Gilakjani, et al., 2013). These processes can be supported in both digital and physical spaces, because the
focus of both constructivism and technology is on creating an environment that promotes learning. Gilakjani et al. (2013) stated,

> These learning environments are as the contexts in which knowledge-building tools and the means to create and manipulate artifacts of understanding are provided through which learners work together and support each other as they use a variety of tools and learning resources in their pursuit of learning goals and problem solving activities (p. 49).

Overall, teachers expressed positive perceptions of using collaborative technologies. Digital collaboration afforded teachers more resources and access to fresh ideas without the barrier of time constraints. Digital collaboration with a trusted friend allowed for a more personal experience where teachers felt comfortable engaging in critical dialogue. When considering these findings, it is essential to consider the participants’ personal preferences concerning collaborative mediums. It is equally as important for school and district level leaders to understand and respect the preferences of their teachers. Attitude, motivation, anxiety, and confidence all play a vital role in establishing a productive learning environment (Wang, et al., 2010). Consideration should be given to working with teachers to promote an understanding of how to build relationships within virtual spaces.

**Positive Perceptions of Digital Tools**

The third theme essentially answered the question: What are elementary teachers’ perceptions about how digital tools meet their needs for professional collaboration? The
participants in this study unanimously reported positive perceptions about the ability of
digital tools to meet those needs. The participants felt that digital tools made resources
and knowledge readily accessible to them during and beyond their school day. One
teacher, for example, expressed frustration with juggling a job, being a mother, and
having time to collaborate with her teammates. She felt that digital tools afforded her the
opportunity to share ideas and resources after school hours when she could fit it into her
schedule. The other participants shared similar stories of feeling the frustration of never
having enough time. Digital tools were described as necessary, valuable, and important.

The data from the participants revealed an overall satisfaction with the support
digital tools could provide. However, every participant agreed that she really needed a
balance of both face-to-face and digital interactions. The participants valued the
accessibility that digital tools afforded but also valued the human element that is present
in face-to-face interactions. Overall, the teachers reported a great deal of satisfaction with
their use of digital tools and seemed to have the idea that “it’s just how it is now.” All of
the participants were willing to try new things but were open with sharing their feelings
about how the absence of human interactions takes away from the one’s ability to gain
deeper understandings when solely relying on digital communication.

These findings have implications for practitioners as they seek to support teachers
in their professional development. If teachers are readily using digital technologies to
support their professional growth, more training should be provided for teachers to learn
how to use the tools. One participant shared, “I think the big thing is training and
showing how it can save you time instead of just being something that you do one day
and forget the next.” Another participant cautioned of the dangers of misinterpretation with digital communication. She stated, “I’m just concerned my point always won’t get across the way that I mean it to.” Other participants voiced similar concerns sharing examples of people being offended by an e-mail or other digital communication that were misinterpreted. It would be wise for school and district leaders to consider training opportunities for teachers to learn how to communicate effectively and respectfully using digital tools. Further research on building relationships in digital spaces could contribute to this research study by investigating how teachers form relationships in digital spaces and understanding the impact of communication frequency on critical dialogue.

Limitations

There are limitations to the findings of this study that should be noted. Participants for the study were chosen from a convenience sample of elementary teachers from three schools in the Upstate of South Carolina. Due to the size of the sample, the findings of this study may not be able to be generalized to all elementary teachers. In addition, the results are limited by variables outside the control of the researcher. These variables included the technology that is available to teachers in these particular schools, the established culture within the schools, and the varied levels of technology proficiency among teachers in the study.

Delimitations

The intent of the study was to gain an understanding of how elementary teachers are utilizing digital tools and their perceptions of how these tools meet their need for professional collaboration. For this reason, participants were limited to public school
teachers who taught in grades K-5. Private and charter school teachers were not included in the study, nor were teachers who taught at the middle and high school levels. A convenience sample of three schools were purposely selected to represent Title I and non-Title I schools, multiple demographic representation, and variance in population size. From this group, six teachers who self-reported high levels of interaction with digital tools were chosen to participate in the study. In addition, the study was designed to focus on teacher collaboration using digital tools. Therefore, no other forms of collaboration were explored or included in the study.

The results of this phenomenological study are limited by several factors. Participants were all elementary teachers from the same geographic location and were situated within the same school district. Since school districts tend to operate using common practices and procedures, the participant experiences were likely shaped by the influences of their environments. In addition, my position as an elementary principal may have influenced participants’ responses leading to response bias. Participants also self-reported their practices and experiences on an electronic questionnaire. However, interview data and member checking were used throughout the data analysis process to triangulate the data and strengthen the reliability of the study.

Conclusion

This phenomenological study was designed to gain an understanding of how elementary teachers utilize digital tools and how they perceive these digital tools meet their needs for professional collaboration. Through close interactions with six elementary
teachers, I have written a textural and structural description of how these participants are experiencing the phenomenon of collaboration utilizing digital tools.

Participants’ are utilizing digital tools to access resources, share resources, create and produce materials, and collaborate with other professionals. The participants in this study primarily rely on text messaging, e-mail, social media and Google Applications as their preferred tools for collaboration. In addition, teachers reported positive perceptions about using digital tools as a medium for engaging in collaboration with other teachers. In fact, every participant reported that time limitations make technology a necessary component of professional collaboration.

The results of this phenomenological study revealed three overarching themes. Teachers are often choosing to use digital tools to engage in professional collaboration after school hours due to a lack of time during the school day. Personal relationships influence the frequency and ease with which teachers engage in digital collaboration. Teachers have positive perceptions about using digital tools for collaboration, but need additional training on how to utilize technology to create collaborative environments that support teacher growth and development.

Understanding teachers’ needs and practices have meaningful implications for school and district level administrators as they create policies and procedures that support professional growth. The findings reveal a need for school leaders to structure school schedules so that teachers have opportunities to collaborate with their peers on a regular
basis during working hours. This would decrease the amount of pressure teachers feel to collaborate outside of school hours without compensation.

School leaders must provide training on the use of collaborative technologies so teachers can become more comfortable with digital collaboration. In addition, teachers need opportunities to network within their schools, their districts, and beyond in order to establish relationships with other professionals. Familiarity and personal connections will make sustained digital collaboration more likely for teachers. Teachers also need training on how to communicate effectively while being sensitive to a diverse group of participants. This will decrease teachers’ fear of misinterpretation.

This study adds to the research on the collaborative practices of teachers with a special focus on how technology is shaping the way in which teachers access knowledge, resources, and critical dialogue for the purposes of teaching and learning. The findings in this study support prior research on how teachers are using digital tools to access and share resources. In addition, the findings add to the literature on collaborative technologies and teacher perceptions of digital collaboration. Further research is needed to gain a better understanding of how teacher collaboration on their personal time is influencing their level of job satisfaction and attitudes toward the profession.
Appendix A

IRB Forms

Exempt Review Application
Clemson University IRB Website

<table>
<thead>
<tr>
<th>Office use only</th>
<th>Protocol Number:</th>
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<tbody>
<tr>
<td>□ Approved</td>
<td>Exemption Category</td>
</tr>
<tr>
<td>Signature of IRB Chair / Designee</td>
<td>Date</td>
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</table>

1. **Developmental Approval**: If you already have developmental approval for this research study (you should know if you do), please give the IRB protocol number assigned to the study. More information available [here](#).

2. **Research Title**: Getting connected: Understanding how digital tools support the collaborative practices of elementary teachers

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<tr>
<th>If different, title used on consent document(s)</th>
<th>If class project, include course number and title</th>
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3. **Principal Investigator (PI)**: The PI must be a member of the Clemson faculty or staff. You cannot be the PI if this is your thesis or dissertation. The PI must have completed IRB-approved human research protections training. Training will be verified by IRB staff before approval is granted. Training instructions available [here](#).

   - Name: Dr. Russell Marion [Faculty](#) [Staff](#)
   - Department: Educational Leadership
   - Campus address: 102 Tillman Hall, Clemson, SC 29634
   - E-mail: marion2@clemson.edu
   - Phone: 864-656-5105
   - Fax:  

4. **Co-Investigator(s)**: Co-Investigators must have completed IRB-approved human research protections training. Training will be verified by IRB staff before approval is granted. Training instructions available [here](#).

<table>
<thead>
<tr>
<th>Name: Elizabeth Haun</th>
<th>E-mail: <a href="mailto:ehaun@g.clemson.edu">ehaun@g.clemson.edu</a></th>
</tr>
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<tbody>
<tr>
<td>Department: Educational Leadership</td>
<td></td>
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<tr>
<td>□ Faculty □ Graduate student □ Undergraduate student</td>
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</tr>
<tr>
<td>□ Staff</td>
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<td>□ Other. Please specify.</td>
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<td>Department:</td>
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<tr>
<td>□ Faculty □ Graduate student □ Other. Please specify.</td>
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<tr>
<td>□ Staff □ Undergraduate student</td>
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</table>

Page 1 of 9
5. **Additional Research Team Members:** All research team members must have completed IRB-approved human research protections training. Training will be verified by IRB staff before approval is granted. 
   Training instructions available [here](#). CITI training site available [here](#).
   - List of additional research team members included. Form available [here](#).

6. **Research Team Roles:** Describe the role of each member of the research team (everyone included in Items 3, 4 and 5), indicating which research activities will be carried out by each particular member. Team members may be grouped into categories.
   **Description:**
   - Elizabeth Haun:
     1) obtain approval for the study from [School District Six](#).
     2) obtain permission from [principal of the school](#).
     3) present the study at a faculty meeting at each school.
     4) have willing participants complete the online questionnaire.
     5) analyze questionnaire responses to select 6 participants who are using digital tools to collaborate with other professionals.
     6) conduct interviews with the six participants.
     7) collect and analyze data.
     8) write the final report as a dissertation document.
   - Dr. Russell Marion will:
     1) provide guidance and consultation to Elizabeth Haun to assist in developing the interview questions.
     2) approve the study, pending IRB approval.
     3) analyze the results and data from the study.
     4) serve as a mentor/advise for Elizabeth Haun throughout the study.

7. **Email Communications:** If you would like one or two of your team members (in addition to the PI) to be copied on all email communications, please list these individuals in the box below.

<table>
<thead>
<tr>
<th>Name</th>
<th>E-mail</th>
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<tbody>
<tr>
<td>Elizabeth Haun</td>
<td><a href="mailto:ehaun@g.clemson.edu">ehaun@g.clemson.edu</a></td>
</tr>
<tr>
<td>Name:</td>
<td>E-mail:</td>
</tr>
</tbody>
</table>

8. **Study Purpose:** Provide a brief description of the purpose of the study. Use lay language and avoid technical terms. IRB members not familiar with the area of research must understand the nature of the research. Upon conclusion of the study, how will you share your results (e.g., academic publication, evaluation report to funder, conference presentation)?

   **Description:** The purpose of the study is to understand teacher perceptions about how digital tools can meet their needs for professional collaboration. This phenomenological study is designed to understand how elementary teachers are utilizing technology to collaborate with other professionals about teaching and learning. Teachers from three different schools will be asked to participate in a digital questionnaire to collect data on how teachers are using digital tools. The data will be used to identify six participants for the study. The six participants will be purposely chosen to represent teachers who are highly engaged in utilizing technology to collaborate with other professionals about teaching and learning. Individual and group interviews will be used to gain an understanding of how they perceive these technologies can meet their need for professional collaboration. The results of the study will be used to complete a dissertation document.
9. Anticipated Dates of Research:

Anticipated start date (may not be prior to IRB approval; may be "upon IRB approval"): Upon IRB approval

Anticipated completion date (Expiration date will be determined by the date entered, maximum three years for initial approval with optional extensions. Please include time needed for analysis of individually identifiable data): August 2017

10. Funding Source: Please check all that apply.

☐ Submitted for internal funding
☐ Internally funded
☐ Submitted for external funding
☐ Funding source, if applicable (Do not use initials): 
  Proposal number (PPN) for the Office of Sponsored Programs: 
  Name of PI on Funding Proposal: 
☐ Externally funded
  Proposal number (PPN) for the Office of Sponsored Programs: 
  Name of PI on Funding Proposal: 
☐ Intend to seek funding From whom? 
☐ Not funded

11. Support provided by Creative Inquiry Initiative: ☐ Yes ☒ No

If yes, all Creative Inquiry students will be members of the research team, please see item # 5.

12. Other IRB Approvals:

Has this research study been presented to any other IRB? ☐ Yes ☒ No

Where? When?

If yes, what was their decision? ☐ Approved ☐ Disapproved ☐ Pending

Please attach a copy of any submissions, approvals, or disapprovals from other IRBs.

13. Exempt Review Checklist: To determine whether this study meets the federal requirements for exemption [45 CFR 46.101], please complete the following checklist. This will indicate if your study can be exempted from IRB continuing review.

The Federal Code [45 CFR 46.101] permits research activities in the following six categories to be exempted. Please check the relevant exemption category / categories.

The Federal Office of Human Research Protections has made Decision Charts available here to help in determining whether a particular study falls within a particular Exemption Category.

<table>
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<tr>
<th>Categories of Research Activities Exempt from Continuing Review</th>
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<tr>
<td>☒ B1. Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as: a. research on regular and special education instructional strategies, OR</td>
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<tr>
<td>b. research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.</td>
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<td>NOTE: Survey and interview procedures with minors are exemptible if the activities fall within this category.</td>
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<tr>
<th>B2. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, UNLESS:</th>
</tr>
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<tbody>
<tr>
<td>a. the information obtained is recorded in such a manner that human participants can be identified, directly or through identifiers linked to the participants; AND</td>
</tr>
<tr>
<td>b. any disclosure of the human participants' responses outside the research could reasonably place the participants at risk of criminal or civil liability or be damaging to the participants' financial standing, employability, or reputation.</td>
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<tr>
<td>NOTE: Survey and interview techniques which include minors are not exempt. Observation of the public behavior of minors, if the researcher is not a participant, is exempt.</td>
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<tr>
<th>B3. Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under Category B2, if:</th>
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<tbody>
<tr>
<td>a. the human participants are elected or appointed public officials or candidates for public office, or</td>
</tr>
<tr>
<td>b. federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.</td>
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| B4. Research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that participants cannot be identified directly or through identifiers linked to the participants. |

| B5. NOTE: Please contact the IRB office before selecting this category since use of this exemption must be initiated by the agency head of the federal funder. |
| Research and demonstration projects which are conducted by or subject to the approval of appropriate Federal Department or Agency heads, and which are designed to study, evaluate, or otherwise examine: |
| a. public benefit or service programs; or |
| b. procedures for obtaining benefits or services under those programs; or |
| c. possible changes in or alternatives to those programs or procedures; or |
| d. possible changes in methods or levels of payment for benefits or services under those programs. |

| B6. Taste and food quality evaluation and consumer acceptance studies, |
| a. if wholesome foods without additives are consumed, OR |
| b. if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture. |

14. If you selected Exemption Category B4, please complete questions a through g below:
   a. Provide a detailed description of the data or specimens and what information will be used. _____
   b. What is the source of the data or specimens? _____
c. Are the data or specimens publicly available without restriction or password? (That is, can the general public obtain the data or specimens? Data are not considered publicly available if access is limited to researchers.)
   Yes [ ] No [ ]
   If yes, please contact the IRB staff for consultation. You may not be conducting research involving human subjects as defined in the federal regulations governing research involving human subjects (45 CFR 46.102).

d. If the data or specimens are not publicly available, how are you obtaining permission to access these or to use them for research purposes?
   Please attach a copy of the correspondence or agreement granting you permission.

e. How will you receive the data or specimens (e.g., electronic file, access to hard copy records at record-holder’s institution, test tube)?

f. How are the data or specimens identified when they are made available to you?
   1) [ ] Direct Identifier (e.g., subject name, address, social security number).
      a) Will you record any direct identifiers that are available to you? Yes [ ] No [ ]
      b) Will you have access to the data from home or office? Yes [ ] No [ ]
   2) [ ] Indirect Identifier (e.g., an assigned code that could be used by the investigator or the source providing the data or specimens to identify a subject, such as a pathology tracking number or a tracking code used by the source).
      a) Will you or a team member have access to the data set code key? Yes [ ] No [ ]
         If you will receive data with indirect identifiers only, please contact the IRB staff for consultation. You may not be conducting research involving human subjects as defined in the federal regulations governing research involving human subjects (45 CFR 46.102).
   3) [ ] No Identifier (i.e., neither the researcher nor the source providing the data or specimens can identify a subject based upon information provided with the data or specimens).
      If it will be impossible for anyone to identify subjects based upon information provided with the data or specimens, you will not be conducting research involving human subjects as defined in the federal regulations governing research involving human subjects (45 CFR 46). Please contact the IRB staff for confirmation.

g. Will any data or specimens be collected from participants after the submission of this application? (Data or specimens are considered to “exist” if ALL the data or specimens to be used for the research have been collected prior to the submission of this application.)
   Yes [ ] No [ ]

*Your research does not qualify for exemption from IRB review under Exemption Category B4.

PLEASE NOTE: If you are applying for exemption only under Exemption Category B4, please skip to question 22.

15. Study Sample: (Groups specifically targeted for study)
   Describe the participants you plan to recruit and the criteria used in the selection process. Indicate if there are any special inclusion or exclusion criteria.

   NOTE: If individuals who are incarcerated will be participants, your research is not exemptible. Please complete the Expedited / Full Review Application.

   Description: A convenience sample of 121 elementary teachers from three elementary schools will be asked to complete a questionnaire for the study. Elementary teachers who teach 4K-5th grade will be included in the study. Special area teachers (art, music, PE) will be included in the study. Using the data from the questionnaire, six teachers will be purposively selected to participate in the study. Criteria for selection will include frequency of engagement with digital tools and use of collaborative technologies.
Age range of participants: 21-65  Projected number of participants: 6

- Employees
- Students
- Minors (under 18) ¹
- Pregnant women ¹
- Fetuses / neonates ¹
- Educationally / economically disadvantaged ¹
- Minors who are wards of the state, or any other agency, institution, or entity ¹
- Individuals who are incarcerated ²
- Persons incompetent to give valid consent ¹
- Other - specify: ______
- Military personnel

¹ State necessity for using this type of participant: ______
² Please note that research involving prisoners (incarcerated individuals) requires full board review. Please submit an Expedited / Full Board Review Application and a Prisoner Research Addendum (available here).

16. Study Locations:

- Clemson University
- Other University / College ______
- School System / Individual Schools ______
- Other - specify ______

You may need to obtain permission if participants will be recruited or data will be obtained through schools, employers, or community organizations. Are you required to obtain permission to gain access to people or to access data that are not publicly available? If yes, provide a research site letter from a person authorized to give you access to the participants or to the data. Guidance regarding Research Site Letters is available here.

- Research Site Letter(s) not required.
- Research Site Letter(s) attached.
- Research Site Letter(s) pending and will be provided when obtained.

17. Recruitment Method:

Describe how research participants will be recruited in the study. How will you identify potential participants? How will you contact them? Attach a copy of any material you will use to recruit participants (e.g., advertisements, flyers, telephone scripts, verbal recruitment, cover letters, or follow-up reminders).

Description: Participants for the study will be recruited verbally. Teachers will be given a description of the study and asked to participate during a regularly scheduled faculty meeting. Teachers who choose to participate will be asked to complete an electronic questionnaire. From the questionnaire, six teachers will be asked to participate in individual and group interviews. Email will be used to schedule interview meeting dates and times.

18. Participant Incentives:

a. Will you pay participants? ☐ Yes ☒ No
   
   Amount: ______ When will money be paid?: ______

b. Will you give participants incentives / gifts / reimbursements? ☐ Yes ☒ No
   
   Describe incentives / gifts / reimbursements: ______
   
   Value of incentives / gifts / reimbursements: $______
When will incentives / gifts / reimbursements be given?: 

\[\square \text{Yes} \quad \square \text{No} \]

If yes, an equivalent alternative to research participation must be provided and described in your informed consent document(s).

19. Informed Consent:

a. Attach a copy of the informational letter or consent script you plan to provide to your participants (and their parents or guardians, if applicable). Consent Document Templates

b. Will you use concealment (incomplete disclosure) or deception in this study? 
\[\square \text{Yes} \quad \square \text{No} \]

If yes, please see guidance regarding Research Involving Deception or Concealment here. Submit a copy of the Additional Pertinent Information / Permission for Use of Data Collected in a Research Study form you will use, and provide a justification in the following space for this use of concealment or deception.

20. Procedures:

a. What data will you collect? QUESTIONNAIRE AND SURVEY QUESTIONS ARE ATTACHED

b. Please describe in detail the process each participant will experience and how you will obtain the data.

Elizabeth Haun will schedule a time to present the study to teachers at three elementary schools in [SPECIFY]. Participants will be asked to complete a short electronic questionnaire to collect data on how they are utilizing digital tools within the scope of their profession. Six teachers who are actively using digital tools to connect with other professionals about teaching and learning will be chosen to participate in the study. Elizabeth Haun will conduct individual and group interviews with the teachers to collect data on their practices and perceptions. A series of semi-structured questions will be asked to the group of participants (see attached). The interviews will take place in the media center at the school in which they teach and will be video recorded. The group interview will be video recorded for the purpose of capturing individual responses to the questions to aid in transcribing. Interviews will last approximately 2 hours. Data will be collected from the participants' responses by note taking during the individual interview process and while reviewing the responses that were captured on the video recording. An external transcriber will be used to transcribe the data. All appropriate confidentiality forms will be signed to ensure the data is secure.

An introduction of the study will be presented at a regularly scheduled faculty meeting. Teachers who choose to participate will be given an informed consent document explaining their right to discontinue participation at any time during the study. Elizabeth Haun will schedule individual and group interviews with the participating teachers during their planning time or after school hours. A group interview will be used, if necessary, to generate discussion among the participants and capture ideas and practices that may not have been revealed in the individual interviews. Participants will be asked to provide any artifacts they have that capture their use of digital technologies to collaborate with other teachers.

c. How many participation sessions and how much time will be required for each participant, including follow up sessions? An initial participation session will take approximately 30 minutes. During this session, an overview of the study will be presented and participants will be asked to answer a short electronic questionnaire. Individual interviews will take approximately two hours each. During the individual interviews, semi-structured questions will be asked and the teachers will be allowed to respond. The interviews will be video recorded and transcribed at a later date. The group interviews, if necessary, will take approximately one hour. If a group interview is needed, it will be
22. PI Signature:

I have reviewed this research protocol and the informed consent document(s), if applicable. I request approval of this research study by the IRB of Clemson University.

Conflict of Interest Statement:

Could the results of the study provide an actual or potential financial gain to you, a member of your family, or any of the co-investigators, or give the appearance of a potential conflict of interest?

☐ No.

☐ Yes. I agree to disclose any actual or potential conflict of interest prior to IRB action on this study.

Financial Conflict of Interest Policy for PHS / NIH Supported Research

Financial Disclosure Policy for All Other Sponsored Programs

Signature of Principal Investigator

(Date)

(hard-copy signature only needed if application will not be submitted via PI’s email account)

Submission Instructions: Exempt applications are processed as received. There is no deadline for submitting exempt applications for review. Approval is usually granted within 14 days of receipt of the application. It is recommended that you submit your IRB application at least a month before your desired start date.

International research - please note that the approval of international research may require additional time due to requirements in other countries, negotiation of Individual Investigator Agreements, arranging appropriate local context reviews, and geographical and communication constraints. It is recommended you plan to submit your IRB application at least three months prior to your desired study start date. More information on local context reviews is available on our FAQ webpage, http://www.clemson.edu/research/compliance/irb/faq.html.

Please submit this application and all associated documents from the Principal Investigator’s (PI’s) email address to the IRB staff. Receipt of the application electronically from the PI will qualify the application as a signed electronic submission. Alternatively, the signed, hard-copy application may be mailed or delivered to the Office of Research Compliance, 223 Brackett Hall, Clemson, SC 29634-5704.
Information about Being in a Research Study
Clemson University

Getting connected: Understanding how digital tools support the collaborative practices of elementary teachers

Description of the Study and Your Part in It
Dr. Russ Marion and Mrs. Elizabeth Haan are inviting you to take part in a research study. Dr. Marion is a professor at Clemson University. Elizabeth Haan is a student at Clemson University, running this study with the help of Dr. Marion. The purpose of this research is to investigate teacher perceptions about how digital tools can support their need for professional collaboration.

Your part in the study will be to participate in an electronic questionnaire. The questionnaire should only take about 15 minutes to complete. The data from the questionnaire will be used to select six participants for the study. If selected for the study, you would be asked to participate in an interview that will take about 2 hours of your time. Additional individual or group interviews may be needed to clarify information from the initial interview process. They will take no more than 1 hour.

Risks and Discomforts
A potential risk of participating in the study may be that participants experience anxiety of nervousness when being interviewed. All interview questions have been designed to capture participant perceptions and there are no right or wrong answers. In addition, there is the potential that participants may feel uncomfortable sharing their perceptions in a group interview. All interview questions, including group interview questions, are designed to avoid any controversial issues or topics. Participation is always voluntary and never required.

Possible Benefits
We do not know of any way you would benefit directly from taking part in this study. However, this research will contribute to the research on teacher collaboration and the use of digital tools in education. Understanding teacher perceptions about how these tools can support the collaborative needs of teachers may contribute to the research on teacher satisfaction.

Protection of Privacy and Confidentiality
We will do everything we can to protect your privacy and confidentiality. We will not tell anybody outside of the research team that you were in this study or what information we collected about you in particular. Confidentiality will be maintained throughout the study. Neither the schools, teachers, nor the school district will be identified in the study. All identifiable information including teacher names and identifiable demographic information will be anonymized and participant responses will be coded to ensure confidentiality. No information will be shared that could indirectly identify individuals in the study. All data will be kept in a secure file and stored in a locked file. Elizabeth Haan and Russ Marion will have access to the data. A transcriptionist will be used to transcribe the data. However, all necessary confidentiality agreements will be signed. Results of the study will be used to write a dissertation manuscript and dissertation defense for Elizabeth Haan. However, all above measures of confidentiality will be maintained. No teacher, school, or district will be identified in the study or the publication. The video recording will only be viewed by Elizabeth Haan and Russell Marion. The video recording will be viewed on a password-protected laptop computer. After the data has been recorded and coded from the videotaped interviews the recording will be deleted. All identifiable data will be kept in a separate file, away from the coded data and will be destroyed, at the latest, five years after the dissemination of the research project, according to APA guidelines.

Choosing to Be in the Study
You do not have to be in this study. You may choose not to take part and you may choose to stop taking part at any time. You will not be punished in any way if you decide not to be in the study or to stop taking part in the study.

Contact Information
If you have any questions or concerns about this study or if any problems arise, please contact Dr. Russell Marion at Clemson University at 864-656-5165. If you have any questions or concerns about your right in this research study, please contact the Clemson University Office of Research Compliance (CRC) at 864-656-5636 or irb@clemson.edu. If you are outside of the Upstate South Carolina area, please use the CRC’s toll-free number, 866-297-3071. A copy of this form will be given to you.
Appendix B

Interview Questions

1. How would you define collaboration?
2. Can you describe your need for professional collaboration?
3. What is your perception about the importance of collaboration in the teaching profession?
4. What do you perceive to be the advantages of frequent collaboration with other teachers?
5. What do you perceive to be the greatest barriers to professional collaboration?
6. Is there a time during your workday that you are able to collaborate with other teachers?
7. In your role as a teacher, what types of technology do you use on a routine basis? Can you elaborate on how you are using the technology and describe the purpose of your use?
8. In what ways have you used digital tools to communicate with other teachers?
9. Can you share some examples of how you communicate with other teachers using technology?
10. What do you perceive to be the advantages of using technology to connect with other teachers for communication or collaboration?
11. What do you perceive to be the disadvantages?
12. Can you think of a time that you have used technology to collaborate with another teacher? Can you describe your experience?
13. What are your perceptions about the impact digital collaboration has on your skills as a teacher?
14. What are your perceptions about how digital collaboration has influenced your instructional strategies? What about behavior management? Content knowledge?
15. What are your perceptions about the ability of digital collaboration to improve your overall effectiveness as a teacher? Can you give examples?
16. I understand teachers in your school district have access to Its Learning (learning management system). Can you share with me how you have used Its Learning?
17. Have you used any other LMS systems (Canvas, Blackboard, etc.) to communicate with other teachers/professionals? Can you share some examples of how you have used the LMS to communicate with others?
18. Have you had an experience using Google Apps that allowed you to collaborate with other teachers about teaching and learning? If so, can you share how you have used these tools?
19. Do you ever use social media to collaborate with other teachers? If so, please describe your experiences.
20. How well do you feel you can communicate your opinions or ideas using digital technologies? Can you think of a time when you were successful in sharing your ideas or opinions using digital technology? Can you think of a time when you were not successful?

21. What are your perceptions about the ability of digital tools to support professional collaboration?

22. I am trying to capture data on teacher perceptions about how digital tools can support the collaborative practices of teachers. Is there anything I did not ask you that you want to share with me or you feel would contribute to the study?
Getting Connected

Thank you for your interest. The purpose of this study is to 1) better understand how elementary teachers like you are utilizing digital technologies and 2) How you perceive digital tools can support professional collaboration among teachers. This study is important because little research has been done on how teachers are utilizing digital tools to connect with other teachers and how they perceive these technologies can support professional collaboration. If you have any questions or comments about this survey, please direct them to ehaun@clemson.edu.

* Required

Teaching and Technology

1. What is your name (first and last)? All participants will remain anonymous in the final write-up. *

2. What is your email address? Your email address will not be shared. *

3. Please choose your school from the list below. *
   Mark only one oval.
   - Arcadia Elementary School
   - Jesse S. Bobo Elementary School
   - Roebuck Elementary School
   - Other: ________________________

4. What grade level(s) do you teach? Check all that apply. *
   Check all that apply.
   - K
   - 1
   - 2
   - 3
   - 4
   - 5
   - Other: ________________________
5. What is your primary teaching role? *
   Mark only one oval.
   ○ classroom teacher
   ○ related arts teacher (art, music, PE, etc)
   ○ media specialist
   ○ speech therapist
   ○ Other: ____________________________

6. What is your highest degree earned? *
   Mark only one oval.
   ○ Bachelors
   ○ Masters
   ○ Education Specialist
   ○ PhD

7. How many years have you been teaching? *
   Mark only one oval.
   ○ 0-5
   ○ 5-10
   ○ 10-15
   ○ 15-20
   ○ 20+

8. Do you have any special training or certification on technology use and/or technology integration? If so, please describe.
   __________________________________________
   __________________________________________
   __________________________________________

9. Please select all of the following that are available to you at your school. *
   Check all that apply:
   ○ computers
   ○ iPads
   ○ Internet
   ○ WiFi
10. How comfortable are you with using technology? *
   Mark only one oval.
   
<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not</td>
<td>very</td>
<td>comfort</td>
<td>at all</td>
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<td></td>
<td></td>
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<td>Very</td>
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</tbody>
</table>

11. Which of the following do you use on a weekly basis? (choose all that apply) *
   Check all that apply.
   
   □ e-mail
   □ Google Docs
   □ Its Learning
   □ Pinterest
   □ Facebook
   □ You Tube/Teacher Tube
   □ Other: ____________________________

12. Are there any other digital tools that you use on a regular basis? If so, please list the tool and describe how you are using it.
   
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

13. Have you ever participated in (mark all that apply)
   Check all that apply.
   
   □ Online chat
   □ Blog
   □ Online class
   □ Learning management system (Blackboard, Canvas, Its Learning)
   □ BlendSpace
14. Do you ever collaborate with other teachers using technology? *
   Mark only one oval.
   ☐ Yes
   ☐ No
   ☐ Unsure

15. Do you use technology to connect with teachers (mark all that apply) *
   Mark only one oval.
   ☐ in your grade level
   ☐ in your school
   ☐ in your school district
   ☐ in your state
   ☐ in the United States
   ☐ in other countries
   ☐ N/A

16. Describe any technologies you have used to connect with other teachers. Please elaborate. *

17. Do you use technology to connect with other teachers about (mark all that apply) *
   Check all that apply.
   ☐ subject matter or content
   ☐ assessments
   ☐ instructional strategies
   ☐ student behavior
   ☐ use of technology
   ☐ Other:

18. Do you routinely engage in collaboration with other teachers using a learning management system (Blackboard, Canvas, Its Learning)? *
   Mark only one oval.
   ☐ Yes
   ☐ No
   ☐ N/A
19. Have you utilized a learning management system to share or access *
Mark only one oval.
☐ lesson plans
☐ ideas or opinions
☐ assessments
☐ resources
☐ N/A
☐ Other:

20. How comfortable are you using a learning management system? *
Mark only one oval.

1 2 3 4 5 6 7 8 9 10

Not comfortable Very comfortable

21. If your district uses a learning management system, please name the system and describe your experience with the program. *

22. Is there anything you would like to share about how you utilize technology that was not asked in the survey? *
Appendix C

Rev.com’s Confidentiality Statement

CLIENT NON-DISCLOSURE AGREEMENT

This CLIENT NON-DISCLOSURE AGREEMENT, effective as of the date last set forth below (this "Agreement"), between the undersigned actual or potential client ("Client") and Rev.com, Inc. ("Rev.com") is made to confirm the understanding and agreement of the parties hereto with respect to certain proprietary information being provided to Rev.com for the purpose of performing translation, transcription and other document related services (the "Rev.com Services"). In consideration for the mutual agreements contained herein and the other provisions of this Agreement, the parties hereto agree as follows:

1. Scope of Confidential Information
   1.1. "Confidential Information" means, subject to the exceptions set forth in Section 1.2 hereof, any documents, video files or other related media or text supplied by Client to Rev.com for the purpose of performing the Rev.com Services.
   1.2. Confidential Information does not include information that: (i) was available to Rev.com prior to disclosure of such information by Client and free of any confidentiality obligation in favor of Client known to Rev.com at the time of disclosure; (ii) is made available to Rev.com from a third party not known by Rev.com at the time of such availability to be subject to a confidentiality obligation in favor of Client; (iii) is made available to third parties by Client without restriction on the disclosure of such information; (iv) is or becomes available to the public other than as a result of disclosure by Rev.com prohibited by this Agreement; or (v) is developed independently by Rev.com or Rev.com’s directors, officers, members, partners, employees, consultants, contractors, agents, representatives or affiliated entities (collectively, "Associated Persons").

2. Use and Disclosure of Confidential Information
   2.1. Rev.com will keep secret and will not disclose to anyone any of the Confidential Information, other than furnishing the Confidential Information to Associated Persons; provided that such Associated Persons are bound by agreements respecting confidential information. Rev.com will not use any of the Confidential Information for any purpose other than performing the Rev.com Services on Client’s behalf. Rev.com will use reasonable care and adequate measures to protect the security of the Confidential Information and to attempt to prevent any Confidential Information from being disclosed or otherwise made available to unauthorized persons or used in violation of the foregoing.
   2.2. Notwithstanding anything to the contrary herein, Rev.com is free to make, and this Agreement does not restrict, disclosure of any Confidential Information in a judicial, legislative or administrative investigation or proceeding or to a government or other regulatory agency; provided that, if permitted by law, Rev.com provides to Client prior notice of the intended disclosure and permits Client to intervene therein to protect its interests in the Confidential Information, and cooperate and assist Client in seeking to obtain such protection.

3. Certain Rights and Limitations
   3.1. All Confidential Information will remain the property of Client.
   3.2. This Agreement imposes no obligations on either party to purchase, sell, license, transfer or otherwise transact in any products, services or technology.

4. Termination
   4.1. Upon Client’s written request, Rev.com agrees to use good faith efforts to return promptly to Client any Confidential Information that is in writing and in the possession of Rev.com and to certify the return or destruction of all Confidential Information; provided that Rev.com may retain a summary description of Confidential Information for archival purposes.

4.2. The rights and obligations of the parties hereto contained in Sections 2 (Use and Disclosure of Confidential Information) (subject to Section 2.1), 3 (Certain Rights and Limitations), 4 (Termination), and 5 (Miscellaneous) will survive the return of any tangible embodiments of Confidential Information and any termination of this Agreement.

5. Miscellaneous
   5.1. Client and Rev.com are independent contractors and will so represent themselves in all regards. Nothing in this Agreement will be construed to make either party the agent or legal representative of the other or to make the parties partners or joint venturers, and neither party may bind the other in any way. This Agreement will be governed by and construed in accordance with the laws of the State of California governing such agreements, without regard to conflicts-of-law principles. The sole and exclusive jurisdiction and venue for any litigation arising out of this Agreement shall be an appropriate federal or state court located in the State of California, and the parties agree not to raise, and waive, any objections or defenses based upon venue or forum non
This Agreement (together with any agreement for the Rev.com Services) contains the complete and exclusive agreement of the parties with respect to the subject matter hereof and supersedes all prior agreements and understandings with respect thereto, whether written or oral, express or implied. If any provision of this Agreement is held invalid, illegal or unenforceable by a court of competent jurisdiction, such will not affect any other provision of this Agreement, which will remain in full force and effect. No amendment or alteration of the terms of this Agreement will be effective unless made in writing and executed by both parties hereto. A failure or delay in exercising any right in respect to this Agreement will not be presumed to operate as a waiver, and a single or partial exercise of any right will not be presumed to preclude any subsequent or further exercise of that right or the exercise of any other right. Any modification or waiver of any provision of this Agreement will not be effective unless made in writing. Any such waiver will be effective only in the specific instance and for the purpose given.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed below by their duly authorized signatories.

CLIENT

Print Name: ____________________

By: _________________________
   Name: _____________________
   Title: _____________________
   Date: _____________________

Address for notices to Client:
________________________________________________________________
________________________________________________________________
________________________________________________________________

REV.COM, INC.

By: _________________________
   Name: Cheryl Brown
   Title: Account Manager
   Date: April 7, 2017

Address for notices to Rev.com, Inc.:
251 Kearny St. FL 8
San Francisco, CA 94108
Appendix D

Tables

Questionnaire Coding Protocol

<table>
<thead>
<tr>
<th>Questions Identified for Coding</th>
<th>Code Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort Level using Technology</td>
<td>Scores of 8 or Higher (above average)</td>
</tr>
<tr>
<td>Number of Digital Tools used Weekly</td>
<td>Scores of 7 or Higher (above average)</td>
</tr>
<tr>
<td>How Teachers are Utilizing Technology</td>
<td>Scores of 7 or Higher (above average)</td>
</tr>
<tr>
<td>Collaboration using Technology</td>
<td>Yes</td>
</tr>
<tr>
<td>Connections outside of School</td>
<td>Scores of 6 or Higher (above average)</td>
</tr>
<tr>
<td>Technology used for Connecting</td>
<td>Scores of 7 or Higher (highest score)</td>
</tr>
<tr>
<td>Collaboration using LMS</td>
<td>Yes</td>
</tr>
<tr>
<td>Participant Described Collaboration</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Note. Selection criteria = 5 or more coded responses (above average)
## List of Digital Tools used by Participants

<table>
<thead>
<tr>
<th>Communication</th>
<th>Learning Management System</th>
<th>Social Media</th>
<th>Google Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-mail (6)</td>
<td>Its Learning (5)</td>
<td>Facebook (5)</td>
<td>Google Slides (1)</td>
</tr>
<tr>
<td>Text (6)</td>
<td>Moodle (1)</td>
<td>Blogs (3)</td>
<td>Google Docs (6)</td>
</tr>
<tr>
<td>Power Point (1)</td>
<td>Blackboard (1)</td>
<td>Pinterest (3)</td>
<td>Google Forms (2)</td>
</tr>
<tr>
<td>Nearpod (1)</td>
<td></td>
<td>Twitter (3)</td>
<td>Google Drive (2)</td>
</tr>
<tr>
<td>Remind 101 (1)</td>
<td></td>
<td></td>
<td>Instagram (1)</td>
</tr>
<tr>
<td>Class Dojo (1)</td>
<td></td>
<td></td>
<td>Padlet (1)</td>
</tr>
<tr>
<td>Kahoot! (1)</td>
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</tr>
</tbody>
</table>

Note. Number in parentheses denotes the number of participants who reported using the tool.
Participants Self-Reported Use of Digital Tools

Summary of Digital Tool Use

Note. Data table shows the number of digital tools reported by each participant for the digital tool usage categories of *sharing, accessing, creating, and collaborating*.
Use of Digital Tools for Collaboration

Note. Table indicates the digital tools participants most often used for engaging in collaboration with other professionals.
Digital Tool Use by Participant

<table>
<thead>
<tr>
<th>Participant</th>
<th>Sharing/Accessing Resources/Ideas</th>
<th>Producing/Creating</th>
<th>Engaging in Dialogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anna</td>
<td>Power Point, Nearpod, Pinterest</td>
<td>Google Docs, Google Slides</td>
<td>Text, e-mail, phone</td>
</tr>
<tr>
<td></td>
<td>Teachers Pay Teachers, Facebook, Google, Blogs, Its Learning, e-mail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reese</td>
<td>Its Learning, e-mail, Facebook, Twitter</td>
<td>Google Docs, Google Form</td>
<td>e-mail, Padlet, Facebook, Google Docs</td>
</tr>
<tr>
<td>Sophia</td>
<td>e-mail, Facebook, Its Learning, Edu blogs, Twitter</td>
<td>Google Docs</td>
<td>e-mail, Google Docs, Facebook Messenger, Text</td>
</tr>
<tr>
<td>Bonnie</td>
<td>Internet, Skype, Its Learning, Twitter, Class Dojo, Remind 101, Google Docs, Instagram</td>
<td>Google Docs</td>
<td>LMS – Online course, Instagram, Skype, Twitter</td>
</tr>
<tr>
<td>Janna</td>
<td>Teachers Pay Teachers, Its Learning, Google Docs, e-mail, Pinterest, Pinterest</td>
<td>Google Docs, Its Learning</td>
<td>e-mail, Google Docs</td>
</tr>
<tr>
<td>Layla</td>
<td>e-mail, Google Drive, Its Learning, Pinterest, Google Docs, Blogs</td>
<td>Google Docs</td>
<td>Text, e-mail, phones, Moodle LMS, Blogs</td>
</tr>
</tbody>
</table>

Note. The table was used to organize the data from the initial questionnaire and interview transcripts to identify the digital tools that teachers are using and how they are being used.
## Intended Use of Digital Tools

<table>
<thead>
<tr>
<th>Digital tool</th>
<th>Accessing or sharing resources or ideas</th>
<th>Creating or producing materials</th>
<th>Engaging in collaboration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Q1. How are elementary teachers utilizing digital tools?</strong></td>
<td></td>
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</tr>
<tr>
<td>Digital communications</td>
<td>“Attaching documents, sharing through e-mail” (Layla)</td>
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<tr>
<td></td>
<td>“We e-mail flip charts and Nearpods and actual curriculum materials too.” (Anna)</td>
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<tr>
<td></td>
<td>“I can finish making a Power Point and e-mail it to somebody that they can use at 7:00 the next morning.” (Anna)</td>
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<tr>
<td></td>
<td>“It’s really helpful to be able to… just send an e-mail and check with a teacher [about standards]” (Reese)</td>
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<td></td>
<td>“Like if I text somebody and say, ‘I need an activity for adding and subtracting fractions.’” (Anna)</td>
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<td></td>
<td>“We end up doing more collaboration working back and forth, passing things around, phone calls at nighttime, e-mails back and forth” (Layla)</td>
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<td></td>
<td></td>
<td>“…with math, we find a lot of things online and then we’ll e-mail it to each other and we’ll say, ‘Hey, do you think this will work for this lesson or …what about this?’” (Janna)</td>
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<tr>
<td></td>
<td></td>
<td>“I kind of just forgot the process…and I e-mailed them and asked them about it again and asked them for that help, and they were able to help me.” (Janna)</td>
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<tr>
<td></td>
<td></td>
<td>“We use lots of texting back and forth.” (Layla)</td>
<td></td>
</tr>
<tr>
<td>Digital tool</td>
<td>Accessing or sharing resources or ideas</td>
<td>Creating or producing materials</td>
<td>Engaging in collaboration</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------------</td>
<td>---------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Digital communications</td>
<td></td>
<td></td>
<td>“…a fourth grade teacher texted me last night. That’s just how it works…you have these ideas of what you want to do…Well, you need some help and so that’s why I’m here.” (Sophia)</td>
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<td></td>
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<td>“I feel like, almost every day we’ll text and say, ‘What point are you at? What are you using tomorrow to teach parameter?’ E-mail you don’t necessarily go back and forth that much. Text we do but not so much over curriculum things. More over just ideas or links to something…We do a lot of feedback that way. “She’ll say, ‘Do you think I’m going too fast if I do it this way?’…We do a lot of that back and forth” (Anna)</td>
</tr>
<tr>
<td>Digital tool</td>
<td>Accessing or sharing resources or ideas</td>
<td>Creating or producing materials</td>
<td>Engaging in collaboration</td>
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<tr>
<td>------------------------------------</td>
<td>-----------------------------------------</td>
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<tr>
<td>Learning management system</td>
<td>“I like using It’s Learning. We all collaborate as a school on there and we’re able to share ideas and our minutes with [principal]” (Janna)</td>
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<td>“We used Moodle in my cohort for my master’s program. We would just go back and forth that way. It was like a little blog thing.” (Layla)</td>
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<td></td>
<td>“Sending Word documents and Excel documents…most often we use It’s Learning or Google Docs” (Janna)</td>
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<td>“In an online course for a graduate degree…people are…just scattered all throughout the globe…It’s a good tool for getting lots of different feedback… We have weekly discussion posts.” (Bonnie)</td>
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<tr>
<td></td>
<td>“I’ll create a document and I can share it to the teachers and they can put that out to their students. We don’t all create our own tests on there. We can just share that with each other.” (Janna)</td>
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<td></td>
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<td>“…we have our It’s Learning platform….they can put in things that they see would be beneficial for the lesson and then I can go and add things.” (Sophia)</td>
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<td><strong>Learning management system</strong></td>
<td>“… third grade came to me and basically wanted to set up a file share on Its Learning…All you have to do is log onto Its Learning, you see it’s there and all you have to do is copy and paste it to your own class…” (Bonnie)</td>
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<td>“We use It’s Learning. We post things on there. I use it when I plan my lessons…I go on It’s Learning to see what those teachers are doing and look at their long range plans.” (Reese)</td>
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<td>“It’s really easy to be able to use the resources that are available on It’s Learning.” (Reese)</td>
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<td>“We put on there information hoping that teachers will come to us and ask more information.” (Sophia)</td>
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<td>Social media</td>
<td>“It became…here’s an anchor chart and we copy it and put it in our classroom.” (Layla)</td>
<td>“I’ve had Facebook messages at night where, ‘okay tomorrow this is what I’m thinking,’ and so then we just go back and forth…They wouldn’t pick up the phone and call me at two o’clock in the morning, but they might send me a Facebook message.” (Sophia)</td>
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<td>“I use it to learn about the content.” (Janna)</td>
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<td>“I have an Instagram account…teachers…look through projects that we’re doing and then they come back with questions because the visual of what I do is a lot easier for me than to explain what I do to teachers sometimes.” (Bonnie)</td>
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<td>“Getting lesson ideas, anchor charts, and activities. I’ll share them with the team after we select them and share them out.” (Janna)</td>
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<td>“A wide-range of educators who come together and one will suggest a topic and then everybody will just brainstorm on that same topic all day on Saturday on Twitter…” (Bonnie)</td>
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<td>“It’s better now with Pinterest and Teachers Pay Teachers and all that. I definitely like getting ideas from teachers who have just different methods or more experience than me.” (Anna)</td>
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<td>Social media</td>
<td>“I have just a bigger array of things to choose from.” (Anna)</td>
<td>“I’ll Google South Carolina science standard…and all these different blogs will come up…Like these teacher blogs…of one activity they did that week and pictures…That’s helpful.” (Anna)</td>
<td>“I’m a member of three or four different groups on Facebook…sometimes when you just talk to your local people you don’t see everything that could be done…It gives me a chance to ask questions of people who have already done it.” (Reese)</td>
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<td>“I’ve thrown a lot of those [old books] away because you can just get online and find it. It’s actually quicker for me to type in ‘cookie moon phase activity’ and pull it up and print it than it is to go find it in my file from three years ago…” (Anna)</td>
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<tr>
<td>Social media</td>
<td>“I’m a member of Breakout EDU on Facebook just to see their different ideas.” (Reese)</td>
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<td>“My friends are like, ‘I can tell you when you’ve been at a conference, because that’s when you start Tweeting out again.’” (Reese)</td>
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<td>“It [Twitter] really helps me. They come together and throw out ideas. I mostly read other people’s things” (Reese)</td>
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<td>“I don’t have a Facebook account. People will sometimes send me things like links to a multiplication rap that they saw on Facebook and I have to open it under somebody else’s account” (Anna)</td>
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Q1. How are elementary teachers utilizing digital tools?
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<tr>
<td><strong>Q1. How are elementary teachers utilizing digital tools?</strong></td>
<td><strong>“We have a different folder for each subject. We just add things there.”</strong> (Layla)</td>
<td><strong>“We use Google Docs. I love that for lesson planning… We can see what they are typing as we go along, so we don’t have to wait to get the e-mail and input ourselves.”</strong> (Janna)</td>
<td><strong>“It’s all back and forth….She sends me articles all the time…With technology it’s so easy…Here’s the article. Here you go. Read it and then let’s talk about it.”</strong> (Layla)</td>
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<td><strong>Google Applications</strong></td>
<td><strong>“We added all our resources…we had people from all over Greenville adding so it just became a melting pot of so many good ideas and resources.”</strong> (Layla)</td>
<td><strong>“…we use the Google Docs a lot, especially when we were building our library media manual.”</strong> (Sophia)</td>
<td><strong>“It would be like, ‘hey I made this and added it here’. People would be like, ‘oh what are you doing with that? I’m doing this, and Oh, I did something different. Maybe we can…’ It sparked collaboration”</strong> (Layla)</td>
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<td><strong>“…upload, upload, upload, but we couldn’t find things; they were all over the place so we were like, okay, Google Drive.”</strong> (Layla)</td>
<td><strong>“I’ve used it with a third grade Native American unit. We had a teacher who had something going on in Florida…we could get on here and then still make the unit work for when she came back.”</strong> (Sophia)</td>
<td><strong>“Here we are using Google Docs and we do talk about the lessons, but we don’t really get that full understanding of the lesson like we did…when we could talk about the entire lesson as a process of what we want to happen.”</strong> (Janna)</td>
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<td><strong>“Sending Word documents and Excel documents…most often we use It’s Leaning or Google Docs”</strong> (Janna)</td>
<td><strong>“We were writing an article”</strong> (Layla)</td>
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<td>Google Applications</td>
<td>“I create forms if I need input on what books we need for the library…” (Reese)</td>
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<td>“Everybody had their input on what they wanted it to be….I mean it was really awesome because you could put ideas in and somebody could say… maybe we should move this…” (Sophia)</td>
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<td>“I send out flyers about the Lego Open House…Then we create a google document of what kind of handouts they’ve seen and used.” (Bonnie)</td>
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<td>“We would type on the document and we’d answer each other and then put comments on there.” (Reese)</td>
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<td>“We were writing an article, my professor and I, and …she was like, I’m going to start adding and you start adding and we can go back and forth that way.” (Layla)</td>
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<td>“We would type on the document and we’d answer each other and then put comments on there.” (Reese)</td>
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REFERENCES


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