DIGITAL IMMIGRANT TEACHERS' TECHNOLOGY INTEGRATION AND IN-SERVICE PROFESSIONAL DEVELOPMENT: AN INTERPRETATIVE PHENOMENOLOGICAL ANALYSIS

by

Michael William Peck

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

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ABSTRACT

The purpose of this interpretative phenomenological analysis (IPA) research study was to describe and interpret the digital integration learning experiences of digital immigrant teachers at a southeastern United States school system. Digital immigrant teachers represent a large segment of the teachers in American classrooms. Digital immigrant teachers desire to be effective educators in today's digital technology-rich classrooms, yet they have struggled due to a lack of technological knowledge and with knowing how to effectively integrate digital tools in their practices. Theories that guided this study were constructivism and Mishra and Koehler's TPACK, a conceptual knowledge framework that considers technological knowledge to be an integral part a teacher's knowledge base for learning how to integrate technology in their instructional practices. A questionnaire, semi-structured interviews, and focus groups interviews provided a thick, rich description of digital immigrant teachers educational journey into a world full of digital technologies. Data was analyzed using the IPA research framework developed by Jonathan A. Smith. Findings revealed digital technology integration has two sides to its coin, and current in-service technology-focused professional development (PD) has been inconsistent in meeting of the needs of these adult learners. A learner-focused in-service PD approach was recommended to help teachers purposefully integrate digital technology. Recommendations for further research were to replicate the study with other groups of digital immigrant teachers, to study the lived experiences of PD designers and trainers, and to comprehensively study the full impact of the digital technologies on today's learners due to concerns voiced by these teachers.

Keywords: Digital immigrant teachers, in-service training, interpretative phenomenological analysis, professional development, professional learning, technology integration, Technological Pedagogical Content Knowledge.

Copyright Page

Dedication

This work is dedicated to the power of voice. Psalm 18:6 reads, “In my distress I called to the Lord; I cried to my God for help. From his temple he heard my voice; my cry came before him, into his ears.” To those who feel they have no voice or believe no one will listen, let this work inspire you in a hope that by giving yourself a voice you can be rescued from your distress and can be brought out into a place where you can flourish. See Psalm 18:7-19 for that promise.

Yes, there is a fear that someone will not hear your voice or listen to what you have to say, but let this work serve as a truth that there are others who are ready to listen and to act accordingly in your best interest. So, call out. Cry out, if you must, and hope in your rescue and in you being placed in that space of growth and accomplishment.

Acknowledgements

This entire journey does not happen except by the power and might of a loving God. Yes, the journey was mine to take but because of Him I am able. Let there be no greater acknowledgement than that which I give to the Lord. To Him be all glory, honor, and praise.

I can identify the moment this quest was given a voice. To the man who came and presented the challenge of earning the right to be called "doctor," I cannot recall your name and do not know what became of you. Yet, I know the particulars of that moment and the words you spoke. Those words of challenge have been a foundational building block for my journey's path. So, I acknowledge you and your voice. It was your tough love that inspires me even today.

To all those whom God has brought along the way, I acknowledge your roles in this long journey. To Dr. Clarence "Chick" Holland, thank you for letting me know my research topic would be like a spouse. I love it more today than ever before.

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To Dr. Gary Kuhne and Dr. Laurel Healy, thank you for sharing your wisdom and insights. There is no substitute for wisdom gained through experience and insights attained through reflection.

To all of my students, thank you for helping me always remember that teaching and learning really needs to be focused on the learners and not on the teacher.

To the participants of this research study, thank you for sharing your voice, your experiences, and for making yourselves vulnerable. It is not an easy thing to speak candidly of

one's shortcomings and deficiencies, but with a hope, you share. To each of you, I will say, this work is not the end product but is rather a gateway to realizing a needed change.

To the school system and individual school leaders who allowed this study to be conducted in your house, I am so grateful. Like the participants, you made yourselves open to criticism, but look to Chapter 5 for the ideas to improve on an already great thing you are doing for learners, both young and old, and for their futures.

To my family and friends, thank you for more things than could ever be enumerated. The countless ways in which you encouraged me, inspired me, and pushed me are just the tip of the iceberg. Each conversation had, each comment made, each question shared are, in some sense, a part of this work. Yet, there is one thing I do wish to highlight above all else. Your prayers to God gave voice to my needs. His ears heard your prayers, and He moved Heaven and Earth on my behalf because He delights in you.

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List of Abbreviations

Continuing Education Unit (CEU)

Continuing Professional Development (CPD)

Technology Integration (TI)

Information and Communication Technologies (ICT)

Information Technology (IT)

Interactive Whiteboard (IWB)

Interpretative Phenomenological Analysis (IPA)

Pedagogical Content Knowledge (PCK)

Piedmont Public Schools (PPS)

Professional Development (PD)

Professional Learning Community (PLC)

Support, Opportunity, Resources, Time (SORT)

Technological Pedagogical Content Knowledge (TPACK) or (TPCK)

CHAPTER ONE: INTRODUCTION

Overview

Jerome Bruner introduced the field of education to his constructivist theories in the groundbreaking book *The Process of Education* (1960). To open the book Bruner (1960) wrote, "Each generation gives new form to the aspiration that shape education in its time" (p. 1). For today's generation of teachers and learners, digital technologies shape the possibilities of teaching and learning in their classrooms. Classrooms in the past were unlike today's classroom environments as they lacked digital technologies making those learning environments not as technologically advanced as today's classrooms (Autry & Berge, 2011). In presenting their paper, Autry and Berge (2011) assumed the theory that an individual's thought process patterns are defined by their experiences and those patterns can be changed with new experiences. As past generations of learners experienced their formative school years prior to the rapid expansion of digital technology in schools, the authors reasoned those learners developed thought process patterns defined by non-digital means. Changing those thought processing patterns requires new learning experiences to shape thought processing patterns more relatable to the thought processing patterns developed by today's students in this digitally rich environment.

The dynamic shift digital technology is having on society is impacting schools and represents a significant "concern for the quality and intellectual aims of education" (Bruner, 1960, p. 1). In defining this concern, it is important to consider teachers born and schooled prior to the advent of digital technology "have the ambition to explore and experiment with technology" (Toledo, 2007, p. 89). Koehler, Mishra, and Cain (2013) note many teachers are at a different place developmentally than their students with regards to their relationship with integrating digital technology into the school life. As a result of inadequate learning experiences

of their own, the authors argue teachers sense themselves being ill-prepared to use digital technologies in their classrooms and feel they cannot yet appreciate their place in teaching and learning. The relationship between teachers and technology must evolve to meet the demands if digitally integrated teaching and learning is to become a functional part of today's educational system (Cox, 2013). Accepting this gap between these teachers and today's learners exists may help in this evolution by providing the field of education with opportunities to create meaningful professional learning experiences based in the understanding that teachers have the desire to learn but need the experiences that will change their thought process patterns to become more digitally-minded.

This qualitative phenomenological study sought to address the problem by exploring the experiences of digital immigrant teachers in a large school district located in North Carolina. In this chapter the background for the problem is given to introduce the particular gap in the literature this research study seeks to address. How the situation relates to self and the philosophical assumptions inherent in the study are included. The problem statement and the purpose of the study are also included in Chapter One along with an explanation of the structure of the research. Definitions pertinent to the study are also given.

Background

Historical

Over the course of history, mankind has had an inclination for developing new technologies and incorporating these new tools into society with the intent of improving daily living for mankind. Cox (2013) asserts technology is an idea of change and is "a constantly moving matrix of hardware, software, and human interaction" (p. 209) and that it is "expanding at a rate never before seen in education or history" (p. 209). Crompton (2015) claims digital

technologies meant to simplify and enhance life are now readily available to people. These tools are responsible for creating a "whole new digital world" (Lim, Zhao, Tondeur, Chai, & Tsai, 2013, p. 60). Today's learners are viewed as a digital generation (Donovan, Green, & Hartley, 2010).

An ever-evolving ramification of the transformation into a digital world is the influence it is having on the shape of education. Copriady (2014) noted a significant paradigm shift has been made with regards to the idea of how teaching and learning are accomplished because teachers are now being mandated to integrate digital technologies in their classrooms. In spite of the call to transform teaching and learning in the classroom with digital tools (An & Reigeluth, 2011; Besnoy, Dantzler, & Siders, 2012), Matherson, Wilson, and Wright (2014) reported many veteran teachers lack the knowledge, skills, and experiences with technology needed to effectively teach today's learners. Veteran teachers lack the knowledge and skills because their own experiences learning with digital technologies were inadequate or inappropriate to their needs (Koehler, Mishra, & Cain, 2013). Additionally, Mueller, Wood, Willoughby, Ross, and Specht (2008) explained advances in technology result "in teachers being 'perpetual novices' in the process of technology integration…as advances in technology continually present new opportunities and potential uses" (p. 1524).

A viable opportunity to support teachers in gaining the experiences necessary to acquire the knowledge and skills to integrate technology in their classrooms can be seen in professional development, yet Smylie (2014) claimed little change has been realized because "states and school districts have never made sufficient investments in, developed the capabilities for, or been motivated or held accountable for making such change on a systematic basis" (p. 105). Twining, Raffaghelli, Albion, and Knezek (2013) argued it is imperative all stakeholders be engaged "in

developing a shared vision for education and the role of IT" (p. 433). Nevertheless, Kapustka and Damore (2009) reported policymakers and school administrators have historically dictated the process of change without concerning themselves with the concerns that teachers have. Given this track record of paying little attention to the specific needs of teachers, the challenge of achieving technology integration becomes increasingly difficult (Donovan, Hartley, & Strudler, 2007; Petrie & McGee, 2012). PD may be a workable solution. In spite of its potential to positively impact the shift to a holistic integration of technology in schools, institutions have routinely failed to appreciate social and contextual factors that impact teachers; thus, teachers' efforts to development their technological knowledge and skills through meaningful experiences often go unsupported (or under-supported) (Koehler, Mishra, & Cain, 2013).

Social

According to Winslow, Smith, and Dickerson (2014), "Teaching is a time and energy consuming task" (p. 46). The teacher's responsibility is to control how their classroom functions, and they have the primary role in determining how technology will be integrated (Alenezi, 2017). The rapid expansion of digital technologies in schools coupled with a large contingent of the teaching force having been educated prior to this expansion has resulted in a digital divide between teachers and their learners (Toledo, 2007). Dornisch (2013) postulated a digital divide exists in which students may have greater comfort with digital tools and more developed technological skills than their teachers. These roles and responsibilities may have created greater concerns within teachers toward digital technologies and its integration in teaching and learning processes. Teachers' own educational experiences contribute to the perceptions they have about digital technology and their competencies with integrating it in the classroom (Brantley, 2018). Crompton (2015) suggested effective teaching in today's

classrooms requires more than a mastery of teaching skills but "the dynamic interaction between the technology tools, subject content, and teaching practices" (p. 88). When educators are expected to integrate technology into their instructional practices, but believe they are unable to do so effectively, due to a host of possible factors, teachers tend to adopt negative attitudes and beliefs about technology use in their classroom (Xie, Kim, Cheng, & Luthy, 2017).

Professional development, particularly in the past 15 years, has been insufficient in addressing the concerns of educators, because "there has been so little change in the prevailing inadequate and ineffective practice of professional development" (Smylie, 2014, p. 105). Czajka and McConnell (2016) concluded current professional development seeks to inform educators of best practices and then to expect results. While best practices for helping teachers develop knowledge and skills have been identified (Borko, 2004; Bybee & Louck-Horshey, 2000; Desimone, 2011a; Desimone, 2009), research has presented a different reality that shows teachers are not transferring the content presented in training sessions into their classrooms (Desimone & Garet, 2015; McDonald, 2014; Smylie, 2014). As a result of this lack of transfer, the desired changes are not realized and the implementation of technology integrated teaching and learning is not matching the expected outcomes (McDonald, 2014; Uslu & Bümen, 2012).

Theoretical

Much research has been conducted on technology integration and how technology is a powerful agent for change in the field of education (Albion, Tondeur, Forkosh-Baruch, & Peeraer, 2015; Blackwell, Lauricella, & Wartella, 2016; Krist, Ming, Wah, Nambiar, & Ya'acob, 2012; Saudelli & Ciampa, 2016; Urban-Woldron, 2013). Still, many digital immigrant teachers who find value in technology, are less likely to integrate it into their instructional practices, because they struggle to see how it will work for them and for their students (Ottenbreit-

Leftwich, Glazewski, Newby, & Ertmer, 2010). Rushby (2013) placed blame on educational technologists arguing their focus has been more on the technology than on the educators and their learning. When the focus is on the equipment and not on serving the needs of teachers, especially veteran teachers who lack the knowledge and skills, then the equipment sits unused or is misused and thus ineffective (Potter & Rockinson-Szapkiw, 2012). A lack of understanding on how to appropriately implement technology in the classroom results in technology making little impact on education (Donovan et al., 2010; Rushby, 2013).

As previously stated, in theory professional development offers a viable solution to this problem, yet Potter and Rockinson-Szapkiw (2012) found many professional development initiatives are often not effective, because they lacked an appropriate approach to the matter. Kurt (2010) argued the key to technology adoption is the teacher and that it will not be successful, unless the teacher is willing to change. Teachers need to be able to make a sustained commitment to change their instructional practices (Teo, 2014). For professional development to become a practical solution, it is imperative educational leaders and technologists know the concerns and perceptions teachers have related to technology integration. Meaningful professional development empowers teachers to change and to begin to effectively engage with technology in their teaching and with student learning (Cox, 2013). The segment of teachers most in need of developing technology knowledge and skills and in learning how to integrate technology effectively in their classrooms are digital immigrant teachers (Li, 2016). This research study recognizes this segment of teachers as its participants.

Situation to Self

The chief motivation I have for conducting this study reflects my own lived experience as a digital immigrant teacher who teaches today's digital native learners and who attends

technology-focused professional development training sessions. While it is not completely possible to set aside my own personal experiences to become the researcher (Creswell, 2017), it is important that I endeavor to include a thorough description of the situation to self.

Born in the early 1970s, I was educated throughout my entire elementary school experience without the presence of a computer in my classroom or in my home. Neither of the schools I attended had a computer lab nor did any of the teachers have computers in the classroom. During middle school, the school I attended purchased a very limited number of computers that were utilized as an incentive for students to demonstrate good behavior and for work completion. There was a typing software program and another program for practicing basic math facts that students could choose for their reward. I was able to use a computer on occasion and typically chose the math fact software program for my reward. In the high school I attended there was one computer in each of the classrooms, yet the computers typically sat on a tabletop unused. At that time my parents purchased a home computer for our family to share. Included on the computer at school and in my home were software programs for word processing and for recreational games.

At the college where I completed my teaching pre-service program, the school had two computer labs (one IBM-compatible lab and one Macintosh lab), a limited number of computers located in a limited number of classrooms and lecture halls, and a small offering of computer science classes for students to take as electives. I have no recollection of any of my professors or instructors using computers to teach with or to present information to the class. My first experience using a computer outside of word processing was in a graphic design course in which the students had to each figure out how to use the computer and software program on their own or with a peer.

In 2006, I completed a master's degree in curriculum and instruction through a distance learning program. My technology experience consisted of watching videocassettes and DVDs of instructors presenting a lecture or explaining excerpts of classroom lessons, typing into a word processing program, and then emailing those documents to a professor or instructor for grading and feedback. It was not until attending Liberty University's online program for my advanced degree and doctoral program that I witnessed my professors teach with technology. This experience introduced me to the concept of engaging with technology actively in the teaching-learning process. Up to this point, the limited use of technology in the educational setting had been passive. My own history demonstrates that I seldom experienced technology as being a part of my educational experience in either my formative learning or pre-service training or follow-up training.

Another key motivation for conducting this study is to inform educational leaders, technologists, and professional development planners of the importance of involving digital immigrant teachers in the planning and implementation of technology integration professional development initiatives. They are crucial players in realizing the potential technology can have in promoting and supporting learning (Baylor & Ritchie, 2002; Cviko, McKenney, & Voogt, 2012). As a digital immigrant teacher and a colleague of many others, it is disappointing to attend professional development offerings that are formatted as a one-size-fits-all solution (An & Reigeluth, 2011; Mueller et al., 2008) for teaching teachers about digital tools but not how to integrate technology. Potter and Rockinson-Szapkiw (2012) took the position that when professional development opportunities are being designed in the area of integrating technology, teacher attitudes and prior experiences with technology need to be key pieces of the consideration that go into the development and delivery phases. However, in my experiences

with these types of professional development offerings, the presenters have had limited success because teachers and their current levels of expertise and knowledge have not been appreciated and thus the offerings do not match the needs of teachers, specifically digital immigrant teachers (Baylor & Ritchie, 2002; Donovan et al., 2007).

As previously indicated, I am considered a digital immigrant. In addition, I am an elementary school teacher with more than 20 years of teaching experience. I have a Bachelor's degree in Humanities, a Master's degree in Education: Curriculum and Instruction, and an Educational Specialist degree in Educational Leadership. My professional aspirations include positioning myself in leadership roles regardless of my exact professional title. My third motivation is the desire I have to lead through service to others. This research serves that goal by offering the field of education with another slice of information that will help digital immigrant teachers effectively teach today's learners in a digital world.

There are four philosophical assumptions I bring to this research study. Chief among these assumptions is the acknowledgement I make that one's idea of reality is largely based on one's perception of reality. From an ontological standpoint, what digital immigrant teachers believe is their past is more likely to be brought forward into their present and imagined for their future. This construction or forming of ideas gives them their sense of reality. It appears very relevant and necessary to understand the nature of the participant's reality in order to better understand their personal self-efficacy and their concerns. Addressing the questions of perception and what is believed to have happened in one's past, what is happening in one's present, and what might happen in one's future relate well with the purpose of this study.

The second philosophical assumption works together with the first in this case. The axiological question looks at the value of perception from a pragmatic lens. Among a host of

questions and prompts participants will be asked are questions about their perceptions of their experiences, their own knowledge base, and their ability to learn new skills and instructional practices. Understanding the perceptions teachers create about themselves, their values, their abilities, and their concerns related to integrating technology into the instructional practices is important in building an understanding of the lived experiences of digital immigrant teachers.

For the third assumption, I understand the exchange of ideas using language is not an exact science. For this reason, rhetorical consideration must be given if I am to be successful in grounding my understanding of the concerns and attitudes presented by the participants. The words and phrases the participants choose in their attempt to express themselves, their experiences, and their ideas will not likely be able to fully capture the essence of their lived experiences, so it is imperative to apply a curious, facilitative stance in data collection that permits the development of themes that can be appropriately analyzed.

From the perspective of a believer, my biblical worldview is a part of the overall motivation and framework for this study. As one who believes it is my charge to help others in their life journeys, I believe I am compelled to take on this responsibility as a researcher. Aiding my fellow digital immigrant teachers, it is my desire that this work will bring a sense of stability to an otherwise seesaw effect of perceived notions, actions and reactions, and attitudes that may instead be part of the lived experiences of the participants and to their expression of thoughts and in their behaviors.

Problem Statement

The desire to learn and effectively integrate digital technology into their instructional practices is genuine among digital immigrant teachers (Smith, E., 2013), yet not having the technology expertise often inhibits these teachers from doing what is desired (Ertmer, Ottenbreit-

Leftwich, Sadik, Sendurur, & Sendurur, 2012). A contributing factor that plays a role in digital immigrant teachers' inability to integrate digital technologies into their practice is their formative learning years and subsequent pre-service training lacked exposure to learning with digital technologies, as well as, instruction on how to teach with digital technologies (Cox, 2013; Koehler, Mishra, & Cain, 2013).

The challenges of seamlessly integrating pedagogy, content, and technology into the same instructional plan are considerable for teachers in general (Twining et al., 2013). The technological piece is particularly difficult for the digital immigrant teacher because of the lack of experiential knowledge and practical training (Al-Rawajfih, Fong, & Idros, 2010). The research surrounding technology integration has been plentiful (Al-Rawajhif et al., 2010; Al-Shabatat, 2014; An & Reigeluth, 2011; Besnoy et al., 2012; Blackwell et al., 2013; Buabeng-Andoh, 2012; Chen, Looi, & Chen, 2009; Cox, 2013; Cviko et al., 2012; Ertmer et al., 2012). The problem is current research regarding technology integration delivered through in-service professional development does not indicate thorough consideration being given to forming an understanding of the concerns and needs of teachers born prior to 1980 (Oblinger, Oblinger, & Lippincott, 2005; Stoerger, 2009). For this reason, the focus of this research study was to develop an understanding of the lived experiences of digital immigrant teachers. By listening to their voices, the aim was to capture their experiences, perceptions, beliefs, and feelings about learning in a non-digital age and being expected to teach effectively in the digital age.

Purpose Statement

The purpose of this phenomenological study was to explore the shared experiences of digital immigrant teachers in a suburban school system. These teachers grew up and were educated prior to today's digital-rich age. The study sought to capture these educators' voices as

they reflect on their lived experience attempting to integrate technology and attending related in-service professional development opportunities. Appropriating the ideas on professional development from Christopher Day (1999), technology integration in-service professional development will be defined in this research study as all conscious, planned activities teachers may engage in with the anticipated benefit of developing Technological Pedagogical Content Knowledge (TPACK) and improving their skills to effectively integrate digital technology in the classroom. A theory guiding this study is constructivism as it explains ways in which digital immigrant teachers construct knowledge through a variety of activities, including their lived experiences and through high-quality, scaffolded instruction.

Significance of the Study

Data in the 2015 Digest of Education Statistics reported that 55.8% of U.S. public school elementary and secondary teachers were over the age of 40 with another 28.9% in the age 30-39 bracket (Snyder, de Brey, & Dillow, 2016, p. 152). As for private school teachers K-12 teachers in the United States, 59.3% of teachers were over the age of 40 and 24% were between the ages of 30 and 39. Given the last reporting year is the 2011-2012 school year, this data shows a majority of teachers in the United States were born prior to 1980 and may be classified as digital immigrant teachers (Smith, E., 2013). These statistics on their own indicate the population of digital immigrant teachers represent a significant block of the teaching profession in the United States. Research findings by Al Bataineh and Anderson (2015) indicated teachers over the age of 40 score lower perceptions of competency than their younger teaching colleagues, likely, because older teachers have had less chance to gain experience with technology. Decades earlier, Fletcher and Deeds (1994) reported a similar conclusion in their findings, specifically, that in-service workshops for teachers with more than ten years in the classroom need to be

designed differently than for those teachers with less time in the classroom. These findings suggest a need for continued research making this research study significant.

Teachers, regardless of their age and experience in the classroom, have seen an increase in the calls to integrate technology from many state, national, and international education agencies. The resulting implication is that teachers need to improve their technological knowledge and skills (Hu & Garimella, 2014). School systems have made major financial investments to increase access to technology. Schnellert and Keengwe (2012) estimated that by 2013 United States K-12 schools would allocate $21.9 billion on technology expenditures. In addition, schools have increased offerings for teachers to receive technology integration training; however, An and Reigeluth (2011) reported the results in the classroom do not match the efforts of school leaders and technologists. Technology use remains low. This reality is especially true for teachers who have long been in the teaching profession as these teachers lag behind their younger teaching colleagues (Al-Rawajfih et al., 2010). Harris and Hofer (2011) argued this reality may be the result of instructional technology professional development being overly focused on the technologies, rather than on the learning the technologies can support. E. Smith (2013) stated the importance of being "cognizant of the potential dangers of focusing on technological drivers rather than human capacities within our educational settings, which may merely propel prevalent trends" (p. 9). Donovan et al. (2007) postulated if the focus were placed on teacher concerns, then more effective professional development and support might be realized. It is crucial for all stakeholders to be involved in developing a shared vision for instructional technology in teaching and learning (Twining et al., 2013). As digital immigrant teachers represent most of the classroom teachers in the United States, they are an important stakeholder in developing this shared vision. Cox (2013) argued it is vitally important "to

expand the research possibilities on technology integration in order to match its increasing importance to successful school improvement and student learning" (p. 209) thus, it is necessary that the phenomenon "be researched in a deep, rich, profound way" (p. 209).

One way to accomplish Cox's (2013) recommendation is "to explore in detail participants' personal lived experience and how participants make sense of that personal experience" (Smith, J., 2004, p. 40). For this study, the participants are digital immigrant teachers and the personal experience is technology integration in-service professional development. Educational leaders and technologists will not realize the needed improvements by "simply trying something different over and over until a result changes" (Cox, 2013, p. 216) but rather by developing a purposeful plan that pays attention to factors reported by digital immigrant teachers who are tasked with effectively teaching today's digital learners with digital technologies (Miranda & Russell, 2011).

Research Questions

The bodies of literature on in-service professional development and technology integration are significant (Albion et al., 2015; Archambault, Wetzel, Foulger, & Williams, 2010; Borko, 2004; Bybee & Loucks-Horsley, 2000; Desimone, 2009). Similarly, the research on knowledge and how it may be constructed is broad (Bruner, 1963; Cleaver & Ballantyne, 2014; Erdem, 2013; Ertmer & Newby, 2013). While researchers have taken differing stances on Prensky's (2001a, 2001b) concept of digital immigrants and digital natives, the attention given to the question of such a divide is pronounced and warrants further research (Bennet & Maton, 2010; Brown & Czerniewicz, 2010; du Plessis & Webb, 2012; Grigoryan & Babayan, 2015). The proposed research does not seek to address any one focus mentioned above solely. Rather, the researcher sees each as interrelated elements of a larger question. With this conception at

the core of the study, it is imperative the aim of the study be to capture the voices of a select group of individuals, each of whom has a set of unique personal experiences with digital technology, of unique professional experiences working to integrate technology into their teaching and learning practices, and of unique in-service professional development experiences where digital technology is a primary purpose for the training. But the concerns move beyond simply capturing those voices and attempts to interpret those accounts with a goal of making meaning of those experiences.

To explore the professional development experiences of digital immigrant teachers in this southeastern United States school system, three research questions have been constructed to serve as guides for the study. The following questions are as follows:

Research Question 1

How do digital immigrant teachers describe their own experiences with digital technology integration?

Investigating the world lived by the individual is central to existential phenomenology. Interviews should be viewed as a researcher's investigative tool, which affords the researcher rich, detailed information from participants who are able to share in their own words accounts of their own experiences (Eatough & Smith, 2006). How the participants speak to and about their personal and professional lives with digital technology and its integration into their lives is crucial to building a more complete accounting of the participants' lived worlds (van Manen, 2007). While open to broad recounting by the participants, the question gives participants the latitude to communicate what they perceive are the events of importance and how they have made sense of these events (Smith, J., 2004).

Research Question 2

How do digital immigrant teachers describe their experiences with in-service professional development (PD) focused on digital technology integration?

The purpose for the first research question was to gather a broad accounting by the participants of their personal and professional experiences with digital technology integration. This question has a more specific focus and aims to build a descriptive collection of the participants' experiences with technology-related professional development. Moving from a broad context and into a specific context will provide participants the opportunity to situate themselves in the context of technology-related in-service PD. Additionally, it will allow them the opportunity to communicate "'what it is like to be experiencing this, for this particular person, in this context'" (Larkin, Eatough, & Osborn, 2011, p. 330). *Being-in-the-world* of this type of PD should provide participants with the perspective needed to speak with clarity on the topic. The perspectives communicated through their stories and reflections on those experiences should accomplish this objective.

Research Question 3

How do digital immigrant teachers perceive in-service professional development focused on digital technology integration could be structured to address their particular lived world?

The second question seeks to build narratives from the participants of what they have experienced and how those experiences may have impacted them professionally, and possibly, on a personal level. The third research question seeks to gather ideas from the participants regarding their conceptions of what effective technology-related in-service PD is and how it can be structured to meet their perceived needs. Van Manen (1994) writes, "It is often through telling and reflecting on anecdotes or stories that we can come to an understanding of what is

good pedagogical action" (p. 162). Again, as stated above, Question 2 seeks to draw out the narrative. Following Van Manen's thinking, next comes an understanding of what is good action for teaching.

Definitions

1. *Content* – "is the subject matter that is to be learned/taught" (Koehler, Mishra, & Yahya, 2007, p. 743).
2. *Digital immigrant teachers* – refers to teachers "characterized as individuals born before 1980 who knew an analogue-only world and still rely on analogue forms of interaction" (Smith, E., 2013, p. 3).
3. *In-service professional development* – Among many possible definitions to choose from for this research study, the selection of a more comprehensive definition is appropriate. Day (1999) defines it as:
    a. Professional development consists of all natural learning experiences and those conscious and planned activities which are intended to be of direct benefit to the individual, group or school and which contribute, through these, to the quality of education in the classroom. It is the process by which, alone and with others, teachers review, renew and extend their commitment as change agents to the moral purposes of teaching; and by which they acquire and develop critically the knowledge, skills and emotional intelligence essential to good professional thinking, planning and practice with children, young people and colleagues through each phase of their teaching lives. (p. 4)

4. *Pedagogy* – refers to "the process and practice or methods of teaching and learning, including the purpose(s), values, techniques or methods used to teach, and strategies for evaluating student learning" (Koehler et al., 2007, p. 743).
5. *Technology* – "encompasses standard technologies such as books and chalk and blackboard, as well as more advanced technologies such as the Internet and digital video, and the different modalities they provide for representing information" (Koehler et al., 2007, p. 743).
6. *Technology integration (TI)* – refers to "the use of computing devices such as desktop computers, laptops, handheld computers, software, or Internet in K-12 schools for instructional purposes" (Hew & Brush, 2007, p. 225).

Summary

As the digital age continues to unfold in society, the rippling effect is experienced in the field of education. For those teachers who were educated prior to the advent of this new age, their experience teaching does not align with their experience learning. As a digital immigrant teacher having seen and experienced this phenomenon, increasing the effectiveness of teachers' technology integration is imperative to strengthening teaching and learning in the digital age. This proposed research study seeks to capture a full appreciation of the digital immigrant teacher's experience and to make sense of their experience both learning in a non-digital age and in attempting to learn now in a digital age through participation in professional development. Learning to effectively integrate technology into the teaching and learning processes presents a host of challenges, and the purpose of this study gives digital immigrant teachers opportunity to add their voices to a growing body of research.

CHAPTER TWO: LITERATURE REVIEW

Overview

Cox (2013) opines technology and teachers are "two of the most impactful educational resources in school today" (p. 209) and the integration of technology in education is a phenomenon "that must be researched in a deep, rich, profound way" (p. 209). The demand on schools to move toward technological integration is very strong as is evident by the actions many countries' education ministries and departments have taken (Chen et al., 2009: Hew & Brush, 2007). An effect of the demand for technology's presence in the learning environment is that it "brings a new set of challenges and pressures for educational institutions" (Lim et al., 2013, p. 65). Lim et al. noted these challenges and pressures can be seen in the questions being asked by teachers, educational leaders, and researchers and that "many of these questions are still unanswered, and attempts to address them have generated widespread debates" (p. 65).

The aim of the literature review is to present established knowledge on various aspects related to the research problem of the digital immigrant teacher. The content of this chapter will provide background and a review of the literature to be addressed in this study. This chapter is divided into two primary sections. The first section will present the theoretical framework for the study. Namely, this portion of the literature review will examine several constructivist theories of Jerome Bruner (1960) and the work of Punya Mishra and Matthew Koehler (2006) on the interplay of forms of knowledge teachers need to effectively teach with technology.

The second section will present current research on professional development and the digital immigrant teacher. A summary will conclude this chapter reviewing the key points presented in this chapter and Cox's call for in-depth, meaningful research that brings

understanding to the lived experiences of digital immigrant teachers, who attempt to integrate technology in their classroom settings.

Theoretical Framework

Bruner (2004) states, "Learning remains an elusive topic, despite the endless research lavished on it. And what we mean by it, of course, is shaped by how we choose to study it" (p. 13). The concept of learning within this research study focuses on digital immigrant teachers and how they construct knowledge related to digital technology, to self, and to their interplay within their instructional beliefs and practices.

Grounding the proposed study and giving a clear sense of the approach to studying the experiences of digital immigrant teachers learning to integrate technology are two frameworks: Constructivism and Technological Pedagogical Content Knowledge. It is important to connect the problem and purpose of the study with frameworks that will allow the findings to be best situated within their greater context. Constructivism serves as the theoretical framework. Technological, Pedagogical, Content Knowledge (TPACK) is the conceptual framework. These two constructs are well-equipped to address the phenomenon to be studied and to achieve the two goals of establishing the significance for the study and for situating the study within the existing body of research on the topics of technology-related, in-service professional development, and the lived experiences of digital immigrant teachers integrating instructional technologies in their teaching practices.

Constructivist Theories

Bruner (1997) reasons the scientist's job is to demystify self. For this research proposal, the "self" Bruner refers to is the digital immigrant teacher. Constructivism is a theoretical framework that views every phenomenon as being "given meaning through human conversation

and cultural process, or is 'constructed'" (Jha, 2012, p. 171). Bruner (1987) presents the constructivist view "that 'stories' do not 'happen' in the real world but, rather, are constructed in people's heads" (p. 11). As phenomenology is concerned with the "person-in-context, and that person's relatedness to the 'phenomena at hand'" (Dima & Bucuță, 2016, p. 70), the works of Jerome Bruner contribute to this research study in several fundamental ways. Specifically, Bruner's work in cognitive development, perception, and narrative theory reflect his constructivist approach. Each of these aspects of constructivism contribute to the theoretical grounding of the study and situate the findings within existing literature to help advance the quest to demystify Self.

The cognitive constructivist emphasizes "learning can be triggered by experiences that can be physical, mental, or social" (Palmer, 2005, p. 1854). Bruner developed his theory of cognitive development in the constructivist tradition postulating learners construct new knowledge and ideas using existing knowledge. Bruner extended his theory to incorporate elements of the social constructivism work of Vygotsky, who hypothesized that knowledge is constructed when one participates in forms of social interaction (Lourenço, 2012). In the social constructivist perspective, the construction of knowledge is a social experience and learning occurs "in particular social and cultural contexts" (Palmer, 2005, p. 1855). The cognitive and social constructivist perspectives agree the process of constructing knowledge is both an active and dynamic process in which the learner works to create meaning and find understandings that are informed and sophisticated (Faiella, 2013; Guba & Lincoln, 1994; Kantar, 2014; Palmer, 2005).

An essential element of the constructivist view to this research study is the understanding that the learner constructs new knowledge through the "individual's interaction with his/her own

world (or experiences)" (Jha, 2012, p. 172). Paily (2013) noted "knowledge is constructed uniquely and individually, in multiple ways, using a variety of tools, resources, and contexts" (p. 39). The formative learning experiences of digital immigrant teachers can be viewed as a different cultural setting than the culture of today's learners. Specifically, the educational culture digital immigrant teachers were schooled in did not include the digital technologies found in classrooms today. Additionally, their own teachers did not use digital technology integration principles in their instructional practices. This idea of culture being a context of great importance to Bruner's work is illustrated by the fact that Mattingly, Lutkehaus, and Throop (2008) point out Bruner and his graduate students found evidence in their research that the context of culture plays a significant role in cognitive development. Thus, it is important to consider the context of culture as a key feature in one's construction of knowledge and in the making of meaning. Bruner (1991) concludes the "nature and growth of mind in any setting" (p. 20) cannot be analyzed or understood in a cultural vacuum. While the learner constructs new knowledge for one's self, Bruner's perspective is that culture offers the individual the interpretative tools one uses to construct meaning (Mattingly et al., 2008).

Bruner (1991) argues a quest to understand "how man achieves a 'true' knowledge of the world" (p. 1) has been ongoing since the Enlightenment with the objective being "to discover how we achieve 'reality', that is to say, how we get a reliable fix on the world" (p. 1). The concept of reality, according to Mitchell, Nelson, Norreklit and Norreklit (2013), "means that the relations between the actor and the world are reliable and trustworthy for the actor" (p. 11). Grimes (2015) suggests a person's reality is made meaningful "using tools and traditions from their culture" (p. 65). Similar in its goal of attempting to make sense of the world, perception is one's attempt to construct a meaningful and stable environment that is "congruent with 'reality'"

(Postman & Bruner, 1948, p. 314). While these two concepts appear to share commonality in their goals, they are not synonymous ideas. Nevertheless, they are entirely relatable and mutually relevant concepts in developing understanding of the digital immigrant teachers' narratives and in constructing viable interpretations of the perceived reality that is their lived experiences.

Mattingly et al. (2008) note Bruner's contributions to narrative theory stating, "he has been systematically developing what is essentially a narrative view of culture and mind, arguing that reality itself is narratively constructed" (p. 9). The central concern of narrative theory, according to Bruner (1991), is focused on "how it operates as an instrument of mind in the construction of reality" (p. 6). Grimes (2015) defines narrative as the "ability to create stories that represent understanding and experience" (p. 69). Bruner (1996) refers to narrative as "a vehicle for meaning making" (p. 39) and "it is only in narrative mode that one can construct an identity and find a place in one's culture" (p. 42). Narrative accounts of the events occur in time and are characterized as one's attempt at organizing their experiences and what is chosen to be remembered of those experiences (Bruner, 1991).

A narrative approach in qualitative research, according to van Manen (1994), is appealing because it can serve as a means to address the thematic of self, or one's personal identity. In theory, employing a narrative approach may help one understand "the way they have developed over time into the kind of person they are now" (van Manen, 1994, p. 159) because of its self-reflective nature. Narrative has a reflexive quality because the narrator and the main character in the narrative are one and the same, but this feature creates its own set of problems that go beyond simply issues of verifiability making it "notably unstable" (Bruner, 2004, p. 694). To address this concern, Bruner argues for culturally-shaped cognitive and linguistic processes to guide the

telling of narratives because they have "the power to structure perceptual experience, to organize memory, to segment and purpose-build the very 'events' of a life" (p. 694). Based on the ideas of postulated by Paul Ricoeur, narrative discourse requires phenomenological description be paired with a hermeneutic interpretation (Pellauer & Dauenhauer, 2016). J. Smith (2007) argues for Heidegger's concept of the hermeneutic circle of part and whole as one idea for balancing the participant's narrative description with a hermeneutic interpretative of the narrative. The "attractiveness of the hermeneutic circle" (p. 5) is that it allows the researcher to dig deeper into the narrative to deepen one's interpretation.

The constructivist ideas of Bruner presented above provide this research proposal with sound theoretical principles that will guide the study and will allow the findings to be situated within the greater context. It is important to engage in this quest of further demystifying self, but it is important to take on this challenge "without obscuring their complexities" (Bruner, 1997, p. 146).

Technological, Pedagogical, Content Knowledge (TPACK)

"With Aristotle we declare that the ultimate test of understanding rests on the ability to transform one's knowledge into teaching. Those who can, do. Those who understand, teach" (Shulman, 1986, p. 14). These words by Lee Shulman, conclude his presentation of the conceptualization of Pedagogical Content Knowledge (PCK), a framework that acknowledges the teachers' need to effectively transform their knowledge on a subject matter into a teachable format for students to learn (Park & Oliver, 2008). Mishra and Koehler (2006) also recognize there are "many knowledge systems that are fundamental to teaching" (p. 1020). Essentially, there is much complexity in the work of teaching, especially in the blending of multiple domains of knowledge (Twining et al., 2013). Having a framework that recognizes "teaching is a highly

complex activity that draws on many kinds of knowledge" (Mishra & Koehler, 2006, p. 1020) led Mishra and Koehler to expand Shulman's framework to include technological knowledge along with pedagogical knowledge and knowledge of content.

Technological Pedagogical Content Knowledge (TPACK, first referred to as TPCK) is a conceptual framework that espouses "an emergent form of knowledge that goes beyond all three 'core' components (content, pedagogy, and technology)" exists and it "emerges from interactions among content, pedagogy, and technology knowledge" (Koehler et al., 2013, p. 16). In developing TPACK, Mishra and Koehler (2006) recognize "there is no single technological solution that applies for every teacher, every course, and every view of teaching" (p. 1029). Seeking to differentiate their work from educational technology research up to that point in time, which focused on "case studies, examples of best practices, or implementation of new pedagogical tools" (p. 1018), TPACK "seeks to assist the development of better techniques for discovering how technology-related professional knowledge is implemented and instantiated in practice" (Koehler et al., 2013, p. 18). As a constructivist framework for knowledge construction, it seeks to offer "new ways of looking at and perceiving phenomena and offers information on which to base sound, pragmatic decision making" (Mishra & Koehler, 2006, p. 1019).

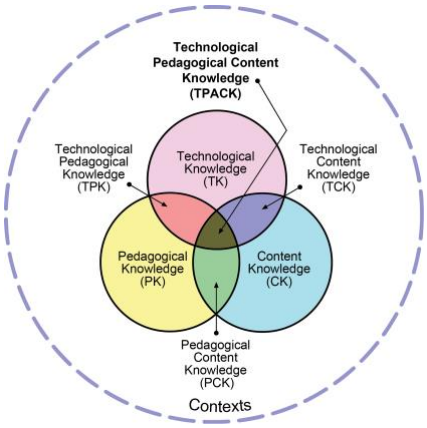

Figure 2.1: Reproduced by permission of the publisher, © 2012 by tpack.org

Considering the impact of digital technology on society, Mishra and Koehler (2006) acknowledge it "has dramatically changed routines and practices in most arenas of human work" (p. 1017). In addition, they comment on how technology advocates have envisioned it leading to dramatic changes in how teaching and learning occur but "in education the reality has lagged far behind the vision" (p. 1018). Their answer to why this lagging behind might exist is because "merely introducing technology to the educational process is not enough" (p. 1018). Ottenbreit-Leftwich et al. (2010) note "when learning experience are focused solely on the technology itself, with no specific connections to grade or content areas, teachers are unlikely to incorporate technology into their practices" (p. 1322). An and Reigeluth (2011) state "technology integration requires much more than technical skills" (p. 55). Crompton (2015) reasons technology is not being used effectively because decisions are being made, even by technology enthusiasts, as to what digital technology will be used and then trying to make the content fit with the choice of technology, even if the two are not a good fit. When focusing on each knowledge base in isolation, Mishra and Koehler (2006) argue sound technology integrated teaching cannot happen. Conversely, Baran, Chuang, and Thompson (2011) posit TPACK serves as a useful framework for teachers to help them "make sensible and creative choices in their use of technology in the classrooms" (p. 370). Graham, Borup, and Smith (2012) support the idea that TPACK is useful to teachers because its descriptive power affords teachers an analytical lens to examine the *how* and *why* of their instructional decision making. When teachers are able to integrate the three knowledges into one with the context in which they teach they are bringing "TPACK into play" (Koehler et al., 2013, p. 17).

Society, in general, has experienced dramatic changes as a result of digital technology becoming an "integral part of our everyday life, work and home experiences" (Chen et al., 2009).

Albion et al. (2015) declare technology "offers the potential to transform education and teacher education" (p. 658). While TPACK is being used by researchers as a framework for investigating teachers' digital technology integration, Graham et al. (2012) argue there is more researchers can investigate, particularly "the possible influence of contextual constraints in the quantity and quality of participants' technology integration rationales" (p. 543). Koehler et al. (2013) also postulate research in the area of in-service professional development is needed and the TPACK framework offers possibilities for teachers and researchers "to focus instead, and in a more ecological way, upon the connections among technology, content, and pedagogy as they play out in classroom contexts" (p. 18).

Related Literature

The goal in which digital technologies afford teachers the support they need to "empower and inspire them to provide more effective teaching for all learners" (U.S. Department of Education, 2017, p. 28) cannot be achieved solely by making digital technologies available in the classroom. The U.S. Department of Education's 2017 National Educational Technology Plan (NETP) Update reported that "roughly half" of teachers "say that lack of training is one of the biggest barriers to incorporating technology into their teaching" (p. 28). Existing research on the topic finds professional development opportunities are not meeting the needs of educators (Borko, 2004; Desimone & Garet, 2015; McDonald, 2014). Alenezi (2017) noted the debate on how people learn has been ongoing since the days of Socrates and that "substantial progress has been made in understanding the learning process" (p. 1798) because of the work of educational theorists such as Vygotsky and Bruner. In spite of some progress, many educational and governmental agencies have not made the necessary transitions to ensure teachers are properly prepared to integrate digital technologies into teaching and learning (Bayar, 2014; McDonald,

2014). Teachers are being expected to integrate digital technologies in the classroom "before they have full command of how to do so, what technology use for academic purposes might mean or look like, or what the institutional realities for using it might be" (Kalman & Rendón, 2014, p. 978). Alenezi (2017) argues given these demands on educators and the emphasis on them developing their technological skills, the lack of consistent implementation may have more to do with a lack of support from the systems pressing teachers to meet these expectations because they are not providing educators with the supportive professional learning opportunities they need to maximize professional growth. This argument is supported in the findings made by Adams (2014) who reported the experiences teachers are having with their PD opportunities. Teachers' actual PD experiences are not in alignment with the PD guidelines set forth by federal law and state policies. Rethinking these systems is necessary if successful implementation is to be achieved at the classroom level (Gibson & Brooks, 2012).

Defining Professional Development

Loucks-Horsley (1995) theorizes an evolution in professional development (PD) has been underway for the past 50 years with the focus moving from growing the individual teacher with an intent of growing the organization to a more systemic, integrated perspective aimed at enhancing "the knowledge and skills of teachers through presentations, coursework, and workshops" (p. 265). According to Bayar (2014), the past several decades has seen continuing professional development become "one of the most common central concerns in educational studies" (p. 321). Adams (2014) notes in discussions about "making teachers 'better' or more effective, it is important to consider that teachers, as professionals, are committed to learning and have the capacity to define what is necessary for their own improvement" (p. 135). Adams further argues additional research into the actual experiences teachers have in professional

development is needed. To move forward in researching this concern, it is imperative to view the existing research as the collective attempt to construct knowledge on the matter and how understanding of it has progressed over time.

The James Report, a landmark report commissioned by the British government in the early 1970s, finds three distinct stages in which a teacher is educated and develops in the profession. The first two cycles of professional development occur while the individual is in college. Often defined as pre-service training (Kennedy, 1999), the first stage emphasizes the development of the individual's content knowledge. The second stage stresses the individual's acquisition of professional know-how for teaching the content and for setting up the learning environment. During this stage, the pre-service teacher completes student teaching. The third cycle is in-service education. Advocating for the third stage, the authors of the James Report (1972) wrote, "Most important of all, it is in the third cycle that the education and training of teachers can be, and should be, at its best" (p. 4). The commission's call for teachers "to have opportunities to extend and deepen their knowledge of teaching methods and of educational theory" (James Report, 1972, p. 7) includes detailed outlines for expanding college and university teacher education programs to offer advanced degrees; for creating professional centers to serve as educational forums where teachers, trainers, and advisers can exchange ideas and experiences; and for developing resources and services teachers can access to enhance their professional knowledge. In recommending a comprehensive program for teachers to develop professionally, the commission is clear "in-service training should begin in the schools. It is here that learning and teaching take place, curricula and techniques are developed and needs and deficiencies revealed" (p. 11). In evaluating the James Report, Taylor (2008) highlights several impacts the report has had on teacher education and training. He acknowledges many reforms

proposed have not been implemented, but in Taylor's appraisal the report stands as an influential force in the evolution of teacher education and training. While not responsible for introducing the concept of in-service professional development, the James Report is viewed as a groundbreaking document offering radical recommendations to reform the way teachers are educated and trained prior to employment and developed during their teacher careers (Taylor, 2008).

In-service PD is viewed as being a key component of educational reform, specifically in teaching and learning (Covay Minor, Desimone, Lee, & Hochberg, 2016; Desimone, 2009; Gibson & Brooks, 2012; Petrie & McGee, 2012). Many countries have adopted policies regarding PD (Ndongfack, 2015). In the United States, going beyond national policy recommendations, state legislatures have passed laws mandating continuing professional development standards for teachers to renew their licenses and maintain their "highly qualified" status (de Vries, Jansen, & van de Grift, 2013). Many states have incorporated these standards into teacher evaluation tools (Smylie, 2014). In addition to enacting mandates, numerous countries around the world, including the United States, are making substantial investments in teacher professional development because the perception is all teachers, novice and experienced, can benefit from participation in professional development activities (Bayar, 2014).

As concepts of professional learning have evolved, efforts to create a shared definition for professional development has resulted in the formulation of a variety of definitions. Among these working definitions, Edelfelt and Johnson (1975) define professional development as "any professional development activity that a teacher undertakes singly or with other teachers after receiving her or his initial teaching certificate and after beginning professional practice" (p. 5).

Similar in the idea that professional development involves the teacher engaging in professional activities, Bolam (2000) defined continuing professional development (CPD) as:

> CPD embraces those education, training and job-embedded support activities engaged in by teachers, following their initial certification, and headteachers. Such activities are aimed primarily at adding to their professional knowledge, improving their professional skills and helping them to clarify their professional values so that they can educate their students more effectively (p. 267).

Day (1999) takes a more holistic approach to its definition by incorporating an additional layer that appreciates "all natural learning experiences" along with "those conscious and planned activities which are intended to be of direct benefit to the individual, group or school" (p. 4).

Regardless of which idea best defines PD, recognizing PD "as a key vehicle through which to improve teaching" (Petrie & McGee, 2012, p. 59) enables the concept of professional development to be understood as a "process by which, alone and with others, teachers review, renew and extend their commitment as change agents" (Day, 1999, p. 4) rather than as something in which "the goal is simply to inform of best practices and expect faculty adoption" (Czajka & McConnell, 2016, p. 13).

Features of Professional Development

The adoption of a broad-based definition of PD has led researchers to consider both formal and informal activities as potential means for professional growth (Borko, 2004). Desimone (2009) asserts "teachers experience a vast range of activities and interactions that may increase their knowledge and skills and improve their teaching practice, as well as contribute to their personal, social, and emotional growth as teachers" (p. 182). While formal activities may include seminars and workshops, the informal experiences can be discussions with colleagues in

the hallway or self-reflecting on a lesson taught (Borko, 2004; Desimone, 2009; Desimone, 2011a).

While expanding the thinking on what professional development is and the kinds of activities teachers engage in, researchers have also been engaged in identifying and defining features embedded in high-quality professional development (Borko, 2004; Covay Minor et al., 2016; Desimone, 2009; Desimone & Garet, 2015; Desimone, Porter, Garet, Yoon, & Birman, 2002; Hochberg & Desimone, 2010). Based on extensive work in developing consensus on key features inherent in high-quality professional development, Desimone (2009, 2011a, 2011b) describes five core features viewed as critical to effectiveness. These features include content focus, active learning, coherence, duration, and collective participation.

With regards to content focus, Desimone (2009) stated this feature "may be the most influential feature" (p. 184). It should be the aim of teachers to learn "about the content of the lesson, how students learn, what is important about the ideas and how they are presented, how students can engage with the material, common misunderstandings of the content and how to address them, and how to connect concepts and representations" (Desimone, 2011b, p. 65).

Active Learning. Teachers should be engaged with the content and active in constructing their learning rather passively sitting and listening to a presenter give a lecture (Desimone, 2011a).

Coherence. Desimone (2011b) defines three dimensions of coherence that are critical. Firstly, the professional development activity "builds on what teachers already know and is appropriate for their level of knowledge and skills" (p. 65). Secondly, the content should align with standards, the curriculum, and policies. Finally, effective PD "encourages and supports

sustained professional communication among teachers who are working to reform their teaching in similar ways" (p. 65).

Duration. While research has not identified an exact minimum amount of time at which point the PD becomes effective, but Desimone (2009, 2011a) advocates for at least 20 contact hours spread out over a semester given what the research is showing as being effective.

Collective participation. Viewed as a means for building an interactive learning community, groups of teachers who teach the same grade level, the same content area, or in the same school building should participate together in PD activities (Desimone, 2011a). Borko (2004) asserts the research is conclusive "that strong learning communities can foster teacher learning and instructional improvement" (p. 6).

Along with identifying and describing five core features viewed as critical to effective PD, Desimone (2009) proposes a conceptual framework for studying teachers' professional development that recognizes there is a set of critical features and establishes how PD should operate to influence teacher and student outcomes. While recommending its use in empirical causal studies, the conceptual framework model may have value in research studies that examine teachers' experiences in professional development. As a theory of action for professional development, Desimone (2009) suggests the likely progression through four steps would be:

1. Teachers experience effective professional development.
2. The professional development increases teachers' knowledge and skills and/or changes their attitudes and beliefs.
3. Teachers use their new knowledge and skills, attitudes, and beliefs to improve the content of their instruction or their approach to pedagogy, or both.
4. The instructional changes foster increased student learning (p. 184).

Despite the evolution in thinking regarding what PD is and the increased focus on researching PD, Borko (2004) argues "the professional development currently available to teachers is woefully inadequate" (p. 3). Millions of dollars are being spent each year by schools and governments to finance professional development efforts, but the research indicates the efforts have been found to be "fragmented, intellectually superficial, and do not take into account what we know about how teachers learn" (Borko, 2004, p. 3). A decade later McDonald (2014) reports educational agencies continue to spend "vast amounts of funding are devoted to upgrading and maintaining teacher quality" (p. 1581), yet the money spent, and the attempts made to improve teacher quality mean little if the PD's participants are not transferring their learning into their classrooms. Teacher quality is not being upgraded as intended (McDonald, 2014).

Adopting Desimone's ideas, Borko, Koellner, and Jacobs (2014) advance the idea that "high-quality PD refers to both the process and structure of PD program and the PD content" (p. 150). Current research illustrates two distinct approaches of professional development exist. A more traditional PD delivery model classified as low-quality can be summarized as consisting of "staff development-by-listening" presented by "experts… from more than 50 miles away" who show little respect toward the teachers' existing knowledge or interests (Loucks-Horsley, 1995, p. 268). Nearly twenty years later, Smylie (2014) similarly finds most opportunities for continuing PD "consist of formal short-term or one-shot workshops, conferences, and training sessions" where the "intensity and duration of learning experiences are low" (p. 102). Echoing the ideas of Loucks-Horsley and Smylie, Desimone and Garet (2015) report the current trend in the United States remains for districts to provide in-service PD using "one-shot" workshops lasting for three hours or less in which teachers listen to a presenter lecture on an isolated topic.

Research findings reported in a study by Bayar (2014) point to low-quality PD in which elementary school teachers report having "no input in the planning of professional development activities," and that the activities "felt disconnected from the subject matter and found the topics unhelpful and irrelevant" (p. 323). Likewise, Petrie and McGee (2012) find this paradigm of PD does not give thorough consideration to the varied contexts the teachers teach in, as well as "the diverse learning needs of the teachers, who have [sic] different past experiences" (p. 66). Further limiting effectiveness, participants in multiple studies report planners and instructors often lack the knowledge and skills they are supposed to be presenting on (Bayar, 2014; Borko et al., 2014; McDonald, 2014). Essentially, an approach that does not give thorough consideration to the needs of teachers is contrary to the work of Desimone because it does not fully recognize what is crucial for PD to be meaningful and effective in developing teachers' professional knowledge and skills.

Conversely, Saunders (2014) argues for a "most appropriate model" of PD which "takes place in real-world contexts" (p. 178) and considers multiple factors, including: (1) the scale, type and nature of the change required, (2) the number of participants involved, (3) their prior knowledge and experience, (4) their degree of commitment to the process, (5) funding available, and (6) the intended outcomes of the program. The participants in the study conducted by Bayar (2014) determined "effective professional development activities" (p. 323) as having (1) a match to existing teacher needs, (2) a match to existing school needs, (3) teacher involvement in the design/planning of professional development activities, (4) active participation opportunities, (5) long-term engagement, and (6) high-quality instructors. Making a shift from the previous paradigm where decisions are made by outside "experts" for teachers they have little to no knowledge of to a new paradigm based in the work of Desimone and supported by the

recommendations of Saunders and Bayar requires a concerted effort be made to find time for creating and implementing meaningful professional development that is fashioned with teachers for the benefit of helping teachers more effectively teach and students maximize their learning (Loucks-Horsley, 1995).

Desimone (2011a) suggests if the goal is to improve student learning then PD needs to increase the teachers' content knowledge along with their knowledge of how students learn the content. Sound principles of coherence are comprised of building on a teacher's prior knowledge, of aligning the content with the standards, and of encouraging and supporting collaboration among teachers (Desimone, 2011b). It stands to reason when PD offerings are not structured coherently teachers will struggle to acquire the knowledge intended to be learned. Desimone and Garet (2015) argue teachers are not developing knowledge and skills because the link between the PD program and what is happening in the classroom are not aligned. Multiple research studies illustrate this issue. For example, in a study by Adams (2014) on the meaning, structure, and essence of PD, one Title I high school teacher remarked the experts the school brought in to present talked at teachers and did so without much supporting research "'in terms of why this works, or how this works, or in what communities this works'" (p. 128). Participants in a study conducted by Gibson and Brooks (2012) reported mixed reviews of their PD experience. Specifically, while the teachers were being introduced to a new curriculum, two major issues arose that detracted from the learning opportunities. The teachers experienced content overload and there was a lack of instruction on how to apply the new curriculum in the classroom. Conducting a study of the activities embedded in a year-long PD program, Bayar (2014) shares reports of elementary school teachers who found their participation as dissatisfying because the activities offered did not correspond with their existing learning needs. Addressing

these needs requires varied formats of in-service professional learning and the time for teachers to engage in these opportunities to build their knowledge base and to develop specific skills related to teaching and learning (Kopcha, 2012). Potter and Rockinson-Szapkiw (2012) add if the teacher's practice is to become habitual and positively influence student learning, then PD must be delivered over time and must give the teacher opportunity to participate in follow-up activities. Positive outcomes are more likely to be realized when teachers are provided with support and PD is sustained over time (Kopcha, 2012).

Realizing the potential impact PD can have on teachers integrating technology in the classroom, Bybee and Loucks-Horsley (2000) contend effective technology-related PD must give careful attention to four teacher needs. Each of these needs relates well with Desimone's coherence feature. First, Bybee and Loucks-Horsley (2000) argued teachers must deepen their knowledge of the content they teach while also learning about and developing the related technological skills. This step should be followed up with teachers having "opportunities to learn about how to teach technology – to combine their content knowledge with what they know about learning and how to teach their particular content" (Bybee & Loucks-Horsley, 2000, p. 32). Being afforded digital tools will aid teachers in continuing their own learning. This component will meet the third need Bybee and Loucks-Horsley presented. The fourth need teachers have is "long-term professional development programs that support the kinds of changes that will align with digital literacy standards" (Bybee & Loucks-Horsley, 2000, p. 32). The coherence approach to PD espoused by Desimone aligns soundly with the needs Bybee and Loucks-Horsley identified because it will consider a more holistic approach to satisfying these needs.

Winslow et al. (2014) postulate "the most desirable and effective approaches to professional development in classroom technology integration include strong hands-on experiences during the training" (p. 47). This argument is supported by the findings of Ertmer et al. (2012) which suggest teachers should be using the same technology tools in their professional learning opportunities as they would use in the classroom. Similarly, Miranda and Russell (2011) recommend school systems should be utilizing professional learning opportunities that promote and highlight strategies for teaching and learning with digital technology that have teachers using these tools innovatively. Supposing these ideas and findings are precise, it can be reasoned this kind of use in the classroom is more likely to occur when teachers are using the tools for teaching in the classroom in their own professional learning opportunities.

In a study asking teachers to identify barriers to integrating technology in their schools, Ertmer et al. (2012) report teachers had issues with developing the know-how and having the time to develop know-how. Ensuring a focus on meaningful, relevant content that provides teachers with the required information to develop the know-how is the responsibility of the PD developers (Donovan et al., 2007). It is imperative developers not focus on simply offering trainings that address specific digital tools or technology skills because this approach ignores Bybee and Loucks-Horsley's (2000) assertion that teachers need to be able to combine their content knowledge with the technological knowledge being addressed in the PD (Blocher, Armfield, Sujo-Montes, Tucker, & Willis, 2011; Potter & Rockinson-Szapkiw, 2012). Mueller et al. (2008) indicate exposing teachers to general information on a digital tool is not as critical as it is to provide teachers with "very specific, task-relevant, and classroom-applicable experience" (p. 1532). The primary focus technology-related PD developers should have is to give teachers the opportunity and support to situate their developing technology knowledge

within established content and pedagogical knowledge (Baran et al., 2011). Meeting this focus cannot be achieved without developers being in communication with the teachers they intend to assist in learning to be technology integrators (Keengwe & Kang, 2013). In addition, Keengwe and Kang argue it is imperative technology-related PD developers be able to develop and deliver instruction and provide the support to address the complexities of teaching in the real world. Crompton (2015) maintains the TPACK framework can be used by developers "to facilitate a better understanding of how to go about effectively creating cohesive lessons while also ameliorating negative teacher beliefs and feelings" (p. 88).

The approach to professional development needs to shift from a "one size fits all" model that focuses on technology tools to become innovative and beneficial for teachers as it considers their experiences, attitudes, and concerns and helps them use technology to maximize student learning in their specific content areas and with their pedagogical approaches (Uslu & Bümen, 2012; Winslow et al., 2014; Potter & Rockinson-Szapkiw, 2012). Kim and Kim (2013) note elementary and secondary teachers have different educational goals and their learning environments are different as well; therefore, teachers having differing teaching settings need to have their PD designed and implemented using different approaches. Pan and Franklin (2011) suggest with the addition of technology-related in-service PD teachers can participate in, the likelihood they will work to integrate technology into their instructional practices increases. Gaining confidence in the use of technology for teaching and learning is a crucial component toward sustained technology integration (Compeau & Higgins, 1995; Ertmer et al., 2012). Simply creating the infrastructure for technology to be in schools is not enough. It should be noted the research indicates teachers rarely adapt their teaching practices without professional development and administrative support (Pan & Franklin, 2011). Copriady (2014) argues

sufficient professional learning opportunities need to be afforded teachers so they can work to improve their skills and to develop the capabilities they need to effectively integrate digital tools and concepts into their teaching. Providing such opportunities that promote a focus on benefitting teachers and on affecting student learning should be the emphasis of professional developers and school leaders rather than on offering trainings that emphasize the mechanics of using technology tools (Miranda & Russell, 2011). This position mirrors Mishra and Koehler (2006) who find when the focus is on developing skills for one specific technology tool, the professional developer tends to only address building technological knowledge and tends to ignore helping teachers make connections with the content they teach and the pedagogical approaches that best align. Quick "hit-and-run" training approaches to professional development also lack the support systems teachers crave, and thus, the PD sessions tend to leave teachers "ill prepared to use it effectively" (Potter & Rockinson-Szapkiw, 2012, p. 23).

The intent of any professional learning opportunity should aim to be impactful. Besnoy, Dantzler, and Siders (2012) posit impactful PD will be focused, sustained, and meaningful. Donovan et al. (2007) support these ideals and add it also needs to be differentiated to address teacher concerns. If the goal is to increase the teacher's knowledge and skills and to have a positive impact on student learning, then the PD should be sustained, intensive, and be a part of the teacher's daily professional life (Stedrak, Ortagus, & Locke, 2013). They report the most effective models are intensive in nature, involve sustained efforts over time, and involve collaborative professional communities working together. Darling-Hammond, Wei, Andree, Richardson, and Orphanos (2009) propose a similar call for PD to be sustainable, collaborative, and be a part of what teachers are doing in their classrooms. The constructivist understanding of learning supports the idea that "teachers are more likely to integrate technology in their

classrooms if time is devoted to identifying how the technology can be used in a pedagogically sound manner" which is best achieved when digital immigrant teachers are afforded "quality opportunities and relevant activities to sustain a technology-enriched environment" (Potter & Rockinson-Szapkiw, 2012, p. 24).

Another critical component in developing impactful professional development is considering the target audience. The findings of Adams (2014) indicate teachers want their professional development to "satisfy a never-ending, internal process to be good or better at teaching" (p. 127). Yet, the existing body of research suggests a disconnect and a lack of consistency among PD developers and educational institutions in providing teachers with the things they need to be satisfied (Twining et al., 2013). Furthermore, Petrie and McGee (2012) report in their research that developers of PD tend to treat teachers as "unproblematic; teacher would learn what was taught in the PD and apply it in the classroom" (p. 70). Adopting a stance that does not consider teachers as learners will likely to yield ineffective results (Adams, 2014; Anyanwu, 2015; Petrie & McGee, 2012).

Bayar's (2014) analysis of data collected from teachers finds "teachers define any professional development activity as effective if it is organized based on teachers' needs and provided for a long time" (p. 322). An and Reigeluth (2011) argue "the factory model of education" (p. 54) does not meet the needs of the learners, thus PD cannot be designed using a factory mentality but "must take into account teachers' needs; provide active, hands-on, and learner-centered learning experiences; and provide personalized support" (p. 61). As for the careful consideration of the target audience, the research agrees with the position of An and Reigeluth. Chief among the multiple needs expressed by teachers is the need for time to learn. Defined by Desimone (2009) as duration, teachers report they need more time to learn and

incorporate new methods into their instructional practices (Potter & Rockinson-Szapkiw, 2012; Saunders, 2014). Properly designed PD affords teachers time to address their concerns and misconceptions and to become comfortable with using digital tools in their classroom (Donovan & Green, 2010). Winslow et al. (2014) contend if the benefits of the PD are to be maximized then teachers need to be given the time to acquire the knowledge and skillset to use technology in their classrooms. Potter and Rockinson-Szapkiw (2012) note providing digital tool training alone does not provide teachers with the opportunities to integrate concepts of pedagogical practices with the technological content being presented at the training. Saunders (2014) argues effective PD models allow time to "support teachers who encounter challenges enacting professional learning" (p. 167) and to give teachers opportunities to engage with the content of the PD, to be able to try using technology in their practice, and to reflect on their practice. While governments and school systems are furnishing classrooms with digital tools, the research points decidedly toward the need for these same institutions to provide sufficient opportunities to learn the content related to integration and to provide extended time to develop the skills and capabilities to apply technology integration principles into their instructional practices (Copriady, 2014).

In addition to needing time to learn and apply their learning, Matherson et al. (2014) postulate PD and school leaders need to ensure teachers are receiving long term support if teachers are going to develop the knowledge and skills necessary to integrate technology appropriately. This condition can be achieved by creating a learning environment where teachers are supported with mentoring (Kopcha, 2012), follow-up coaching (Saunders, 2014; Uslu & Bümen, 2012), and communities in which teachers can collaborate with their colleagues (An & Reigeluth, 2011; Holden & Rada, 2011). Mueller et al. (2008) posit successful technology

integration can be better achieved if teachers have direct access to fellow teachers who can model ways of technology integration that have proven successful in their classrooms integrating technology. Kopcha (2012) argue for mentors to be an integral part of a PD regiment because their role can help support the teacher in addressing "the factors that lead to a teacher's decision to use technology" (p. 1119). Mentors may be particularly helpful to teachers who have not yet transitioned from the technical use of digital tools and into a more complete integration model instructionally (Potter & Rockinson-Szapkiw, 2012). Hammonds, Matherson, Wilson, and Wright (2013) agree that working with a mentor who is knowledgeable with using digital tools has the potential to help the teacher build confidence using the tools in their own classrooms. The relationships that can develop through peer coaching may help reduce feelings of isolation teachers may feel and may increase the exchange of ideas among teachers (Saunders, 2014).

The position one holds toward technology integrating is connected to one's feelings about technology's role in teaching and learning (Lee, 2012). Cviko et al. (2012) find positive attitudes influence technology integration favorably. At the same time, Hammonds et al. (2013) contend teachers "must be at least minimally comfortable with technology use and see the value that these tools can bring to their daily lives before they can consider technology integration as anything more than one thing required of them" (p. 36). Similarly, Mueller et al. (2008) maintain that even when the pedagogical beliefs and attitudes point to a teacher's inclination to give technology integration a try, "the teacher must believe that he or she is capable of implementing technology successfully in order to act on those beliefs" (p. 1526). These ideas are supported by much research, including Potter and Rockinson-Szapkiw (2012) who argue that barriers to successful integration may be overcome if the teacher is able "to examine his or her own personal beliefs and prior experiences and how these beliefs and experiences may support or

inhibit the goal of the learning opportunity" (p. 25). Straub (2009) notes three factors that work together to shape a teacher's decision to make a concerted effort to integrate technology into their practices. These are: (1) personal factors, (2) characteristics of the innovation, and (3) influences of the individual context (p. 641). Beliefs and experience are contributing factors with regards to a teacher's decision to incorporate technology into their instructional practices (Miranda & Russell, 2011). Among the strongest predictors are the teacher's beliefs about technology's instructional benefits and the pressure the teacher perceives is upon him or her to utilize it in their practices (Miranda & Russell, 2011; Teo, 2014). By helping teachers to safely acknowledge the factors that "make them feel threatened by technology" (Mama & Hennessy, 2013, p. 386), Howard (2013) argues PD "can be structured to help teachers rationally address uncertainty and risk in technology integration to support effective learning, experimentation, and possible change" (p. 358). Çetinkaya (2012) agrees that understanding and exploring the concerns each teacher has is an important component in helping each teacher work through their transformation to acceptance and then implementation of integrating technology in their classroom practices. Having a school culture that promotes and encourages change through a supportive PD approach may help teachers develop positive beliefs and attitudes and lead the teacher to fully integrate technology (Uslu & Bümen, 2012). Blocher et al. (2011) reason addressing a teacher's technology self-efficacy "might change one's beliefs and attitudes" (p. 168) and lead the teacher to integrate technology. Conversely, working in a school climate that gives teachers access to digital tools without addressing the crucial barriers teachers come up against through PD will result in teachers continuing to feel unprepared and anxious toward the tools they are expected to incorporate into their teaching (Howard, 2013; Nikolopoulou & Gialamas, 2015). This stark contrast indicates a prevailing need for PD to appropriately address

teacher beliefs, feelings, and attitudes in such a way that the teacher concerns and perceptions which act as barriers to integration can be broken down with a constructive approach that leads teachers to feel comfortable with the idea of changing their practices and to develop the competence and confidence with technology that will encourage them to fully integrate technology in their classrooms (Howard, 2013).

The Digital Divide of Teachers and Learners

The concept of a digital divide is relevant to this research study. Prensky (2005) hypothesizes today's learners are so intellectually different from their teachers that it presents problematic issues between teachers and students. Toledo (2007) echoes Prensky's claim that the teaching styles of most teachers do not align with the learning styles of their students. Prensky is not alone in proposing the notion that a new digital age has given birth to a new generation of learners he calls "digital natives" (Prensky, 2001a, p. 1). Tapscott (1997) terms the generation the "Net Generation" (p. 65). Stoerger (2009) refers to them using both Tapscott's "Net Generation" and the term "Millennials." According to Donovan et al. (2010), "Today's youth are the digital generation. They are comfortable with technology and use the Internet, computers, mobile technologies (e.g., phones, ipods) as an integral part of life" (p. 424). Digital natives are more tech savvy and adept with using digital tools because they were born into a digital world and have learned to use these tools early in their lives (Salajan, Schönwetter, & Cleghorn, 2010).

Conversely, Prensky (2001a) described those born prior to the advent of the digital age as "digital immigrants" (p. 2) and posits digital immigrants learned differently than digital natives learn today. Defining the key parameter of age for the "digital immigrant," researchers have applied the term to those individuals born prior to 1980 (Donovan et al., 2010; Stoerger, 2009).

Brooks-Young (2005) stated a digital immigrant is one who is "usually over the age of thirty, who was not born into the digital world" (p. 84). Ten years later, Al Bataineh and Anderson (2015) noted a similar age criteria finding "male and female teachers who were forty or older scored the same lowest mean of perceptions of competency" (p. 56) when describing their beliefs about themselves and using computer technology. Prensky (2001a) cited examples of the digital immigrant as being one who prints out emails and prints out typed documents to edit them on paper. Similarly, Toledo (2007) notes a digital immigrant is more likely to write down a web address to share with someone else rather than send the individual an email with the website's URL embedded in it.

The differences between today's students and their teachers can be illustrated in the fact that students today are ready to learn using high-tech digital tools while their teachers are struggling to learn how to use the digital tools that have replaced the traditional chalkboards of their youth (Bunch, Robinson, & Edwards, 2012). The findings of Al-Rawajfih et al. (2010) showed evidence that experienced teachers lag behind their younger teaching colleagues with regards to integrating e-learning. While there is no direct correlation between age and teaching experience, it is reasonable to presume in many cases that a teacher with more years of teaching experience is likely to be older than a teacher with less years of teaching experience. Similarly, it is less likely older teachers learned using computers and other digital tools than their younger teaching peers. This presupposition is supported by the research of Nikolopoulus and Gialamas (2015) who found that years of teaching experience and computer experience can be perceived as potential barriers to technology integration. Specifically, the authors report lack of computer experience can impact confidence which in turn can influence one's intention to use technology in the classroom. This situation is especially true when the teacher does not feel supported with

appropriate training opportunities and is not provided with the necessary digital resources for the integrating technology fully in the classroom. In their conclusion, Nikolopoulus and Gialamas (2015) argued for continued research that examines how to help teachers overcome barriers to effective integration and to investigate perceptions of technology barriers and how perceptions link with classroom practices.

Loucks-Horsley, Stiles, and Hewson (1996) advanced the idea that the key player in planning and implementing professional development should be teachers rather than someone else making them the target of it. Donovan and Green (2010) recommended professional developers focus on the needs of individual teacher concerns rather than on the make-up of the whole group. Contrary to these ideas, much technology related PD has been found to have its primary focus be on the design and features of the digital tools instead of being how learning can be supported with technology (Harris & Hofer, 2011). Nikolopoulus and Gialamas (2015) suggested professional development that offers digital immigrant learners time "to learn/practice/plan way to use computers (in the class)" (p. 291) it may help them build the computer experience needed to gain the confidence and competence needed to effectively integrate technology in the classroom.

Matherson et al. (2014) argued if teachers are to help their students acquire and be able to use the skills necessary to compete in the global, digital world, then "teachers must first possess the very same twenty-first century skills that they expect their students to exhibit" (p. 48). Yet, while Harris and Hofer (2011) reported teachers can see how integrating technology into instruction may have an enhancing effect on student learning, the reality is the differences between the way in which teachers know how to teach and students are accustomed to learning is growing (Toledo, 2007). Along with the rapid advancements in digital technology, these

developments present digital immigrant teachers with a constantly changing teaching environment abound with ever arising new challenges and pressures (Lim et al., 2013; Mueller et al., 2008).

Gorder (2008) noted the lack of true transformation in education is not about the availability of technology in the classroom but is "more about the teachers' effective use of technology" (p. 65). Lim et al. (2013) echoed Gorder noting that providing the technology is not the difference maker for successful technology integration but rather giving teachers and students the know-how to use digital tools will transform teaching and learning. Hu and Garimella (2014) postulated PD needs to focus on upgrading teachers' technological knowledge and on developing the digital skills needed to meet the challenges of teaching in an integrated classroom. Pan and Franklin (2011) reported "professional development is one of the most important factors influencing whether school teachers use and implement classroom technology" (p. 35) and find support in their own research that PD can have a vital role in teachers integrating digital technologies in their classrooms.

Summary

The introduction of technology in education has resulted in many advancements for teachers and students alike (Ansyari, 2013; Baran et al., 2011). With these advancements, there have been drawbacks that need to be fully addressed requiring "expert knowledge to design solutions that honor the complexities of the situations and contexts presented" (Mishra & Koehler, 2008, p. 2). Borrowing from Rittel and Webber (1973), Mishra and Koehler (2008) suggested it is reasonable to view teaching with digital technology as a "wicked problem." The research is abundantly clear integrating technology in the instructional practices teachers employ is not easy and requires more support for teachers than just offering cursory trainings

(McDonald, 2014; Mishra & Koehler, 2008). Differentiating tame problems from wicked problems, Rittel and Webber (1973) describe the element of information as crucial to being able to understand and solve the problem. In the case of a wicked problem, "the information needed to *understand* the problem depends upon one's idea for *solving* it" and "in order to *describe* a wicked problem in sufficient detail, one has to develop an exhaustive inventory of all conceivable *solutions* ahead of time" (p. 136).

While digital immigrant teachers have demonstrated knowledge and skill in many aspects of teaching and have digital tools within their classroom settings, the research points to teachers finding limited success with digital technology integration in their classrooms (Getenet, Beswick, & Callingham, 2016; Hammonds et al., 2013). This reality may be due in part to the fact that "teachers implement aspects of their professional learning in complex systems we know little about" (Saunders, 2014, p. 166). In addition to knowing little about how teachers attempt to implement their professional learning, Saunders advises further research is needed that examines the individual teacher and their personal experience with the change process. To help accomplish this research, Desimone (2009) recommends utilizing well-constructed interviews with teachers because they "can provide powerfully rich explanations, examples, and hypotheses" (p. 190) and may serve as a means for learning about digital immigrant teachers' prior experiences, their knowledge and skill sets, their concerns, and their needs.

The research literature on professional development points toward moving away from traditional methods of designing and delivering PD where participants are passive listeners and to non-traditional structures that are collaborative, active, and content focused (Hill, Beisiegel, & Jacob, 2013). Creating a framework for developing calibrated professional development that matches the existing knowledge and needs of teachers with the knowledge and skills teachers

need to effectively integrate digital technology in the classroom will likely result in successful technology integration (Covay Minor et al., 2016). This review of the literature intends to provide sufficient information on numerous aspects of the problem, as well as discussing conceivable solutions identified in existing literature. The aim of this examination and the subsequent research study may be able to better realize possibilities for digital immigrant teachers. As Borko, Whitcomb, and Liston (2009) note teachers are able to address their own learning to integrate technology through professional development. Providing suitable PD to address teachers' digital technology integration learning needs will likely make both the teacher and the digital technology more impactful in schools.

CHAPTER THREE: METHODS

Overview

The purpose of this research study was to discover and interpret the experiences of digital immigrant teachers and how they learn to integrate technology into their instructional practices through their participation in technology-focused in-service professional development. This chapter presents the rationale for choosing the specific phenomenological research approach to be employed for the study, identifies the participants for the study, and describes the setting for the study. This chapter explains the procedures employed within the study. The researcher's role will be described and defined in relation to the study. The three data collection methods of questionnaire, interviews, and focus group will be explained. Data analysis methods will be identified and their alignment to the research design will be described and defined. Finally, aspects of trustworthiness will be addressed as well as the procedures for ethical considerations delineated.

Design

The research design for this study was qualitative. Specifically, the study used the Interpretative Phenomenological Analysis (IPA) approach first put forth by Jonathan A. Smith in the mid-1990s (Smith, J., 1996). Based in the hermeneutic tradition of phenomenology (Creswell, 2017; Lakew & Lindblad-Gidlund, 2015; Larkin, Watts, & Clifton, 2006; Smith & Osborn, 2008), this qualitative design philosophically provided the study with the framework to extend beyond a simple description of the particular phenomenon and move toward making sense of the participants' lived experiences in the social, cultural, and theoretical contexts through the development of an interpretative analysis of the description (Callary, Rathwell, & Young, 2015). By employing this rigorous, dynamic research design the results provided "an in-

depth understanding of the particular phenomenon being investigated" (Callary et al., 2015, p. 73).

With its blend of phenomenology, hermeneutics, and an idiographic approach (Smith, Flowers, & Larkin, 2013), IPA has its roots in the works of Edmund Husserl and Martin Heidegger (Lakew & Lindblad-Gidlund, 2015). Husserl argued for a philosophical approach that "attended closely to human experience in its own terms, rather than according to a predetermined category system" (Smith & Shinebourne, 2012, p. 73). Larkin et al. (2006) noted that at the heart of IPA "lies a clearly declared *phenomenological* emphasis on the experiential claims and concerns of the persons taking part in the study" (p. 104). This emphasis is concerned with the individual's lived experience and how the person makes sense of that lived experience (Smith, J., 2004). Recognizing that making sense of the personal experience requires a hermeneutical tradition within the approach, IPA treats the work of Martin Heidegger essential (Smith, J., 2010). A major principle in Heidegger's idea of phenomenology is to look beyond the phenomenon and to explore of the lived experience (Flood, 2010). Lopez and Willis (2004) noted participants may not always clearly understand the meaning of their lived experiences in the moment but meaning "can be gleaned from the narratives produced by them" (p. 728). The hermeneutic aspect of IPA endeavors to accomplish this meaning-making through the utilization of interviewing and focus group data collection methods (Lakew & Lindblad-Gidlund, 2015; Palmer, Larkin, De Visser, & Fadden, 2010) intended to help participants reconstruct their lived experience in context (Eatough & Smith, 2006) and through the researcher's work applying an interpretative analysis method known as "double hermeneutic" (Smith, J., 2004, p. 40), a process in which the researcher is attempting to make sense of the participant's efforts to make sense of their lived experience.

J. Smith (2004) posits IPA "is part of a stable of closely connected approaches which share a commitment to the exploration of personal lived experiences" (p. 41). While within the family of phenomenology, which focuses on describing the commonality of all participants' experience with a phenomenon attempting to reduce the shared lived experiences "to a description of the universal essence" (Creswell, 2013, p. 76), IPA attempts to move beyond by adopting an idiographic feature that concerns itself with the individual and the particular experience lived. IPA considers the phenomenon on a case-by-case basis (Smith & Shinebourne, 2012) making it a different breed within the family of phenomenology. It is this idiographic component that makes the approach a best fit to achieve the primary goals of this research study.

Theoretically, the IPA design is committed idiographically to the whole of a person in the particular context as it takes into account the person's cognitive self, linguistic self, affective self, and physical self and "assumes a chain of connections between people's talk and their thinking and emotional state" (Smith & Osborn, 2008, p. 54). According to J. Smith (2004), the aim of IPA is "to explore in detail participants' personal lived experience and how participants make sense of that personal experience" (p. 40) and enables researchers to "employ techniques which are flexible enough to allow unanticipated topics and themes to emerge during analysis" (p. 43). This study sought "to understand what it is like to stand in the shoes" (Pietkiewicz & Smith, 2014, p. 8) of the digital immigrant teacher going through a process of change, namely the lived experience of learning to integrate technology into their instructional practices and understanding how the teacher makes sense of their experiences with in-service professional development that focuses on the teacher learning about technology integration. Larkin et al. (2006) argued this research design on a methodological level involves "highly intensive and detailed analysis of the accounts" (p. 103) of the participants by approaching the data with the

aims of understanding “what it is like” (p. 104) in their world and to think about “what it means” (p. 104) for the participants who are making claims and expressing their feelings and concerns in this particular phenomenon. As the aim of this research study was “to identify, describe and understand two related aspects of a respondent’s account: the key ‘objects of concern’ in the participant’s world, and the ‘experiential claims’ made by the participant’” (Larkin et al., 2006, p. 111). It was my intent to consider the “person-in-context (a particular person in a particular context) and that person’s relatedness to the ‘phenomena at hand’” (Larkin et al., 2006, p. 109). For this study, the person has been identified as the digital immigrant teacher and the context being the digital immigrant teacher’s experience with in-service professional development that had a stated intention of targeting technology and its integration into instructional practices. The theoretical and methodological principles of IPA made it a “best fit” research design for this study.

Research Questions

The following research questions directed this interpretative phenomenological analysis investigation:

Research Question 1

How do digital immigrant teachers describe their own experiences with digital technology integration?

Research Question 2

How do digital immigrant teachers describe their experiences with in-service professional development focused on digital technology integration?

Research Question 3

How do digital immigrant teachers perceive in-service professional development focused on digital technology integration could be structured to address their particular lived world?

Setting

The setting of the study was in central North Carolina near a large metropolitan city. Piedmont Public Schools, a pseudonym for the public-school system selected for the research study, consisted of more than 50 elementary, middle, and high schools divided into clusters with several elementary schools feeding into a single middle school and high school. Specifically, the clusters selected for this study had the schools located in affluent communities and each had high concentrations of digital immigrant teachers teaching in their elementary schools. This situation provided the study with a sufficient number of potential participants.

The public-school system where the study was conducted had a team of instructional coaches. These professionals provided instructional coaching, including technology-related professional development and support. Instructional coaches were either assigned to one school or shared between two schools. For the purpose of this study, there were multiple instructional coaches among the schools selected for the study.

Participants

Ary, Jacobs, Razavieh, and Sorensen (2006) noted phenomenological studies typically have 10 to 25 participants who all have experienced the phenomenon being investigated. Smith and Osborn (2008) reported phenomenological studies using the approach of IPA tend to be conducted with a small sample size including published IPA studies have had sample sizes of "one, four, nine, fifteen, and more" (p.56) with their recommendation for first time student users of IPA being three participants. In addition, Smith and Osborn cautioned against eliciting a sample size that is too large because the researcher might "become overwhelmed by the vast

amount of data generated by a qualitative study and are not able to produce a sufficiently penetrating analysis" (p. 57). However, the sample size chosen for this study was within the range of 10 to 15 digital immigrant teachers who were teachers within the same public-school system. A purposive sampling method had been chosen because the purpose of the research required only participants who had experienced the context being investigated. The utilization of a homogeneous purposive sampling was appropriate based on the study's need for participants to be born prior to 1980 and had been educated prior to the advent of digital technology and its integration in the school setting (VanScoy & Evenstad, 2015). Participants who were selected were not to have participated in extensive pre-service or in-service trainings in digital technology integration, such as a college course or multiple day professional development training which had a primary focus on educational technologies. Other demographic considerations, such as race, gender, total years of teaching, or highest level of education, were not factors included in the purposive selection criterion. While a sample size of 10 to 15 participants was greater than Smith and Osborn's recommendation, the range was within an appropriate range for interpretative phenomenological analysis studies (Pietkiewicz & Smith, 2014). All participants were full-time general education teachers from five of the school system's elementary schools. The particular elementary schools were centrally located sharing similar demographic features. In addition, the schools' locations relative to each other made it more practical for the participants to participate as it related to when the focus groups met.

Procedures

Procedures for this proposed study followed the Interpretative Phenomenological Analysis approach designed and introduced by Jonathan A. Smith in 1996. Before commencing the study, I secured Institutional Review Board (IRB) approval from the university (see

Appendix A). Following IRB approval, I finalized approvals with Piedmont Public Schools, the school system in which the study was conducted. As an employee of the school system, precedence was that employees may conduct formal research if the proposed study complied with board policy and procedures align with administrative guidelines. Gaining formal approvals included submitting letters to the school system (see Appendix B) and the schools (see Appendix C). Approval from the school system proceeded submitting requests to the individual schools. During this timeframe, I engaged in writing out details of my own experience with the phenomenon to capture my own conceptions, assumptions, and biases. Upon the finalizing approval of the school system and IRB, the eliciting of participants at the school settings commenced.

Purposive selection was used to gain both a homogeneous sample and because it offered the study "a particular perspective on the phenomena" (Smith & Shinebourne, 2012, p. 75). A list of potential participants was elicited from the pre-selected elementary school or schools using demographic information, specifically the criterion that participants must have been born prior to January 1, 1980. At this point, all potential participants received email communication containing the participant invitation letter (see Appendix D), which defined the proposed study, outlined the role of study participants, and the procedures participants would follow. As participation was voluntary, potential participants were asked to indicate their interest in a response email. Further narrowing of the sample and final identification of participants was made, and formal invitations were communicated through email communication, which included an attachment of Appendix E, the consent form. Identities of participants remained confidential and the use of pseudonyms was employed throughout the study.

Questionnaires were hand-delivered to each participant allowing me to formally introduce myself and to schedule interview sessions with each participant. Interviews were conducted at locations of the participants' choosing. Questionnaires were collected from participants at the time of interviews. Interviews were conducted using semi-structured interviews and recorded in digital format for later transcription. Verbatim transcription of each interview followed. At the conclusion of the interviews, two focus groups made of the participants met at one of the schools of the participants worked at and used a set of open-ended questions to guide the dialogue. The focus group dialogues were recorded in audio and video formats and then transcribed. All digital materials collected during the data collection phase were secured by the researcher electronically on a password-protected USB flash drive. All paper materials were secured in a combination security box. These digital and print files will be secured for three years before digital files are deleted by reformatting the drive and print files are shredded and burned.

Data analysis followed the suggested guidelines set by IPA (Smith & Osborn, 2008; Smith & Shinebourne, 2012; Pietkiewicz & Smith, 2014). To begin analysis, multiple close readings of transcripts from the interviews and focus group sessions were conducted and annotated notes were taken. In the idiographic tradition, each transcript received the full treatment of multiple reads and annotated note taking before moving onto the next transcript (VanScoy & Evenstad, 2015). Following the annotated readings, I worked to transform notes into emerging themes (Pietkiewicz & Smith, 2014). The next stage of data analysis was to reduce "the data by establishing connections between the preliminary themes and clustering them appropriately" (Eatough & Smith, 2006). A final list of superordinate themes and subthemes were made and then the process moved to writing up the narrative account.

The Researcher's Role

At the time the research study was conducted, I taught regular education students in the fifth grade within the school system in which the study was conducted and where participants were elicited. I knew some of the potential participants on a professional level but had not work directly with any participants as fellow teachers on the same grade level nor did I share any students with them. While I had held the title of Elementary Instructional Technology Mentor Teacher because of my past participation in and completion of a year-long in-service professional development, I had no specific professional responsibilities related to this title within my school or the school system. Participants from other elementary schools may have been professional acquaintances but no participant was considered a friend. Employing purposive selection of participants allowed me, the researcher, to intentionally exclude individuals with whom I had shared professional teaching responsibilities and personal relationships.

To address any potential biases and known assumptions, I took into account my need to minimize bias in the processes I used for selecting themes for analysis (Smith, Jarman, & Osborn, 1999). Yet, at the same time, the research approach of IPA recognized the researcher's role as an interactive, interpretative one. Ary et al., (2006) noted researchers in phenomenological studies "typically explore their own experiences related to the topic of interest prior to conducting interviews in order to examine their own biases and assumptions" (p. 462). Brocki and Wearden (2006) posited the use of reflexivity in the process of analysis "might increase transparency and even enhance the account's rhetorical power" (p. 101). Assuming my role in the co-constitution of meaning by acknowledging my own preconceptions and beliefs, I may have been better suited to consider the intersubjective dynamics between myself as one with

my own experiences and the data represented in the phenomenon I studied (Biggerstaff & Thompson, 2008; Brocki & Wearden, 2006; Finlay, 2014; Shaw, 2010). To practice reflexivity, I maintained a reflective journal recording my thoughts, feelings, and the activities I engaged in throughout the process (Lambert, Jomeen, & McSherry, 2010).

Smith and Osborn (2008) stated, "It is also important to remember that qualitative analysis is inevitably a personal process, and the analysis itself is the interpretative work which the investigator does at each of the stages" (p. 67). My role as the researcher of this study was multi-faceted. Utilizing the research approach of IPA extended the functions I served in executing the various phases of the study. Among all these roles was my role as an investigator as much like an interrogator who asks intentional questions that probe deeply and provides the appropriate promptings in the quest of gaining the whole of the participants' experiences. My role as an interpreter required me to be engaged with the participants as I tried to make sense of the participants and their quests "to make sense of what is happening to them" (Smith & Shinebourne, 2012). In the role of analyst, I worked to develop the themes that helped in making meaning of their lived experiences (Pietkiewicz & Smith, 2014).

Data Collection

As the Interpretative Phenomenological Analysis approach is a qualitative research design with idiographic, hermeneutic, and phenomenological theoretical touchstones, data collection should "invite the participants to offer rich, detailed, first-person accounts of experiences and phenomena" (Smith & Shinebourne, 2012, p. 73-74). The approach assumes the "person and world are not separate but instead are co-constituting and mutually disclosing" (Palmer et al., 2010, p. 99). Bruner (1991) refers to the narrative as one's way of expressing their experience with the natural world. The writing up of an IPA approached study requires the

researcher to capture the participants' experiences and to construct the findings in such a way that the narrative can be analyzed for the themes that emerge from the participants' sharing and for learning "about the life world of the particular participants who have told their stories" (Smith, 2004, p. 42). The tools for data collection must be able to glean the rich details in each participant's narrative and be flexible instruments suitable for each participant's lived experiences (Smith & Osborn, 2008). To accomplish these goals, data was collected using a questionnaire, semi-structured interviews, and focus group sessions.

Questionnaires

Creswell (2017) conveys the idea that a researcher can consider the use of questionnaires as another form of interview simply done on paper or electronically. Harris and Brown (2010) observe in research methods literature the combined use of questionnaires and interviews because the two have differing strengths and weaknesses as well as complementary attributes. While it is standard practice in-depth interviews are seen a better tool to elicit rich description, questionnaires can act as suitable icebreaker allowing the participant the opportunity to become comfortable discussing personal experiences and issues (Adamson, Gooberman-Hill, Woolhead, & Donovan, 2004). Based on this finding, the questionnaire was completed prior to the interviews. The decision to use open-ended questions was to trigger rich stories and elicit detailed thoughts and beliefs to draw out their narratives (Adamson et al., 2004).

The questionnaires were delivered to participants by hand. This arrangement gave me and each participant the opportunity to meet and begin developing rapport in advance of the interview and focus group sessions. The questionnaire was designed as a paper version to give participants the time to respond with thoroughness and to minimize potential concerns related to an online format, the protocols, and its submission. Participants were given approximately one

week to complete the questionnaire and were asked to return it to the researcher prior to the interview portion. Returning the questionnaire could be done by the participant hand delivering it or by placing it in a sealed envelope and sending it through the district's interoffice mail system. The questionnaire asked for responses to prompts and questions in an open-ended format allowing participants to convey their experiences, ideas, concerns, and perceptions (Biggerstaff & Thompson, 2008).

Open-Ended Questions for Questionnaire

1. Describe how you view the role technology has in teaching and learning processes.
2. What do you think about the amount of digital technology people in general have available to them today? Why might you think the way you do?
3. What is your opinion on digital technology in the classroom?
4. How would you describe your current level of digital literacy?
5. What do you believe about your capacity to learn new digital technologies and how to integrate them into what you do as a teacher?
6. How does it make you feel knowing a portion of your teacher evaluation rating system rates you on how you integrate technology in your instructional practices?
7. What factors would encourage you to want to learn more about a digital tool and how to integrate it into your teaching practices?
8. What factors might discourage you from wanting to learn more about a digital tool and how to integrate it into your teaching practices?
9. Tell about a time when you felt supported in a professional development training session when you were learning something new related to a digital tool or integrating a digital tool in your classroom.

10. Tell about a time when you felt a lack of support in a professional development training session when you were learning something new related to a digital tool or integrating a digital tool in your classroom.
11. What do you believe are quality attributes found in effective in-service trainings that focus on digital technology integration?
12. What recommendations do you have that would positively impact your ability to successfully apply what has been presented in an in-service training that focuses on digital technology integration in the classroom?

The questions in this part of data collection were intended to gather information in three areas. The first six questions of the questionnaire attempted to gather insight into how participants view digital technology's relatedness to them personally and professionally. Questions 1 and 3 sought related information. Question 1 asked the participants to describe their views on the role they see digital technology has in the processes of teaching and learning. Question 3 sought their opinion on the place digital technology has in the classroom. Question 2 sought the participants' personal thoughts on the amount of digital technology available to people today and for their thoughts on why they might think the way they do. Questions 4 and 5 was intended to gain insight into the participants' view of their current levels of digital literacy and their perceptions on their capacity to learn and grow their digital knowledge and skills. Question 6 asked participants for their feelings on being rated professionally on their integration of technology in the classroom.

Questions 7 through 10 explored possible factors and experiences the participants might view as encouraging or discouraging learning more about digital technology integration. Questions 7 and 8 asked participants to share factors they perceive encourage them to learn or

discourage them from learning more about a digital tool and how to integrate it in the classroom. Question 9 asked participants to share an experience where they felt supported at in-service trainings. Conversely, Question 10 was intended to solicit times when participants felt a lack of support at in-service trainings.

The final two questions sought perceived ideas of the participants related to quality technology-focused professional development. Question 11 asked participants to share attributes they perceive would be found in effective trainings. Question 12 solicited recommendations they have that they believe would positively impact their ability to apply what is being presented at these trainings.

Interviews

Van Manen (1990) notes the interview process is one intended to help gain a deep understanding of the participant's experiences. Pietkiewicz and Smith (2014) report semi-structured, one-to-one interviews are the most common data collection method utilized in IPA studies because it allows the researcher and the participant to engage in real-time dialogue. The semi-structured interview also allowed for greater flexibility when original and unexpected issues arose by allowing me to seek more details with further questioning than a standard interview format would allow (Pietkiewicz & Smith, 2014). J. Smith (2004) posits this format of interviewing will allow open-ended questions positioning me in a "largely noninterventionist stance" (p. 49) and placing the participants in the position of the experiential experts leading the conversation (Smith & Shinebourne, 2012). Follow-up probes were posed when appropriate. Smith and Osborn (2008) note the approach of using probes may be somewhat unorthodox to some other methodologies, but even with properly constructed questions that encourage the participant to speak in-depth about the topic, sometimes it is an appropriate technique for the

researcher to prompt, or nudge, the participant in such a way that the individual may be able to share more about their experience.

Interviews were held at a location agreed upon by both researcher and participant. All interviews were face-to-face meetings with an audio-recording of the entire interview having been made for verbatim transcription following the interview session (Smith & Shinebourne, 2012). Procedurally, an interview schedule was developed beforehand so I was forced to intentionally and explicitly think about what the interview should cover and about how the wording and placement of questions and probes might best facilitate the participant's ability to communicate their own sense of lived time (Smith & Osborn, 2008; Bruner, 2004). Moustakas (1994) notes phenomenological interviewing methods should afford the participants opportunity to feel the storytelling of their experiences and reflections on those experiences makes them co-researchers. To aid in the achievement of this sense, as the interviewer, it was my intent to conduct each interview in such a manner that gave the participant a sense that I was attentively listening to their responses, sought to create a sense of conversation, and endeavored to build a sense of rapport and trust (Pietkiewicz & Smith, 2014; Smith & Shinebourne, 2012). While listening to the rich, detailed account each participant shared orally, I also made a record of notes from the interview that included my awareness "of all verbal, non-verbal, and non-behavioral communication" (Pietkiewicz & Smith, 2014, p. 10).

Semi-Structured Open-Ended Interview Questions

1. Describe your experiences with digital technology when you were a student. Please reflect on your experiences in elementary, middle, and high school, college, and any post-graduate studies.
2. Describe how these experiences have contributed to your teaching beliefs and practices.

3. Define technology integration in your own teaching.
4. Describe how students in your classroom use digital technology.
5. Describe any successes you may have experienced using digital technology in your classroom.
6. Describe any challenges you may have faced trying to use digital technology in your classroom.
7. Describe your experiences as a teacher being a participant in professional development trainings focused on digital technology integration.
8. Tell how you think these professional development trainings have impacted you and your teaching practices.
9. When you think back on your experiences attending in-service trainings that focused on digital technology integration, what thoughts come to mind?
10. What changes, if any, have you may have made in your teaching beliefs and practices as a result of participating in these in-service trainings?
11. How, if at all, might your feelings about digital technology integration have changed throughout your experiences as a participant in these in-service trainings?
12. Describe specific strategies or activities you would consider essential for an effective presenter or trainer to use. Why do you think these are essential?
13. How, if at all, would your response possibly change if the in-service training focused on digital technology integration?
14. Describe specific activities you believe participants would engage in during an effective in-service training.

15. How, if at all, would your response possibly change if the in-service training focused on digital technology integration?
16. What recommendations would you want to share with a presenter or trainer that you believe would have a positive impact on your learning about digital technology integration and how to be effective integrating technology in your classroom?

The questions could be covering three areas of the participant's experience with digital technology integration. Questions 1 through 6 aimed to gain broad understanding of the participant in context. The purpose of the first two questions was to have participants share their experiences with digital technology during their own time as a student and how they perceive those experiences contributed to their own beliefs and practices as a teacher. Questions 3 through 6 were designed to gather more specific information on how the participant defines digital technology integration for themselves as the teacher and for their students.

The second set of questions included Questions 7 through 11. These questions aimed to address the participant's experience being in in-service training related to digital technology integration. Questions 7 and 8 sought information from the participants on how they have experienced these in-service trainings and how they perceive the trainings have influenced their idea of themselves as a teacher and have impacted their teaching practices. Question 9 intended to collect thoughts from the participants on how they define these in-service trainings holistically and relate those thoughts to themselves. Questions 10 through 11 were intended to gather more specific information from the participants about the changes they may have made both in their beliefs and practices as well as in their feelings toward these trainings.

The final set of questions sought insight into the participant's perceptions of well-constructed, effective professional development related to digital technology integration and

their specific situations as digital immigrant teachers. Questions 12 and 13 were intended to gain awareness of the participants' perceived ideas of what effective in-service trainers do and if those ideas are consistent when the training is focused on digital technology integration. Questions 14 and 15 were similar to the two previous questions but focus on the participants' perceptions of how participants would be engaged in these trainings. Question 16 sought to gain very specific ideas from participants of what they believe training presenters should know about them as learners and how that knowledge might positively impact their ability to learn how to integrate digital technology into their teaching practices.

Focus Groups

According to Palmer et al. (2010), the use of focus groups in IPA research "can be attractive" (p. 100) for several reasons. Palmer et al. (2010) suggest there are situations when engaging participants in group dialogue may produce more experiential perspective and reflection than can be generated in one-to-one interviews. This opinion is credible if participants feel comfortable sharing in a group setting and are discussing a relatable experience amongst their peers (Roose & John, 2003). Flowers, Knussen, and Duncan (2001) report their use of focus group discussions produced a "synergistic effect" (p. 669) because the participants shared commonalities in their experiences thus "adding than detracting from the analysis" (p. 669).

Following the completion of questionnaires and all interviews, participants were divided into two separate focus groups. The intent was to balance out the number of participants as practicably as possible given the participants' personal and professional responsibilities and obligations. Each group participated in one session. Each focus group session was conducted at one of the school buildings within the school system. The setting within the school building was private to promote honest expressions of the participants' experiences, concerns, and

perceptions. The focus groups sessions were audio and video recorded to ensure the transcript included participants' responses and ensured accuracy related to the identification of each speaker. I facilitated the discussion through the presentation of discussion questions and probes, when appropriate. Additionally, I made a written record of observable non-verbal and non-behavioral communications (Pietkiewicz & Smith, 2014).

Open-Ended Questions for Focus Group Sessions

1. Think back over all your years as a student and as a teacher, please tell us about a moment or event that made you think that digital technology was going to be a part of teaching and learning going forward.
2. How would you describe your feelings toward required technology focused professional development? Tell why you think you might feel that way.
3. What do you perceive you observe in other teachers at a digital technology integration training that you do not think they could observe in watching you? What makes you think this way?
4. What thoughts, feelings, or ideas come to mind when you think about the presenter at in-service trainings focused on digital technology integration?
5. What do you feel is an essential piece of information about yourself as a learner than you would want an in-service presenter to know about you right from the start of a technology integration focused training?
6. If you were invited to give your input on the design of an in-service training focused on digital technology integration, what would be some ideas you would want to contribute? How do you think they would help teachers?

7. How do you feel your digital literacy knowledge and skills will possibly change during your “ideal” in-service training?
8. Of all the things we have talked about today, what is most important to you?

The questions for the focus group sessions intended to collect information from the participants on two specific areas of focus. The first area of focus was the participants’ experiences and their thoughts on those experiences. Question 1 sought to have participants report moments in their lives they considered to be triggers that digital technology was going to become a part of teaching and learning. As each participant is their own unique individual and the setting is a group one, the responses should yield differences, similarities, and possibly interactions among the participants. Questions 2-4 focused on the participants’ experiences at the in-service trainings. Question 2 sought information on the participants’ feelings toward the experiences and the idea of these experiences being required. Question 3 was intended to obtain perceptions from the participants about themselves and the other participants attending the training sessions. Question 4 looked for participants to share their thoughts and feelings about the presenters of these trainings. Together, these three questions were looking for descriptions and interpretations by the participants on the social aspect of attending these in-service trainings.

The second area of focus in the focus group sessions was to gather information on their perceptions of themselves as a learner in this context. Question 5 sought the participants’ ideas of what they felt presenters needed to know about them as learners. Question 6 invited participants to share what they perceived would likely make in-service trainings more beneficial to them. Question 7 served as a follow-up and asked them how they felt presenting these things to presenters would possibly bring about changes in their digital literacy knowledge and skills. The final question served to gain further understand of what participants perceived to be most

important in their thoughts about themselves and in-service trainings focused on digital technology integration.

Data Analysis

According to Pietkiewicz and Smith (2014), the process of analyzing the data collected can be inspiring, complex, and time-consuming when using the IPA framework. Immersion in the data is their recommendation. The researcher tried "to step into the participants' shoes as far as possible" (p. 11). The primary means for this stepping into the participants' shoes as far as possible involved "engaging in an interpretative relationship with the transcript[s]" (Smith & Osborn, 2008, p. 66). Understanding the guidelines of the IPA approach as a flexible, non-perspective methodology that may be adapted by the researcher based on the objectives of the particular research study, this section provided the data analysis methods, procedures, and rationales (Pietkiewicz & Smith, 2014; Smith & Osborn, 2008).

The aim of the data analysis was to transform the thick, rich descriptions of the lived experiences of digital immigrant teachers into the universal essence of "being-involved-with the things of our world" (Van Manen, 2007, p. 13). By capturing, analyzing, and interpreting the descriptive narratives of digital immigrant teachers through the immersive nature of IPA, this research study attempted to bring understanding to the questions: 1) What does it mean to be a digital immigrant teacher attempting to integrate digital technologies? and 2) What does technology-focused, in-service PD mean to digital immigrant teachers? Kruger-Ross (2015) postulates that education "can benefit profoundly from extensive analysis via phenomenological ontology" (p. 4). Through the immersive IPA approach, this research study sought to capture the thick, rich descriptive experiences from the participants and to derive meaning for what and how

it is being in the world of digital immigrant teachers attempting to make sense concurrently of how to be both learners and practitioners of digital learning in today's education system.

In the idiographic tradition of phenomenology, all data analysis involved thorough examination of one participant's transcripts before moving on to another participant's (Smith & Osborn, 2008). Abiding by this principle throughout each phase of data collection and data analysis was imperative because each digital immigrant teacher had their own unique experiences and ideas worthy of a holistic analysis (Smith, J., 2007). Additionally, in the hermeneutical tradition of phenomenology, all data analysis involved not only a telling of the participant's perspective but also involved making meaning (Lakew & Lindblad-Gidlund, 2015). By moving through the description of the experience and into the interpretation of those experiences, the researcher sought to arrive at a point of offering participants a research-based idea "of what it *means* for the participant to have such concerns, within their particular context" (Larkin et al., 2006, p. 113).

As stated previously, the guidelines for data analysis in IPA studies are flexible but the process has three distinct stages to carefully work through for each participant's set of transcripts (Smith & Shinebourne, 2012). Using open-ended questions in questionnaires changes the nature of the questionnaire from a strictly quantitative tool into a qualitative tool able to be viewed as a written interview (Snow & Thomas, 1994). Given this perspective, all three data collection instruments were analyzed in a similar manner. After completing all three stages of analysis on all of the transcripts of the participants, a final phase was completed in which a table of themes was made that "respects both theoretical convergence but also, within that, individual idiosyncrasy in how that that [sic] convergence is manifest" (Smith & Osborn, 2008, p. 75).

The initial stage involved a data immersion process achieved through multiple close readings of the transcript and listening to the audio from the interview and focus group session. For each focus group session, which were also video-recorded, this researcher watched the video with an intentional focus on the participant transcript being analyzed. Reading the transcript and listening to the audio-recording repeatedly aided in accomplishing the aim of getting into the participant's shoes and resulted in gaining new insights with each read (Smith & Osborn, 2008; Smith & Shinebourne, 2012). In addition to engaging in the multiple reads, the researcher made notes of observations, reflections, and comments on the left margin of the transcript with each reread. A specific focus of this action was to record notes on the content of what the participant shared; the participant's use of language, such as metaphors, the repeating of word and phrases, and prolonged pauses; the context; and any initial interpretative comments (Pietkiewicz & Smith, 2014; Smith & Shinebourne, 2012). Noting patterns and conflicts in what the participant communicated was another focus during making notes in the left margin (Cornelius, 2014). A third focus was to make note of any expressions of emotion by the participant observed during the interview or in listening to the audio-recording (Pietkiewicz & Smith, 2014; Smith & Shinebourne, 2012). This researcher viewed the video-recorded focus group sessions looking for visual expressions of emotion by the participant, as well as any distinctive non-verbal communications made by the participant. Any instances were recorded in the left margin corresponding with the point in the discussion the non-verbal communication was observed.

The second phase of data analysis began with another close reading of the transcript but extended to include a thorough reading of all my notes on the left margin. Remaining grounded in the participant's account required this researcher continue to listen to their voice in the body of text. The researcher began to work more intently within the notes to transform them into titles

for emerging themes (Smith & Osborn, 2008; Smith & Shinebourne, 2012). The emergent themes were expressed in concise phrases that referred to psychological concepts and represented what had been captured as the essential qualities of what the participant had communicated (Smith & Osborn, 2008). This objective was accomplished through a process J. Smith (2007) expressed as a hermeneutic circle of part and whole which created a dynamic quality to the interpretative action being undertaken at this point in the analysis. Describing the work of the researcher in this stage as one of "constantly digging deeper with one's [sic] interpretation" (p. 5), the researcher was influenced by the whole transcript while interpreting what had been communicated by the participant at a given part in the transcript (Pietkiewicz & Smith, 2014). As a result of this non-linear style of analysis, it was important to note that during this stage this researcher generated interpretation of parts of the transcript based on the whole transcript and interpretations of the whole transcript in relation to parts of the transcript (Pietkiewicz & Smith, 2014; Smith, J., 2007; Smith & Shinebourne, 2012).

The third stage sought relationships among the emerging themes followed by grouping themes together based on their similarities on a conceptual level (Pietkiewicz & Smith, 2014). Clusters were then giving descriptive labels that related to and made sense with the original transcripts (Smith & Shinebourne, 2012). Smith and Osborn (2008) posit the researcher will need to assume an analytical stance during this stage as the aim is to make sense of the connections between themes and in clustering themes together. Smith and Osborn note that at this point within this stage there is the potential for some emergent themes to be dropped because they may not fit well with the other emergent themes or because of a lack of rich evidence within the transcript. Continuing in an analytical mindset, the final act in this phase was the production an ordered, coherent table of the themes (Smith & Osborn, 2008). The table listed superordinate

themes with related themes listed under the superordinate theme. Alongside each subtheme on the table, two additional columns were made with the first having identifiers of instances and the second column having short, relevant extracts from the transcripts of those instances (Pietkiewicz & Smith, 2014). This recording on the table of the instances and the extracts helped with the organization of the analysis and made it easier to locate the instances (Smith & Osborn, 2008). The identifier provided the page number and line on the page the instance is recorded.

As mentioned previously, IPA takes an idiographic approach to researching the phenomenon. This understanding required that the researcher conduct this analysis process one participant at a time. Thus, this process was repeated for each participant until all participants had been given a thorough treatment. Smith and Shinebourne (2012) state that it is inevitable that the analysis of each case will become a part of other cases. Smith and Osborn (2008) indicate the need to be disciplined and to respect the similarities and differences from participant to participant. When this process has been completed, Smith and Shinebourne (2012) advise each participants' table be reviewed and checked against their respective transcripts. At this point, the formulating a master table will commence. Smith and Osborn (2008) point out that each participant in the study will be represented in each superordinate theme, though they may not be represented in all the subthemes. As with each individual table, identifiers and short, relevant extracts from the transcripts will be included. For the master table, the extracts and identifiers will be listed together under their respective subthemes. When all of these steps of analysis have been satisfied, a narrative account of the study was written which involved taking each theme found in the master table one at a time and writing the account using verbatim extracts from the participants to illustrate the theme along with the researcher's interpretations

(Smith & Shinebourne, 2012). Pietkiewicz and Smith (2014) describe the narrative account as including "both the participant's account of his or her experience in his or her own words, and interpretative commentary of the researcher" (p. 13).

Before concluding the discussion on how data analysis was conducted in this study, it is important to discuss the treatment of the focus group transcripts in relation to the idiographic tradition IPA adhered to. As previously discussed in the data collection section of this chapter, focus groups as a method presented its own set of benefits and challenges. J. Smith (2004) provides advice on how a researcher can proceed with analysis. His guidance is "to 'parse' transcripts at least twice, one for group patterns and dynamics and subsequently, for idiographic accounts" (p. 50). Flowers, Duncan, and Knussen (2003) suggest data from focus group discussions should be analyzed alongside data from interviews with an aim of identifying recurrent themes and that delineations should be made between responses given in interviews from those given in focus group discussions. This last recommendation takes into account IPA's robust idiographic feature. To address concerns of trustworthiness, Brocki and Wearden (2006) stress the importance of providing a detailed copy of focus group discussion guide in the appendices. Taking J. Smith's guidance as sound, the focus group transcripts were analyzed using the procedures presented above twice. The first analysis conducted looked for group patterns and dynamics. The second analysis followed the suggestion of Flowers et al. (2003) and was conducted alongside the individual participant's interview transcript.

Trustworthiness

Addressing trustworthiness gives credence and support to the significance of the study (Lincoln & Guba, 1985). Cope (2014) states, "The importance of this knowledge will be recognized and supported through the completion of qualitative research that uses strategies to

enhance credibility" (p. 90). To accomplish this goal and to best represent the lived experiences of my participants, I applied rigorous strategies used in qualitative research. Each strategy met one or more of the standards of credibility, dependability, transferability, and confirmability, which has brought trustworthiness to the study and to which the phenomenon and the participants deserved.

Credibility

Ary et al. (2006) note validity is relative dependent on the study's purpose and circumstances. Credibility will enhance and the findings by describing the participants' experiences and ensuring the descriptions are accurate (Cope, 2014). Loh (2013) acknowledges the participants' purposes are not the same as those of the researcher's so it is important and ethically responsible to utilize the strategy of member checking. Allowing participants to look at the information they furnished to the study and my interpretations of it served in establishing this aspect of trustworthiness. Morrow (2005) reminds researchers the purpose of member check is not only to give a copy of what the participants have communicated but that the researcher has a "responsibility to learn from the interviewee how well the researcher's interpretations reflect the interviewee's meanings" (p. 254). Polkinghorne (2005) notes that this work of sharing the transcripts and interpretations should help manage issues surrounding the infiltration of the researcher's assumptions into the write up and give the accounts authenticity thus bringing the research the sense of transparent honesty and integrity.

Regarding openness and sensitivity to the accounts of the participants, it is important to guard against reducing their account and replacing it with my own (Finlay, 2006). Achieving this goal was accomplished using reflexivity, a strategy "considered to be one of the core bastions of rigor in qualitative research" (Ibrahim & Edgley, 2015, p. 1671). This perspective on

the power of reflexivity is supported by Bonner (2001) who called on researchers to include it as a "part of a rigorous social analysis" (p. 273). Romm (2013) refers to this activity as a means to make the researcher "transparent to themselves and to others" (p. 657). Finlay (2009) notes that researchers in phenomenology need "to 'bracket' their previous understandings, past knowledge, and assumptions about the phenomenon so as to focus on the phenomenon in its appearing" (p. 12) but that this continual process of critical evaluation is being done so the researcher can "understand somethings of the fusion of 'horizons' to use Gadamer's term, between subject and object, researcher and participant" (Finlay, 2014, p. 131). Chan, Fung, and Chien (2013) describe reflexivity to identify possible bias through the writing down of "our thoughts, feelings, and perceptions" (p. 3).

Larkin et al. (2011) postulates that it is important to note the bracketing cannot be misconstrued to eradicate the researcher's preconceptions but by using reflexivity the researcher is able to examine these preconceptions. Being mindful of one's own position and perspective, the researcher assumed a stance that "involves being empathic and genuinely curious" (Finlay, 2014, p. 123). Larkin et al. (2006) posit that if the researcher wishes to gain valuable answers then the researcher must exercise their own reflexivity to make the best choices on the approach to take as well as the questions to ask "of particular subject-matters, in particular circumstances" (p. 107). Ibrahim and Edgley (2015) support the use of reflexivity by the researcher in experiential qualitative research because of its potential to help the researcher formulate their "own understanding of their expectations and assumptions of the research, their relationship with the phenomena being examined, and the participants in the research" (p. 1672). In my effort to accomplish these ideals and to give credibility to the research, this researcher maintained a

reflexive journal throughout the research process (Finlay, 2006; Finlay, 2009; Biggerstaff and Thompson, 2008; Chan et al., 2013).

Beyond establishing credibility of interpretive adequacy and of controlling bias with the use of reflexivity, this researcher added credibility by showing evidence of structural corroboration (Ary et al., 2006). Denzin (2009) posits no single method will offer enough direct data to give full credence to a study's findings so it is necessary for every investigator to use multiple methods for data collection and analysis. Creswell and Miller (2000) describe triangulation's purpose as "a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study" (p. 126). Triangulation of methods enabled me "to gain an articulate, comprehensive view of the phenomenon" (Cope, 2014, p. 90). Similarly, the triangulation of data ensured depth and led to data saturation (Fusch & Ness, 2015). Viewing triangulation as multidimensional, the data to be collected should also be multidimensional (Maggs-Rapport, 2000). Creating instruments that can provide corroboration of data across methods and within methods gave the study's data and methods used the multidimensional effect Maggs-Rapport speaks of. By examining multiple sources of data, triangulation produced a more complete picture of the phenomena, which enhanced the study's findings and helped achieve the validity that rigorous research studies have (Casey & Murphy, 2009; Pringle, Drummond, McLafferty, & Hendry, 2011).

Dependability and Confirmability

Demonstrating consistency across the methods and showing consistent findings helped establish dependability. Triangulation was the procedure used by this researcher for establishing dependability. Elo et al. (2014) refer to dependability as "the stability of data over time and under different conditions" (p. 2). Corroboration of the data collected across multiple methods

and sources satisfied this aspect of trustworthiness. In addition to the use of triangulation, the utilization of audit trail provided the documentation for establishing dependability (Creswell & Miller, 2000; Ary et al., 2006). Onwuegbuzie, Leech, and Collins (2010) recommend a researcher provide ontological evidence "by keeping audit trails of the participants' insights into their own lives" (p. 708). This component was achieved through the idiographic approach of recording and analyzing each participant's data at each phase of data collection separate from the accounts of other participants. As an element of the larger audit trail, independent audit trails for each participant were maintained documenting their individual constructions of the phenomenon and the researcher's observations on their record of thoughts, feelings, and experiences.

Establishing confirmability required the data collected and the findings concluded to represent the phenomenon experienced by the participants rather than the researcher's own presuppositions and conformed with what others might conclude given the same data (Morrow, 2005). The processes employed by this researcher throughout the research process needed to be clearly delineated and thoroughly explained to establish confirmability (Rodman, Fox, & Doran, 2015). The combination of thick, rich description, member checks, and audit trail worked together to accomplish this important standard of trustworthiness.

The use of thick, rich description supported the goal of achieving rigor. Elo et al. (2014) suggest the researcher provide confirmation with "examples of quotations from as many participants as possible" (p. 7) so the connection between the data and the findings can be clearly seen. Likewise, Cope (2014) recommends the researcher use direct quotes from the participants and an audit trail to ensure there is accuracy between what the participants shared, and the interpretations made by the researcher. Creswell and Miller (2000) state the goal is to create for the readers "the feeling that they have experienced, or could experience, the events being

described" (p. 129). Realizing this goal mandated readers be provided with a vivid, detailed description of the participants' lived experiences.

Lincoln and Guba (1985) advanced member checking to be "the most crucial technique for establishing credibility" (p. 314). The application of member checks provided the findings a layer of protection against the researcher taking too much leeway in the interpretations made from what the participants meant to communicate (Polkinghorne, 2005). By returning data and its interpretations to the participants, each members of the study were afforded the opportunity to verify an accurate account had been collected and the interpretations represented the meanings and perspectives of each person's experiences. Beyond providing credibility, member checks also provided a layer of confirmability as the researcher had to ensure participants had the opportunity to provide feedback of whether or not the researcher had described and interpreted their experiences objectively and with neutrality (Ary et al., 2006).

Cope (2014) advocates the use of an audit trail as a means for "describing how conclusions and interpretations were established" (p. 89). The audit trail is a comprehension accounting of every activity during the data collection and analysis phases including every change the researcher makes and the rationale for making changes (White, Oelke, & Frieson, 2012). Creswell and Miller (2000) define the purpose of documentation with an audit trail as a means for determining the trustworthiness of the findings through the examination of "both the process and the product of the inquiry" (p. 128). This documentation activity was especially important following IRB approval. The audit trail for this study included all raw data gathered from participants, records of decisions and actions made by this researcher in files related to analysis of the raw data, and the findings of the study (Ary et al., 2006). The documentation was

maintained in a systemic, organized format that could be retrieved, reviewed, and added to at any time.

Transferability

Ary et al., (2006) define transferability as "the degree to which the findings of a qualitative study can be applied or generalized to other context or to other groups" (p. 507). The lived experiences of the participants in this research study were unique to everyone. Each participant gave meanings to their experiences, so it was not reasonable to assume their experiences and their meanings would be able to be entirely generalized and applied to the whole population of digital immigrant teachers (Lipscomb, 2012). While the goal was not to have generalizability, it was crucial to establish transferability as an aspect of trustworthiness. To aid in establishing transferability, the researcher provided "sufficient information on the informants and the research content to enable the reader to assess the findings' capability of being 'fit' or transferable" (Cope, 2014, p. 89), elucidated "all the research processes, from data collection, context of the study" (Anney, 2014, p. 278), and presented detailed, thick descriptive data of the phenomenon (Petty, Thomson, & Stew, 2012).

Fusch and Ness (2015) advance, "Rich and thick data descriptions obtained through relevant data collection methods can go a long ways towards assisting with this process when coupled with an appropriate research study design that has the best opportunity to answer the research question" (p. 1413). J. Smith (2004) suggests there is value of being very detailed in the description because we are in a better position "to think about how we and other people might deal with the particular situation being explored" (p. 43). The use of an exhaustive number of direct quotes from participants that were "both in-depth and contextually based" (Morrow, 2005, p. 260) was an approach taken by the researcher to give a thick, rich description of the

phenomenon. This approach also allows the reader to make comparison of this context to other possible contexts. The researcher chose to expound on all aspects of the research design and procedures used to help "other researchers to replicate the study with similar conditions in other settings" (Anney, 2014, p. 278).

Ethical Considerations

A primary issue regarding ethical considerations is the protection of the participants' anonymity. Pseudonyms were selected for each participant based on their gender and were English names. The names were selected following the participant's election to participate but prior to the commencement of the interviews. The choice of English names was solely based on the fact that participants all taught in American public schools where English was the primary language spoken by teachers in their instructional responsibilities. Respecting each participant's individuality, this researcher used the participant's original given or preferred name for all communications between the researcher and the participants and during the interviews and focus group sessions. Participants used their original name when referring to themselves. The responsibility was solely the researcher's to omit the participant's original name and substitute the assigned pseudonym on all documents to be included in the dissertation manuscript and on all transcriptions where the participant's original name was used.

Participants' anonymity was also preserved by password protecting all digital files and storing these files on a password protected flash drive. One specific digital file was made, and password protected containing the participants' original names and their pseudonyms. No physical hard copy of the digital file was made. Physical hard copies of all documentation from the study were secured in a combination security box. Knowledge of the combination code was limited to this researcher. Electronic communication was done using the researcher's university-

issued email account which is password protected. Emails were sent from and to this account. Emails were sent to only the participant's work email account.

As an employee of the school system in which the study was conducted and a teacher at one of the particular school settings, this researcher addressed possible ethical concerns by disallowing any teachers the researcher has taught with directly from being a participant in the study. This choice was made to reduce the risk of appearing to have any influence on the participant. As this researcher has had no supervisory role of teachers within the school or school system itself, no teacher has been under the researcher's supervision thus eliminating that from potentially being an issue of ethical concern.

Ethical considerations were also taken to ensure the confidentiality of the participants, the schools, and the school system (Moustakas, 1994). Prior to the commencement of the study, the school system, the individual schools, and each participant were made aware in writing of the procedures and risks inherit in the study. A copy of the consent form was provided to the participants for their records (Moustakas, 1994). Data was carefully reported with the confidentiality of the participants, their respective schools, and the school system in mind so that no cause for harm or negative impact could be affected on the participants, their schools, or the school system.

Summary

Qualitative research studies in the phenomenological tradition seek to discover the lived experiences of its participants (van Manen, 2007). The selection of Interpretative Phenomenological Analysis as the research approach in conjunction with the data collection methods employed gave participants the opportunity to communicate their experiences, beliefs, and ideas in thick, rich detail. As the researcher, my roles included capturing their narrative,

their thoughts, their feelings, and their perceptions and interpreting their voices through the stories they told and the ideas they communicated. All participants were from Piedmont Public Schools located in the southeastern United States. They fit the criteria of in-service elementary school teachers born prior to 1980 and had not participated in extensive pre-service or in-service trainings in digital technology integration. Data was collected using three established research tools. The questionnaire was the first form of data collection. With its open-ended questions, participants had opportunity to provide details on their lived experiences. One-on-one semi-structured interviews followed. This collection tool allowed each participant and the researcher to engage in real-time dialogue. The final data collection piece was the focus group. To encourage dialogue, the participants were divided into two smaller groups where they engaged in dialogue with fellow participants sharing their experiences, thoughts, and ideas. Interviews and focus groups were audio-recorded and transcribed verbatim. Data was analyzed using established IPA guidelines that included multiple readings and making notes of transcripts, coding to identify emerging themes, looking for relationships among themes to cluster, and creating a listing of superordinate themes and subthemes. The use of reflexive journal, member checks, audit trail, thick, rich description, and triangulation increased the trustworthiness of the data that was collected, analyzed, interpreted, and reported. Ethical considerations included making participation completely voluntary as outlined in the consent form, protecting the anonymity of the participants and school district through the use of pseudonyms, and by securing all documentation – hard copy and electronic.

CHAPTER FOUR: FINDINGS

Overview

This Interpretative Phenomenological Analysis (IPA) study described the experiences of digital immigrant teachers who have been charged with teaching digital native students by integrating digital technologies into their instructional practices. The research sought to uncover a deeper understanding by exploring these teachers' educational experiences using digital technologies and their participation in technology-focused in-service professional development. This chapter presents the participants, the results, discussion of the results, and a summary.

Participants

A selection of 11 full-time, public school elementary education teachers participated in this study. Potential participants were initially contacted via their work email address. The initial contact included an introductory message about the study. The study's consent form was included as an attachment file. Twelve individuals consented to join the research study. One of the twelve withdrew consent shortly after agreeing and did not participate in any data collection activities. The eleven participants who continued did complete all their parts in entirety.

The participants in the study have varied professional backgrounds and experiences. Each possessed differing characteristics concerning their ages, the number of years in education, and the grade levels taught. All eleven participants self-identified as being white and female. The eleven teachers taught between five different neighboring elementary schools within the same southeastern public-school system. Pseudonyms were employed to ensure the confidentiality of the participants.

Table 4.1
Participant Background Information

Participant	Grade Levels Taught	Current Grade Level	Years of Experience
Abigail	Grades 2, 3, and 4	Grade 2	25
Amelia	Grades 2, 3, 4, and 5	Grade 3	22
Ava	Grades 3, 4, and 5; Reading Recovery and Interventionist	Grade 1	19
Emily	Kindergarten and Grades 1 and 5	Grade 5	20
Emma	Kindergarten and Grades 1 and 2	Grade 2	21
Isabella	Grade 1	Grade 1	1
Lily	Grades 3, 4, 5, and 6	Grade 4	16
Madison	Preschool and Grades 1 and 2	Grade 2	8
Mia	Preschool and Grades 1, 2, and 3	Grade 2	15
Olivia	Grades 1 and 2	Grade 1	5
Sophia	Multi-age and Grades 1, 2, and 3	Grade 3	29

Abigail

As a 25-year veteran educator, Abigail had taught in two states with experience teaching students at the second, third, and fourth grade levels. All of Abigail's professional experience had been in the teaching profession.

As a student in elementary school, Abigail's lone memories of technology in her learning consisted of watching films on film strip. During middle and high school, she recalled learning

typing skills. She conveyed a sense her high school teachers may have used other technologies to show something, but it was not until her undergraduate education that Abigail recalled having some experience with computer programming. During her post-graduate studies, she remembered "creating something on the computer, but still it's nothing like what my students do today."

Abigail conveyed the belief she "can't imagine life without technology in it." Abigail indicated in one of the questionnaire responses her belief that digital technology in the classroom is a very good thing and that it can be an important asset to her teaching. While she referred to herself as old-fashioned wanting to read aloud to her students, she also recognized that her mindset needs to be one of open-mindedness and empowerment. Abigail indicated she believes she has the capacity to learn about and how to integrate new digital tools into her instructional practices. She recognized that same capacity also exists in her students and appreciated how their comfort level enables them to quickly learn to use new digital tools in their learning. As a teacher, the tremendous amount of digital technology and its availability has afforded Abigail easy access to content that was not easy to access before making the teaching and learning processes more efficient. She stated technology has the potential to help students become more active learners. Abigail suggested an effective, responsible use of digital technology may be useful in preparing students for their learning future.

Amelia

Amelia had 22 years of elementary school teaching experience between two states. After seven years teaching, Amelia spent 11 years as a stay at home mother. For seven of those years, she also ran an at-home daycare and provided tutoring services. Amelia returned to teaching upon a family move. She had taught in three different schools in the same school system for the

past 15 years. Her teaching experience included teaching students at the second, third, fourth, and fifth grade levels.

Amelia's own formative years as a student in the classroom did not include any use of technology beyond her teachers presenting things on an overhead transparency and herself typing on a typewriter. During college, her use of technology was limited to typing papers on a typewriter.

For Amelia, her early years as a teacher included experiences with a crank machine. She described the machine as one that required the teacher first use a typewriter to "type it out, and God forbid, you spelled something wrong, or write it out" all by hand. The teacher then had to make a master on the crank machine followed by standing at the machine hand-cranking out a set of papers for the class. She started purchasing master books instead of typing or handwriting out the materials. She still had to use the crank machine to hand-crank the papers for her students. As time progressed, Amelia's school was able to acquire a copy machine that would make a class set of papers without getting "the ink all over your hands and all over your outfit."

As a teacher in the 1990s, Amelia recalled students sitting behind big computer screens playing the game "Oregon Trail." She reported thinking this was cool and that it was something she could do. She tried to fit it into a social studies unit. Her school had a computer lab, though it did not have a class set as it contained eight to twelve computers. This setup, according to Amelia's recollection, made her question what to do with the rest of the kids in the class while others were playing the game. While she recalled her thoughts about the computer game as it "was fun," the game's enjoyment factor did not amount to the level that she saw herself needing to purchase a computer and the computer game.

Amelia recalled a time in 2001, when her husband at the time wanted to purchase a computer for her to use in the kitchen. The reasoning he gave her for purchasing the computer and placing it in the kitchen was so she could find recipes on it. Amelia remembered arguing against getting the computer because she could get recipes from a book because she wanted to be able to "look through a book." She did not begin to really see the need for a computer until she returned to teaching in 2004. Even then, she was still using an overhead projector in her classroom. Amelia acknowledged that "technology has been slow for me."

Ava

Ava had 19 years in education having taught at each primary grade, as well as having experience as a reading recovery teacher and as a reading interventionist for students in grades 3 through 5. She had worked at four different schools in three school systems. All of Ava's professional experience had been in the education field.

Ava reported having no memory of digital technologies in her elementary school years. Matter of fact, her first recollections were in her high school years when there were working computers in the school library for students to use to research things. During Ava's college years, she remembered herself being the first one on her hall to have a computer and a dot printer. While she had a computer and printer at college, her college library still had everything in a card catalog and students were looking up things on microfilm. She did recall taking a class in college about technology but there was no computing as "computers were not a part of it at all." Instead, education students were learning how to run a film projector and how to operate the overhead projector.

Ava stated she sees technology as a tool for enhancing the learning process but not something that should ever replace good teaching. When used in moderation, she argued it can

afford people the opportunity "to experience things that might otherwise be impossible," but Ava's deposition is that "because that's what I remember, our teachers talking to me, teachers helping me," her tendency has been to gravitate more towards that than today's use of digital technology to find information. She continued "because I didn't grow up with the technology, with the way that it is now, I was much more of [sic] the interaction between the teacher and the students."

Emily

Emily was a 20-year teaching veteran having taught at the kindergarten level for thirteen years, first grade for five years, and fifth grade for two years. She has worked at the same school for her entire teaching career. Prior to teaching, Emily worked as a lifeguard, in the retail industry, as a secretary, and in a daycare.

Emily reported her father was a chemist and that his profession resulted in him always having access to the latest technologies. As for Emily's own elementary school experience, she could not recall having any access to technology in the classroom. She recounted taking typing classes during middle and high school and may have taken a Microsoft Windows class in high school. During her undergraduate studies, Emily recalled carrying around a laptop computer and that "it was immersed in everything I did." This immersion included typing and "a lot of Windows experience." Similarly, when Emily was working in her post-graduate program, she typed all her papers, including research papers. Emily described her experiences as having given her "quite a bit of experience using technology" as the student.

When Emily started teaching, she was teaching kindergarten students, which she did for 13 years before moving up to teach first grade students for the next five years. During these years teaching younger children, she really did not have a need for a lot of technology in the

classroom. Making the transition to fifth grade a couple years ago did require Emily to need more and more of it. She recalled how she really needed to immerse herself in technology and to make its use more applicable to the students she was now teaching. At the same time, she conveyed the importance of being a good role model for her students showing them that there is a need for balancing computer time with face-to-face time.

Emma

Emma had 21 years teaching. Most of her teaching experience had been in kindergarten. In addition to teaching kindergarten, Emma had experience teaching first and second grade students. Before becoming a teacher, Emma worked in a nursing home as a social worker.

Emma was unable to recall any digital technologies when she was in school herself. The extent of any technology use in school was taking typing class in middle school. She recalled herself not doing very well in the class because she did not have good hand-eye coordination. As a result, she was slow and remains a slow typist today. Her lack of a positive experience with typing still troubles her today, especially when she is in a group of her teaching peers being asked to type things on the computer. Emma reported it "freaks me out because there everyone is so much faster than I am." The discomfort Emma experiences with her teaching peers is not something Emma experiences with her students as a primary grade teacher. Emma expressed the belief that her students are already hearing from their parents the idea that they "don't know how to do this," so the young children Emma works with don't mind coming and showing her how to do things on the computer. Emma reported her perception is that younger students would not be quite as judgmental as some adults have been.

Emma stated technology is "very important in the teaching and learning process." Because of its importance, she has indicated a willingness to learn and that she does get excited

when she has learned something new. For Emma, though, she acknowledged she still has "many fears that cause me to be stand-offish." This dichotomy presented itself during one school year when she was supported by an instructional technology facilitator who came into her classroom to guide her and her students through using Google Classroom versus a more recent experience in which the presenter went "just so fast and furious."

Isabella

Isabella had taught for one year. Prior to going into the teaching profession, Isabella had been a stay at home mother.

Isabella's first recollection with digital technology in school was fifth or sixth grade. The computer game was "Oregon Trail" on the green screen. She stated she may have done some math on the computer, but it was not very much. During eighth or ninth grade, she recalled doing some sort of "programming stuff" but could not recount exactly what she did. It was not until college that she really started using computers for her schoolwork when she was asked to type papers. When she went back to school a few years ago to get her teaching credentials, Isabella completed her studies through an online program but reported much of the work involved passive computer usage, such as logging in to access emails, viewing the course syllabus, getting class assignments, and submitting papers. According to Isabella, there "still wasn't a lot" of technology use even completing her education program online.

As for Isabella's capacity to learn new digital technologies and to integrate them into her teaching practices, she stated with time she could learn about the new digital tools. As there are "so many tools available to help instruction, evaluation, to help with monitoring progress," her desire is to learn ways to integrate them in the classroom. What Isabella acknowledged as "a bit daunting" is the time required to explain and teach children how to use these tools appropriately.

At the same time, she recognized that interactive, student-directed programs where kids can move at their own pace are very desirable for her as a teacher.

Lily

Lily was a 16-year veteran teacher with experience teaching in two states. All of Lily's professional experience has been as a classroom teacher having taught third through sixth grade students.

Digital technology was non-existent in Lily's elementary school experiences, and the introduction to technology in the classroom was typing lessons in middle school, specifically with a focus on speed typing. It was not until high school that Lily recalled doing anything with computers when she learned how to create basic computer coding. In college, Lily recollected getting email with dial-up internet and later using Microsoft Word when she was in her master's degree program. Lily expressed the belief that the lack of digital technologies throughout most of her own formative school experiences forced her to struggle through things in school. She lamented the struggle is missing for today's children because digital tools have made things "a lot easier" and sometimes "too easy" for children. As a result, students have become so dependent on the technology that they still cannot spell in the fourth grade and that their writing is atrocious. For Lily, teaching has basically come into a new world of technology. Teachers, like the immigrants had to, must learn things all over again because the difference between teaching in today's classrooms is night and day from when Lily first begun.

Madison

Madison had eight years of classroom teaching experience. She had experience teaching in two states. She taught in a preschool exceptional children's classroom. She had taught first

and second grade students. Before teaching, Madison worked in the banking and insurance industry for 14 years. While also teaching, she worked in the hospitality business.

Madison's elementary and middle school experiences did not include digital technology in the classroom. The closest thing to digital technology use in the classroom was the teacher putting a video tape into the video cassette recorder (VCR) and playing the video on the television. She did not recall any experiences from her high school years. Besides some videos, Madison's recollections were of teachers still using chalkboards and giving lectures as their means of delivering instruction. The college she attended for her undergraduate program may have had a computer lab for student use, but Madison did not use it. Content was still primarily textbook based. For her post-graduate master's program, content was all presented online. All the instruction, assignments, and resources were online. Madison reported "there was nothing paper-wise, which was very difficult for me." She did have one class that was more of an introductory type of course on technology use in education. It had one assignment in which students had to use technology to make a presentation to a group of people. Madison stated she used Microsoft PowerPoint to deliver her presentation and that she presented to her grade level team.

Madison described herself to be at the novice level with regards to her digital literacy knowledge and skills, but she felt "it can be a bit frustrating as we have minimal PD offered." She acknowledged digital technology has a time and place in the classroom, especially when teachers and students do not have textbooks to use. She opined technology's role can be a vital resource or tool for teachers that can be used "as an addition to our curriculum." At the same time, Madison disclosed feeling "there is too much, especially for the younger generations"

because technology “takes problem solving out of the equation.” She did recognize technology has grown, she has grown with it, but “not as much as I’d like.”

Mia

Mia was a second-grade teacher with 15 years of teaching experience. She had taught three years at the second-grade level along with four years teaching third grade, six years teaching first grade, and two years as a preschool teacher. Besides the preschool experience, all of Mia’s teaching experience has been in the same school system at the same school. Mia originally worked in the trade magazine industry along with another 12 years in the retail industry.

The first recollection of computers in school for Mia was during the third grade. Going to school in a wealthier school district, she recounted her classroom had an Apply IIe with floppy disks on which students were “doing something” that she believed may have been coding with shapes and things. She stated fourth and fifth grade were similar. Her middle school experience did include a computer class that was likely six-weeks long and involved students learning to type. During her sophomore year in high school, Mia started working for the school newspaper, “so I was definitely on the computers more.” Besides access to school computers, Mia’s family had a home computer she was able to use. When she went to college, she noted she had a computer in her dorm room and believed she was probably one of the few to have that level of personal computer access. Mia’s opinion of herself was that she had “probably always been fairly nerdish with the computers.” Her journalism program of study as an undergraduate student afforded Mia experience using computers educationally and that usage translated into the workplace. When she transitioned into the classroom as a teacher, she felt “some of that kind of

fell off a cliff" because she believed the school setting tends to isolate educators "from the latest and greatest advances available."

Olivia

Olivia had five years of teaching experience having taught kindergarten and first grade. She had experience teaching at two schools within the same school system. Prior to going into teaching, Olivia worked as an at-risk youth case manager for a non-profit state organization in another state.

For Olivia, technology use came at a very young age during her elementary school years. It consisted of books on tape students could listen to. She noted the teacher would put it on for you and "there was no free reign of using something." Middle school was recalled as a time when not one single piece of technology was being used. Her high school years included the use of a typewriter followed by her getting her first word processor when she went to community college. Olivia conveyed "that would have really been that first jump for me" and that it "was kind of a neat tool to have." She took a word processing class and felt it helped her a lot. Additionally, during her college years, she took a calculus course which allowed her the use of a Texas Instrument calculator.

With regards to the role of technology in the classroom, Olivia described technology as an important supplement in the learning process but felt it should not be the only tool teachers use to teach. She has been able to see benefits for technology in the classroom, including the idea of student buy-in, but has also experienced when it is not working and felt she and the students "have done just fine." Olivia conveyed her current level of digital literacy is fair but only has had experience with Promethean Boards in terms of interactive digital tools. She noted

several times that her students are smart with technology and that they know more than she knows about computers.

Sophia

Sophia was a 29-year teaching veteran with experience in two states. She had taught in two different school systems over the past 27 years in the state she currently resides in. Her teaching experience included 2 years as a third-grade teacher, one year as a multi-age teacher, 8 years as a second-grade teacher, and the rest of her years of teaching as a first-grade teacher. Teaching is the only profession in which Sophia has worked.

During elementary school, Sophia's school utilized film projectors and books on cassette tapes to present content. That was the extent of what she recalled for technology use in school. At some point during Sophia's middle school-high school years, her family purchased a Commodore VIC-20 for home use. During college, there was one computer lab on campus for student use. It was housed in the architecture building, and she recalled using the computer to type her papers.

Sophia acknowledged there "is a push for technology especially when districts no longer purchase textbooks" and there "is an expectation to use technology," but she viewed herself as "novice, at best" who believes it is "important to be able to hold a book and turn the pages." She communicated the belief that she is working on increasing classroom use of digital technology but does not like the idea of using "technology in the classroom just to say we use technology." For Sophia, one of the challenges she has faced as a primary grade teacher is student access to digital devices in the classroom. She noted having five working iPads for her entire class to use. Additionally, students logging into the devices has been problematic and access is very limited

without paid subscriptions. Sophia confided she has "a somewhat negative attitude towards technology because there's just roadblocks and challenges and it's not easy."

Results

Research data was collected from 11 participants who contributed data sought through the completion a 12-item questionnaire, as well as their participation in a semi-structured face-to-face interview and in one of the two focus group session interviews. Each collection instrument employed open-ended questions or prompts that allowed participants to freely share their experiences, perceptions, beliefs, and feelings. Results to be presented below were identified through a form of interpretative analysis consistent with the Interpretative Phenomenological Analysis (IPA) framework. Pietkiewicz and Smith (2014) recommended the researcher "totally immerse themselves in the data or, in other words, try to step into the participants' shoes as far of possible" (p. 11). To accomplish this immersion, the procedures outlined in the previous chapter were employed. As prescribed, transcriptions were made of each participants' questionnaire, interview, and focus group interview session. Multiple close readings of each transcription were conducted, and annotated notes were generated during this phase. Notes were transformed into a table of emerging themes, which were then developed into a list of superordinate themes and their respective subordinate themes.

Theme Development

When analyzing data presented in a qualitative study utilizing an interpretative phenomenological approach, theme development is an important phase in constructing meaning of the shared lived experiences of the study's participants. To assure the trustworthiness of the finding, including all superordinate and subordinate themes, it is imperative that rigorous

qualitative research strategies be applied. Through the thorough application of these strategies, credence and support can be given to the significance of the research study and its findings.

Following data collection, a comprehensive process was employed to produce an analysis of the data worthy of the participants and their lived experiences. Transcripts from the questionnaire, the interviews, and focus group interviews were made. Transcripts were read multiple times. Interview recordings were listened to, and focus group session recordings were viewed. Key words, phrases, and ideas shared by each participant in their responses were noted. Researcher notes were made alongside the participant's words. This exhaustive process was repeated participant by participant and resulted in the identification codes and development of themes. A list of the superordinate themes and related codes was made and can be found in Appendix F.

Participants provided significant statements about how digital immigrant teachers have experienced and perceived learning in a non-digital age and being expected to teach effectively in the digital age, as well as their attitudes, beliefs, and feelings related to the phenomenon. Capturing verbatim what participants shared in writing and orally enhanced the findings as their own words were used, thus giving greater credibility to the findings. The use of member checks ensured their descriptions were accurate. As much emphasis was given to exactly what participants had to say, all of their statements were afforded equal treatment in the formation of a list of emerging themes, which are shown in Table 4.2. A final list of superordinate themes and subthemes, found in Table 4.3, was made for describing the lived experiences of digital immigrant teachers going to school when they did and teaching in the classrooms of today's digital age.

Trustworthiness was addressed throughout the analysis process. Triangulation was used to establish dependability with the data. The data to be analyzed needed to remain stable throughout the data collection phase, as well as under different conditions it was being collected, so no one instrument was given preference over any other. To address transferability, a detailed description of each participant was provided. This description included both their professional experiences as well as key aspects of their formative learning experiences. The extensive use of direct quotes was added to give the reader ample information pertaining to each participant by which a reader could thoroughly assess the participants and the study's findings. Each participant's experiences, thoughts, feelings, and ideas were given equal weight, whether shared in a questionnaire response, during the interview, or in their focus group session. Each response was considered holistically within the greater transcript rather than in isolation to the particular question or prompt. The volume of questions and prompts embedded in each instrument offered plentiful avenues for participants to share the whole of their experiences and provided the means to develop a thick, rich description of the phenomenon. Ensuring this intent was met supported the researcher's goals of achieving rigor and of establishing confirmability.

Multiple readings, notations of transcripts, and sessions of writing resulted in the creation of a set of codes. As much emphasis was given to what participants had to say, all of their statements were afforded equal treatment. This approach and analysis work by the researcher led to the formation of a list of emerging themes, which are shown in Table 4.2. A hierarchy was established with a superordinate theme was identified for each research question. Respective sets of subordinate themes were also produced. A final list of superordinate themes and subthemes can be found in Table 4.3. These primary themes and subthemes gave definition to the lived experiences of the digital immigrant teachers going to school when they did and teaching in the

classrooms of today's digital age. Along with their lived experiences as students and now teachers, these themes also help conceptualize what they perceived would enhance their digital technology integration related in-service professional learning opportunities.

Table 4.2
Emerging Themes

access and availability	need to see it in action
be open-minded	opportunities
challenges	partnerships
come to me	PD formats
differentiation	practice is necessary
digital technology is…	preparing for the future
feeling lack of support	positive, when used appropriately
feelings of support	push to use
follow-up	research to support claims
frustrations	resources
help	social interactions
how will this work in my classroom	student-centered topics
instant information	student excitement
learning process	support
life without it	teacher's place
limited access	teacher-student interactions
looking to stay relevant	trainers need to know
lesson plans	time
natural part of kids' lives	want to see supporting evidence
need time to practice	undesirable behaviors/skills
need to learn more first	unnatural part of teacher lives

The following themes were synthesized through an interpretative data analysis process using the participants' transcripts to construct understanding and meaning of their shared lived experiences. The themes have been categorized with superordinate themes listed first followed by each of their subordinate themes.

Table 4.3
Superordinate Themes and Subordinate Themes

Digital Technology Integration Is a Two-Sided Coin	Inconsistency	Learner-focused Differentiation with Specific Components
Not a natural part of teacher's lives	Calibration	Support
A natural part of student's lives	Relatedness	Opportunities
Push to use plus giving all access to digital tools	Features of PD	Resources
Push to use with limited access to digital tools for all		Time
Digital technology has a place in teaching and learning		
Teachers' place in a digital classroom		
Hindrance to character development and social skills		

The superordinate themes, as well as its corresponding subordinate themes, are discussed as they relate to each research question.

Digital technology integration is a two-sided coin. With regards to the first research question, the superordinate theme that developed indicates that digital technology integration has been viewed by the participants as a two-sided coin. As teaching and learning represent the two sides of the education, participants shared how their own formative experiences as learners were essentially devoid of digital technologies in the classroom. These teachers appear to view the formative education they received as having helped prepare them for their chosen profession. Now, as teachers, their classrooms contain a host of digital tools, along with "an expectation to use technology," according to Sophia. The promise has been put forth that digital tools will help

improve teaching and learning, yet several participants commented specifically that the presence of digital technologies have resulted in some negative effects making teachers cautious to fully integrate. Olivia commented "that we have too much technology available to us." Madison remarked, "I honestly feel that there is too much, especially for the younger generations. Technology takes the problem solving out of the equation because more often than not the answer is right at your fingertips." Instead of using it as a resource, Mia feared "that we are using technology as a crutch."

On the flipside, Abigail called technology "an important asset that allow me to easily access a wealth of knowledge that can be taught to children." Teachers indicated digital technologies possess the capacity to enhance teaching and student learning when used "as an addition to our curriculum," according to Madison. Ava and Abigail both felt it can enhance the learning process for children. Besides helping students, Emily believed teachers were benefitting from the technology available to them because their planning and preparation were made easier "because it is at the click of a button."

While digital technology was reportedly available in their schools, not all teachers had the same level of access to working digital devices, which Sophia voiced presents "immense challenges…, yet, we're evaluated on getting them [sic] technology." Mia wrote in one of her questionnaire responses, "Often what we have is outdated or there are not enough computers, etc., for a reasonable student-to-device ratio." She believed the lack of access to updated devices, as well as not having enough to have a reasonable ratio, results in wasted "valuable instructional time."

In addition to availability issues, not all teachers felt prepared to utilize what they had available. As a matter of fact, Sophia shared the feeling that there is "a push for technology" to

be utilized but cited “a lack of training” as an additional hindrance. Amelia felt she has been able to see what is available and has been amazed by it, but she does not “always feel comfortable with the use of it.” Isabella expressed similar sentiments to Amelia’s but felt teachers and students need “to be careful of accessing it too much.” The idea of “being careful of accessing it too much” would be contrary to the push teachers reported feeling. Lily thought “it can be overwhelming,” which appeared to make some participants, including Olivia, to feel they need to be the ones who “regulate the use of it.”

***Inconsistency*.** When asked to describe in their own words their digital technology integration-focused in-service professional development experiences, participants did not present a unifying characteristic beyond that of inconsistency. Analysis of the data showed a wide array of formats in which in-service PD was provided. Participants referenced examples of state-level, district-level, school-level, and out-sourced PD in which they have been a part of. Some offerings were provided through an online platform, but most offerings were of the live, in-person variety. While these varying formats were consistent with standard in-service PD practices for American public schools, the inconsistencies related more to what participants perceived they gained from these in-service professional learning opportunities and with what Desimone postulated to be essential features within an effective PD model.

When asked to describe their experiences as a teacher as a participant at technology-focused PD, Emma disclosed, “I usually try to avoid the technology if I can.” Amelia revealed a personal side of herself, voicing,

> I put up a wall for things, and I know I do for anything, doesn’t have to be technology, for something that I don’t feel I’m going to be able to use or I’m not going to get everything I need out of it to be able to feel comfortable enough to

> use it. So, I know that happens, that's just me as a person. So, when I'm at a PD and they begin with something and they start going too fast for me, I'm not going to stop the whole group because I know my place amongst my team. I know that this is going to be a struggle for me, so I hold on to it. So, I hold on to it enough that then I then shut down on it.

What Amelia communicated next would be her desired approach. She wished for would be "that person that came in and helped you get your kids on it." She expressed, "I'm sure I could go from there."

Participants shared a common appeal that their in-service PD should relate directly with the teacher's specific classroom context. Ava shared during her interview,

> So, some of them I find beneficial because they relate to what I'm doing in the classroom. Some of them are talking about things that are wonderful but are not appropriate for my students. Some of the instructors, often, their knowledge is much more advanced than mine. So, it can be frustrating because they're five steps ahead, and I'm just trying to catch up to what they're doing. So, it's been positive and negative.

During the focus group session Ava participated in, she expressed having issue with being required to attend technology-focused PD when it "supports nothing" she is doing in her class or when "it's not applicable to what I could do in my classroom" because she does not have that technology in her classroom.

Olivia felt some teachers at technology-focused in-service trainings are tuning out because they believe "they're not going to be supported on those things." For Emma, she acknowledged her perception of herself being "when it comes to computers, I think I'm a

moron…and I feel that way most of the time." If teachers are attending these types of in-service trainings with these kinds of ideas, it would not be reasonable to assume it will end well. This assumption is supported by Mueller et al. (2008) who stated, "The teacher must believe that he or she is capable of implementing technology successfully in order to act on those beliefs" (p. 1526). Conversely, if digital immigrant teachers knew upfront that someone would be coming into their classrooms to support them and their students through the learning process, then these trainings might yield more positive outlooks and outcomes (Hammonds et al., 2013).

Amelia's idea of in-class coaching was shared by other participants, including Lily. She reported having a technology specialist at a previous school in the district who she "was constantly grabbing" because he was available for teachers during their instructional day. Lily related how she would ask him, "Can you show me how to teach this?" and he "would come in and teach the kids for five minutes how to use the program, as well as me." She found it "was fantastic" because at other trainings she attended teachers "were taught so fast." Abigail believed "anytime something is introduced…we're introduced to all these great ideas, and they're telling us to do things" that teachers have "somebody in the school to come back through and see how you're doing with that." She stated it should be the standard, and it "needs to be the same for everyone." Teachers understand their classroom context and see there is room for digital technology integration, but they reported the message of "do things" is not backed up with the in-class support they feel they need.

Learner-focused differentiation with specific components. The superordinate theme that developed around understanding of how participants believe they learn best, what participants feel would better address their own unique needs and situations, and how participants imagine their learning might transform their teaching and students' learning was one

that drew focus on the specific needs of learners. A distinguishing feature that digital immigrant teachers perceived as essential was an emphasis on a learner-focused differentiation model. Within that model very specific components would be embedded across in-service trainings and follow-up.

A common theme that ran through the questionnaire responses, as well as the conversations during the interviews and focus group sessions was participants' desire for differentiate in-service PD. That was not to say the takeaway was specific treatment or consideration. They were asking for certain components be apparent in their in-service professional learning opportunities, so they knew their learning was central to the aims of the PD. Olivia wanted "a little packet of information to be right here that I'm going to follow" and that the presenter provides the trainees with "modeling, doing it as we're [sic] and then having us do it." Isabella asked for the presenter to give her "a few minutes to look thought it…before they move on" because she felt that "always helps me." Madison voiced a desire for more hands-on time. She found it frustrating when "they just blew through everything with us" because that really bothers her. If presenters were acting more as facilitators, then Madison felt she and other participants would be "doing the work rather than sitting back and listening."

Lily called for differentiation to include ability grouping where teachers who "really struggle with computer use" could have things slowed down and have someone to "be able to work with them one-on-one." Abigail felt they needed to be treated "as an adult learner" because "adult learners also need that time to kind of learn something, process it, maybe have a little practice time." She argued if we never would do that to children, then presenters should not do that to adult learners, even if they are teachers.

Learner-focused differentiation with specific components was a major theme touched on by participants. They believe they are capable of learning and being able to apply that learning in their classrooms as long as they are provided with support at trainings and back in their classrooms, with opportunities to be active learners, with resources that fit their learning styles and needs, and with time to learn, to process, and to grow comfortable in their use and in teaching their students to use digital technologies effectively. Without these components, digital immigrant teachers, like Madison, felt they would continue to only be able to do "the bare basics." Emily shared, "Technology is such an up-and-coming thing that's going to continue to go on." Mia summed the group's general sentiment stating,

> I guess I want to know if I'm using technology that actually is helping my kids, or am I just adding smoke and mirrors or a little circus to entertain them. Like, if I'm about going to use something, I want to know what's going to help them academically, and it's purposeful, and it's not just fun and something rote, you know. If it's going to help them, then I'm all for it, but I don't want to see parking them in front of a screen for saying that we have technology….again integration was, you know, it's not computer time, it's threaded, you know, within the curriculum, so help us do that.

Digital immigrant teachers who participated in this research study by sharing their experiences and their ideas are looking for their digital technology integration-focused PD to "help us do that," with that being purposefully integrating digital technology into teaching and learning that actually helps their students.

Answers to Research Questions

This section provides answers to the three research questions the researcher posed. The questions expressed were explored through the data collected from the study's participants. Seeking to ensure data saturation was achieved for each of the three research study questions, the study's 11 participants were asked to respond to many questions and prompting statements using an open-ended questioning approach to encourage dialogue. This section is structured to develop the superordinate and subordinate themes using the findings furnished by the participants. A superordinate theme was developed for each research question. Within each superordinate theme are several subthemes. These themes and subthemes are presented within the specific research question they embody.

Research Question 1. *How do digital immigrant teachers describe their own experiences with digital technology integration?* This question was designed to elicit from each participants the experiences they have had with digital technology integration. All three data collection instruments provided these descriptions as participants were able to create written responses to six items from the questionnaire, to share their experiences and thoughts to six items presented during the semi-structured interview, and to dialogue with a small group of peers about one particular question during one of the two focus group interview sessions.

Data analysis of the participants' responses has yielded thick, rich descriptions of the lived experiences of digital immigrant teachers learning about and attempting to integrate digital technologies in their educational and professional lives.

The superordinate theme of two sides to the digital technology integration coin was derived after an exhaustive analysis process. With each of the eleven participants providing responses to 13 different questions and prompts, the amount of information provided gave much

weight to the theme and its subordinate themes. Digital technology integration has had two distinct realities for the participants. These realities have played out over the course of years from each teacher beginning in a time when digital technologies were not evident and have continued to play out through their own educational experiences and into their professional experiences as teachers.

All the participants in this research study were born prior to 1980, so all the digital tools of today were non-existent and most of their precursors were not readily available. This reality when placed next to the world in which they live and work today gives them authority to speak knowledgeably about the stark differences in the schools of today from the schools in which they were the students. When asked to describe their own school experiences with digital technologies, most were unable to recall any sort of digital devices being present during their elementary, middle, and high school years. Technology tools that were mentioned included: typewriters, books on cassette, film projectors, overhead projectors, and videocassettes shown on the television. Emma's initial response to the prompt to describe her experiences said, "I didn't have any." Amelia's experience was like Emma's experience. "There was no technology that I am aware of," was Amelia's reply. Ava reported "no memory of any digital technology at all" while Lily said it was "non-existent" when they were both in elementary school. Only Mia had a solid memory of seeing a computer during her elementary school years. During her third-grade year, her school appropriated an Apple IIe and some floppy disks. She recollected, "…doing something. It was probably essentially coding but with shapes and things." Isabella did report having some experiences with computers in fifth or sixth grade but was uncertain as to which year it began and described it as, "…it wasn't scary much, really."

As all the participants teach elementary school-aged students, the contrast between the school experiences described above with the availability of digital technologies in today's elementary school classroom is pronounced. Every participant was able to identify digital technologies available to them and their students in the classroom, as well as those items within the school building. Laptop and desktop computers, iPads, interactive boards, and web-based programs were all digital technology items mentioned. In Abigail's opinion, technology "is an important asset in the classroom that allows me to easily access a wealth of knowledge that can be taught to children. It helps with learning processes by being a more efficient way for children to learn." Isabella and Emma both agreed that its role in the teaching and learning processes is important. Lily stated, "Technology has a HUGE purpose in my classroom." Emily agreed that its role is big. Madison communicated her belief that technology "is a vital resource/tool for an educator," that Ava acknowledged "should enhance the learning process."

The idea that digital immigrant teachers would inherently know how to utilize digital tools in the teaching and learning processes did not find support from the participants of this study. When asked to share a moment or event that made the individual think digital technology was going to be a part of teaching and learning going forward, none of the participants were able to identify a moment or an event prior to the start of their collegiate days. Olivia spoke of a time in graduate school when the students were asked to do web quests. She shared, "…I remember thinking, I'm never going to be able to master, master that task, but knew that it was, I mean, up and coming and heading in that direction." Ava remembered taking a math class in college that included math-related technologies. For her, that "very primitive technology" usage was her defining moment. Abigail spoke of her moment also being in college. She recalled,

> And I was thinking back to my undergraduate work, where we were sitting at a computer and learning how to program with like, this turtle, and he would move and we would, you know—we were learning about that, and it just seemed like, 'Well, you know, this is coming,' and—but it felt, you know, felt newer, and that was a long time ago, you know, the 80s. So, at that point, I had not had much experience with it yet.

For most of the participants, their moment came when they were the teacher in the classroom. Emily recalled a time, which Mia interjected the event happened in 2007, when the school principal came to the teaching staff and asked which two teachers wanted to try out an interactive board in their classroom. Mia described the moment as one in which her grade level team looked at her and said, "You're it." Based on Mia's recollection of the event, it was likely because she was the young one at the time. For Mia and Emily that was a monumental moment, and on that "scared us all" according to Mia.

Feelings of concern were echoed by Sophia, who recalled her moment occurring as a first-year teacher 29 years ago. She reported she was teaching at a Title I school in a very, very low-income area. Her school used Title I monies to purchase "this huge computer that fit in a teeny, tiny, little room that had books in it," and Sophia disclosed being "horrified at the amount of money because these kids needed books in their hands, but that's when I thought of [sic] books are going to be a thing of the past." Lily remembered her moment as one of chaos as she and her students were "the trial people" and things did not go as the people who brought in the devices had planned. Amelia related how her school was considered a "school of technology" so "they kept throwing stuff at us," and "we were always pushed to let the kids read the books on

the Chromebooks." She revealed, "I'm not comfortable with all of the technology going through the school like all the 25-year-olds coming in. They have to teach me."

While the participants provided evidence to support the finding that digital technology itself and digital technology integration are not a part of the digital immigrant teachers' natural world, the participants were able to recognize its place in the world today. This realization is especially true for the younger people who are in school today. Emma told how her own children, who are in high school and college, are "doing everything on the computer" which "was surely not going on when I was in high school and college." Sophia and Abigail both noted the huge number of digital devices options available to most people, while Isabella and Olivia both stated readily available access to digital technologies has made it easy for people to connect and get answers to questions at any moment. Accessibility to digital technologies, according to Emma, allows her students to be "pretty fluent, technology-wise by second grade." Olivia described her students as smart meaning "…they know technology. So, they have, sometimes, they have great ideas, like there have been times when they've been able to figure out something that I haven't been able to figure out." Their fluency and ability to figure things out with digital technology translated well to the classroom where students are reportedly able to use Chromebooks and tablet devices with considerable ease, with the one exception being the struggle many primary grade teachers reported of students logging into the devices. This struggle was reported as due to the complexity of the login information for such young children to handle. A plausible reason for today's students having this comfort level, according to Amelia, may be because the students she teaches are using "technology all the time at home." The students in Sophia's classroom have access to iPads, and she noted her students already know how to use them because they are using them at home.

When asked to describe how students are using digital technologies in the classroom participants identified many ways students are engaging with technology and are integrating it into their learning processes. Madison's second graders are "using it for research. They're using it for assessments. They are using it for reinforcement of skills for tutoring." The amount of digital technology use in Lily's fourth grade classroom was described as,

> They use it all the time. There's not one minute we don't use it. They use it from the beginning of the day, when the first bell rings at 7:00 AM…all the way up until two o'clock doing research in social studies, research in math. Even tests are online.

This scenario is possible because every third through fifth grade student in the school system has their own district-issued Chromebooks to use. Following the lesson presentation created by Emily on the computer and displayed on the classroom's interactive board, her fifth-grade students have "a response that they have to submit in Google Classroom so that way I can take a look at it." At Abigail and Mia's schools, the past school year was the first of which every second grader was furnished their own computer to use at school, and the change was evident in what their students were able to do. Abigail reported, "I would introduce them to things, but it was like they took off with their own learning because everybody had their own computer. And, it just, it made a huge difference."

Access to digital tools for all students was not reported by all participants. Most K-2 teachers did not have a similar student-to-device ratio that Abigail and her students had. In most K-2 classrooms, participants reported students having to share a limited number of devices and an increased level of frustration. Sophia conveyed this frustration stating, "I think there is a push for technology…however, especially at the lower elementary level, there is an expectation to use

technology but a huge lack of resources, availability…only 5 iPads per teacher." Isabella reported having 12 Chromebooks and three iPads for her students to use, so "when the kids are using the technology, they're usually in small groups, and we rotate through them." For Olivia's students, often students are rotating through, partnering up, or taking turns to get access to their limited number of devices. Ava's teaching practices have her utilizing the interactive board and document camera more than having students go and interact with technology independently. She estimated a student in her classroom might have "maybe 20 minutes out of the day" using one of the limited number of iPads. To give kids some more technology engagement, she tends to use a whole group instructional approach and have students come up to manipulate things on the interactive board or watch a video of something.

The push to use and integrate digital technologies in the classroom was evident in all the participants' narratives. The two sides of the coin in this case related to their students having full access to digital tools or a limited access. When given access to digital tools, Amelia acknowledged that students were more excited and motivated to engage with the technology. "Students are able to become active learners rather than passive learners," Abigail reported. Conversely, when access is limited, "It makes it hard," according to Madison, and that challenge starts when teachers have more student than digital devices. Once students were able to have a turn with the device, Ava expressed her experience with first-grade students as "simply getting them on the devices is very challenging," yet, "once they're in a program, they're pretty good at manipulating." Sophia summed her experience with the digital technology integration push stating, "So, there were immense challenges in getting kids access to computers, yet we're evaluated on getting them technology." Ava, when asked to share her feelings about being evaluated on digital technology integration in her teaching, indicated it did not bother her but felt

it was important administrators understand technology integration in the lower grades would appear different than at the upper elementary level because teachers are "not given the same resources as upper grade teachers."

In relation to teacher perceptions about digital technology integration and its capacity to impact teaching and learning, participants spoke of the possibilities it has on enhancing teaching and learning. There was also much discussion of the concerns the inclusion of digital technologies has brought with it. When discussing how digital technology has had a positive impact on teaching, several participants spoke of how planning and teaching is much easier now "because it is at the click of a button." Amelia conceded the Internet has "made a lot of teaching easier…you can Google, you know, somebody else teaching something. Or, you can show an experiment that Bill Nye did that you can't really do in the classroom setting because it might be dangerous, or you don't have the supplies." Similarly, she has appreciated being able to create Google presentations she could use to help her everything she needed in one location and to help her with the pacing of her lessons. Emily revealed how Google Classroom has been a successful for her "because it was all in one place" for her and her students. She was able to set up things in this web-based tool that included all the websites students would need, links to their assignments, and the rubrics that would be used for grading. Isabella noted she loved that the district had created a student homepage for her students to readily access different web-based resources that "are designed to give them that support or that review whenever, you know, they find something that they're struggling with." One such program Isabella and other teachers have access to allowed teachers to differentiate not just the instruction but also their homework. Madison related how the program is designed so she "can actually assign what is appropriate from them…and so for me, that's been, you know, a huge success."

The findings showed participant support for classroom access to the Internet. Their support included Mia relating how access enabled her and her students to "access information and visuals that they could otherwise not see." Two examples she reported included how she had used Google Maps to have the class see inside the Louvre Museum in France and that her students were able to watch up-close video of a butterfly coming out of the chrysalis. Similarly, Olivia shared how she was able to take her class on a virtual field trip to see a garbage dump in the Pacific while learning about ocean habitats. She found the experience to be "fascinating, and the kids were moved by it," yet she continued, "and, you know, it could really as long as it's guided, for the most part." The concerns participants shared did not appear to be with digital technologies or as to how they might integrate its use into their teaching. Rather, participants voiced a more fundamental concern about their place in today's classroom.

Participants' belief that some form of a digital divide exists between teachers who were educated in the previous age and today's students of the digital age was evident from the statements made by the participants. This divide, or other side of the coin, has left teachers feeling uncertain about various aspects of their roles as teachers. While several participants clearly communicated their need to be open-minded and adaptive, much uncertainty remains. One such certainty communicated is the impact of digital technologies on the social skills and character development of students today. Another such uncertainty revealed is what the balance might look like so that teachers believed their use of technologies would be purposeful while not jeopardizing the critical role of the teacher in the classroom.

As technologies advance, inventions and innovations have had an ability to render previous things obsolete. For Amelia who noted during her focus group session interview that she can see the light at the end of her teaching career but her fear was evident as she disclosed, "I

just am so afraid that it's going to be the end-all, like you're just going to see every kid behind a computer, computer screen, or iPad and, and I don't, I don't know. There's that fear." Fear was also revealed by Emily when she stated,

> And being in today's day and age, it's kind of scary that they know more than I do. In a way it is because they, I'm sure that they could probably hack into my computer and get anything that they wanted at any given time, and that's the scary part because they know how to do that. It's, I guess—it's more of that a 10-year-old is more competent than a 41-year-old in the realm of technology. I think that's more of what, kind of, puts me in that uncomfortable place because I'm the adult, you're the child. You know more than I do.

Teaching is a profession in which the one who knows, teaches, and the one who does not yet know, learns. For the teacher, this "uncomfortable place" can be seen as scary and fearful. For Amelia, this fear has felt to her as though she loses control over the learning when her role becomes one of watch over students on their digital devices. For Lily, another participant who has been teaching in a 1:1 student-computer setting, "teaching is starting to become nonexistent" because in her Social Studies class she reported giving students a website and "students are on their own exploring and learning on the site." When asked to define technology integration in her own teaching, Lily stated,

> …basically, it's coming into a new world of technology and learning, just like the immigrants did coming in and having to learn things all over again. And its night and day now, no more transparencies and putting things through the copier. I don't know, come [sic] into this whole new world and learn new programs.

The idea of "like immigrants did coming in and having to learn things all over again" appeared time and time again in the experiences of participants, yet participants did not appear eager to abandon all the culture and traditions of teaching and learning they experienced as students themselves and were afforded during their pre-service educational trainings. According to the thoughts and ideas shared by these participants, a balance does exist and needs to be utilized for digital technology integration to be successful for students and to respect the role of the educator in the classroom.

The need for "a good balance of hands-on, face-to-face contact and digital technology" was expressed by Mia. She continued,

> I think there is still a great need in the lower grades to have hands-on projects where students are cutting, pasting, and creating. Computer projects are great and offer opportunity for creativity that sometimes cannot be created any other ways, but I think that tactile activities are still very much needed in elementary school.

Prior to becoming a teacher Mia worked in the publishing industry, which had already transitioned to computerized systems, so her understanding of what computer programs are capable of with regarding to creative publishing is well-founded, yet she appeared to understand that purposeful use of technology, such as creating a project that demonstrates one's learning, requires an emphasis on the reason behind what one is doing. For Mia, she acknowledged, "I think it's definitely something I think about integrating, or how can we use technology in a purposeful way. You know, I don't want to put things in just to say we're using it."

According to Olivia, teachers need to show their relevance in today's digitally rich classrooms by introducing students to purposeful reasons to use technology. As previously reported, students are accessing digital tools in their home life and in the classroom, but the

concern repeatedly addressed is the kind of use and the amount of use students are engaging in and how that use is impacting their social skills and the development of character. Emily called these "groundwork skills" when she discussed her definition of technology integration in her teaching. She conveyed,

> I find it very important for them to, to have that face-to-face interaction simply because they're either on their phones or their iPads or in front of the computer all the time. And they need to learn how to talk to each other and solve problems head on. I know that times are moving toward electronic technology, everything, but they still need to hold those, those, those groundwork skills to be able to successful with life…I try to have a good blend, being a teacher, it's all about perfect blend of everything, but realistically, it doesn't happen. You know, that is an educator.

Participants frequently spoke of the need to strike a balance, to have a blend of human interaction and digital incorporation. They acknowledged their classrooms are now "a new world of technology and learning" has been given, and the need for teachers to make changes by utilizing digital technologies in the teaching and learning processes has been recognized. The aspect they believe cannot be replaced in the human element of a living, breathing teacher. Technology has the capacity to touch students and to help them learn, but, according to Emma, "there needs to be a personal touch no matter how old the student is that DT (digital technology) can't provide."

The "groundwork skills" Emily spoke of enabling a student to be successful in life requires face-to-face interaction. Teachers felt it is inherently their responsibility to provide these interactions in the classroom just as they provide students with sound instruction. When

balanced with the effective use of technology, Abigail believed students can learn so much. Olivia communicated the idea that an aspect of the teacher's relevance in today's classroom may be to introduce students to positive and purposeful reasons to use technology. However, if the balance were upset, then who, and what, would assume the roles and responsibilities human teachers have had for so long? Participants appeared very uncertain digital technologies can be a capable substitute for the human element teachers provide to students. It was evident they fear students will not learn the right things, and thus, students would not reap the appropriate benefits digital technology in the classroom may be able to offer to learners.

Again, from the perspective of integrating digital devices into the classroom for student use, teachers acknowledged their students' eagerness to have access. Fun, motivated, engaged, and excitement were words participants used to convey their perceptions of how students felt when they were able to use digital devices. Additionally, teachers reported frustrations when their classrooms were not afforded a number of working devices equal to the number of students, as well as their annoyances of times when Internet access was down, when tools would not work right, and when login procedures were so problematic students could not participate at all. Still, teachers also noted consequences they are concerned about. For example, Amelia shared her belief that the push for integration in school on top of its place at home has led children to become attached to digital technology. Considering the fear Amelia shared of all the students learning behind computer screens, her concern about children being attached merits consideration. The fact that other participants also expressed similar concerns about technology's inability to provide the human touch adds weight to their concerns.

The social and emotional development and well-being of students emerged as a distinctive factor in explaining a probable reason these individuals may have chosen to become

teachers. More exact, these teachers elected to teach at the elementary level where children are very much in their formative years. Attention to their students learning appropriate social skills and developing sound character traits also emerged throughout the participant's statements.

When asked to think about the amount of digital technology people have available to them today, Mia took the position "that outside of the classroom people have access to too much technology." Lily described it as having the capability of overwhelming people. Emily noted it has "its positives and negatives." Mia continued her thinking stating,

> In an effort to make the population smarter, we have actually dumbed down society because everything is so readily available. I am guilty—I no longer memorize phone numbers unless they are the essential few. Just look them up in your phone! I am afraid that we are using technology as a crutch instead of using it as a resource. It has made us less patient and we now have a greater need for visual stimulation. I notice it in myself. I can no longer just stand in line at the grocery store and wait—I have to be looking at something.

Mia noted several undesirable social skills and character traits she has attributed to the presence of digital technologies in her own personal life. These same skills and traits, along with others, were reported by other participants as negative concerns they have seen in their students.

The individual's role as the primary source of knowing and understanding can be replaced by technologies that make a person's need to have a knowledge base obsolete was an important concern raised by participants. What is required of that individual as a person to learn was also addressed by participants during the data collection. Emily conveyed her concern as follows:

> Searching for the answer has no value anymore because it is 'right there'. It is too easy…there is not a work ethic anymore when it comes to research. I don't always agree with the easy access because 1) too easy, 2) not always accurate, 3) they (students) think they know everything.

Answers that are "right there" would not require students have work ethic anymore. Emily's concern was echoed by Lily when she shared one of the challenges encountered in her experience with digital tools in the classroom is keeping students on task. She revealed, "It frustrates me because all I do is monitor to make sure they're staying on task." An explanation for the off-task behaviors by students may have been provided by Amelia who reported students "don't take assignments and projects seriously" reasoning it is "because they are not always as fun as they think the ones they do at home are, which are mostly game related." With easy access to games and other fun-filled options, Lily and Amelia have come to the conclusion students are gravitating to these off-task things in lieu of taking their assignments and projects seriously. Taking assignments and projects seriously would require more from learners. Lily argued, "I think children should, students now should have a little bit of a struggle as well." As Emily had stated, students need to learn how to "solve problems head on." Conversely, Madison argued readily accessible answers take away the learner's need to problem solve, so instead of learning through some struggle and problem solving, Lily argued it has caused an increase in anxiety levels within students because they "want answers fast and patience is almost nonexistent." Essentially, participants have reasoned that unchecked work ethic, struggle, and problem solving are being replaced by instant answers, impatience in people, and off-task behaviors by students. However, as Abigail concluded, "When used effectively, technology can be a useful tool for preparing students for 21st Century learning."

The human element teachers provide in the classroom was an essential element each participant argued for. In Emma's opinion, digital technologies cannot provide the personal touch students need in their learning environment. By nature, the presence of the digital technology in the teaching and learning environment requires teachers to rework aspects of their classroom to accommodate. The dilemma Lily revealed is her students "use it all the time. There's not one minute we don't use it…There's no interaction." The benefit she reported was "students are learning to be more independent, for sure. They don't depend on me for so much." This approach has left her feeling "as though teaching is starting to become nonexistent." Like the fear Amelia revealed, other participants were not ready to put their students in front of computer screens all day. While Emily's idea of the "perfect blend of everything" may not be achievable, overuse of one element or the other hinders finding that appropriate balance.

The aspect of screen time was discussed with varying amounts per day mentioned. Classrooms with limited access to digital devices tended to have students spending less time on the devices. Conversely, classrooms with a 1:1 ratio tended to have students using their computers more often throughout the school day. When asked to speak to people's access to digital technology in general, Abigail spoke of two types of technology consumers. When consumers are using technology appropriately, according to Abigail's perspective, people should be taking "advantage of the Internet and all the resources on there to learn and to create." She did note consumers of technology can also spend time unwisely giving the example of people "who spend most of their time on Facebook." Social media has been recognized for its ability to connect people around the world, yet Ava suggested it has the capacity to hinder social interaction. Similar to Mia's reporting how she was drawn to the visual stimulation of her cell phone in the grocery store line, social interactions in the classroom can be hindered when

students are all in front of computer screens rather than having face-to-face interactions with their teacher and peers. When members in the classroom become isolated behind a computer screen, they are isolated from each other hindering face-to-face interactions. Though she teaches in a 1:1 ratio classroom, Emily communicated she attempts to strike the balance by not being "on the computer all the time, simply because they need to have that balance. They need to see that I'm not always on the computer." Similarly, Abigail shared, "…I also tried to balance that time, so that it wasn't too much time because it certainly is not the first time these children are using technology." Participants indicated their desire to ensure a good balance between the screen time and face-to-face interactions be achieved. For their students, it allows them to continue to benefit from the human touch teachers believe cannot be replaced by digital technologies.

Participants have experienced digital technology being integrated into their personal and professional lives. Their lived experiences were chronicled in their own words providing a thick, rich description for the research study. Their learning about and attempting to integrate digital technologies into their lives has showed two sides to the digital technology integration coin for them. Like immigrants to a new land, these teachers have ventured into a new world, a digital world. While they had little to no experience as students learning with digital technologies, their students have digital technologies readily available to them at home and within their classrooms. They have experienced the push to integrate digital tools into their teaching and learning with some teachers feeling they have been given more than enough and others not enough for their students. Participants acknowledged digital technology has a place to enhance the teaching and learning that takes place in today's classroom, yet they revealed concerns about what the teacher's role might become. Additionally, the teachers conveyed concerns about the impact digital technologies may be having on students' character development and the social skills when

their interactions with digital technologies are not balanced with the human element teachers and their peers can provide.

Research question two. *How do digital immigrant teachers describe their experiences with in-service professional development focused on digital technology integration?* The aim of this question was to give participants the opportunity to describe in their own words their digital technology integration-focused in-service professional development experiences. Through their descriptions of these opportunities, data analysis has provided clear indications that the lived experiences contained considerable inconsistencies for the digital immigrant teachers who participated in this research study. Specifically, their experiences with digital technology integration focused in-service professional development lacked consistency across a range of key factors. Some participants were left feeling quite frustrated and overwhelmed, while analysis of the findings showed in-service professional development experiences resulted in other participants feeling positive about what they learned and how it was able to be applied in their classrooms.

The added value to a teacher's professional growth through participation in high-quality professional learning opportunities was a concept understood and appreciated by the participants in this research study. Guaranteeing the in-service trainings were consistent with the core features of effective PD was not within the direct control of teachers. When conditions were favorable, participants were able to recognize both their professional learning and the factors that contributed to the successes. Two examples of this kind of recognition were reported by teachers who learned how to integrate Google Classroom into their instructional practices. In both instances, the teachers' in-service trainings took place within their respective home schools and were facilitated by colleagues who worked directly with teachers at their schools. In Emma's

experience she was able to feel like it was something she could do because it was "more helpful to me to have somebody come in my classroom to help me, then it would have been for me to go to a workshop and people throw information at me." As a result of the push-in model of PD used with an instructional technology facilitator, she "had time with the computer that we weren't rushed, and I felt comfortable…to ask questions one-on-one." For Emily, she referenced the fact that she was empowered though a school-based survey to identify a specific area of need. Because Emily was moving up to teach fifth grade that school year, she needed something to help her in that transition. Transitioning into a classroom in which each student had daily access to their own Chromebook led Emily to decide to learn about Google Classroom. She shared how she was first introduced to it through a mini training facilitated by her school's media specialist. At first, she found it "a little overwhelming" because "it blew my world up," but over time and through trial and error "a lot of feelings…went from overwhelming to frustrating to this is fantastic."

Aspects of inconsistency were made evident by laying out the wide spectrum of technology integration-focused in-service PD opportunities these teachers have experienced. While Emma and Emily reported being positively impacted by their PD experiences with Google Classroom, their experiences were not the standard for teachers who participated in this research study. Analysis of these experiences through the lens of Desimone's research-based core features of effective PD begins with an examination of the participants' experiences considering (a) content focus, (b) active learning, (c) coherence, (d) duration, and (e) collective participation.

Content Focus. While no individual question or prompt was placed in any of the three data collection instruments asking participants to discuss content-specific aspects of their professional development, it was evident in the fact that teachers did not speak directly to how

their capacity to teach content improved. In fact, their reporting revealed most PD trainings focused primarily on the digital tools themselves. Teachers rarely discussed or credited a digital tool making them more effective in teaching content or with their students learning content. Only a few experiences were communicated in which participants described engaging in professional learning activities that focused on teachers learning how to integrate digital technologies with the subject matter they teach. In its place, much discussion focused on the lack of calibration between what teachers were being presented with in these in-service training sessions and what teachers perceived was appropriate for their particular classroom situation and for their students.

What teachers perceived their needs to be able to successfully integrate digital technologies in their classrooms was not being properly addressed at in-service trainings. To illustrate this lack of relatedness being experienced, in her interview Sophia was asked to share what thoughts come to mind when she thought back over her experiences attending in-service PD that focused on digital technology integration. She conveyed her thoughts stating,

> Well, I definitely know that's an area I need to grow on, grow in. So, I definitely tried to see what they're doing, and if it's something that I feel is easy enough that I can handle, I'll jump to it, and possibly look at it. But, many of the things that either staff members present or show to us are just too difficult for first graders, so I just, kind of, roll my eyes and turn the page.

Sophia was not alone in thinking in these ways. Ava reported she found some of the PD trainings to be "beneficial because they relate to what I'm doing in the classroom. Some of them are talking about things that are wonderful but are not appropriate for my students." Amelia also shared similar thoughts. She felt sometimes PD is forced and reported she had even gone so far

as to communicate those sentiments to her administrator. During the focus group session interview, Amelia reported the sentiments of what she conveyed to her principal, stating, "…this isn't going to work in my classroom, or this isn't age appropriate. Or why, why do you lump us all in for PD that doesn't work for us?"

The point made by Amelia illustrated that in-service trainings being provided were not consistently considering content focus appropriately for the needs of the learners and their specific classroom context. Being presented with information that was not age- or grade-level appropriate neglected the content focus that teachers and students were working on. While the specific academic content area may have been reading, presenting a digital tool on reading that lacked content for students at that specific grade level significantly detracted from the effectiveness of the PD for all teachers attending who teach students at those grade levels. When classrooms lack access to the devices for students to access the content through the utilization the digital tools, then the effectiveness of the in-service training would be significantly hindered. Such instances were reported by several primary grade teachers. Ava and Mia both indicated it as a discouraging factor for them. The reality was their classrooms lacked the working devices necessary to access the content with those digital tools being presented to them and that they were supposed to be learning to integrate into their instructional practices.

Another content focus frustration was shared by Mia. She felt the trainings she has been receiving were not supporting her in her teaching. For Mia, either the trainings were not applicable due to the lack of access to digital devices or were being presented in a way she could not see how the content and technologies would be integrated into her classroom. During her interview, Mia proposed a way to address issues related to teachers not being able to see how their academic content and available technologies could be integrated. She suggested,

> I think what would help is, like, I always think of science or social studies that seems to be a lot of these things will work well is if they're going to come teach us something, could they either have it so we can integrate it into the unit, maybe that's upcoming…I could use it in the upcoming science unit. Or, the social studies unit is coming, this would be really great for this. Um, a little more specific to some content that we're going to be covering and that would help me integrate it more easily because sometimes I'm like this is really cool.

The time Mia was spending at training sessions was not properly addressing the integration of digital technologies with the content she teaches. While her interest had been piqued by what was available, the PD sessions fell short of meeting the intended goal of helping her integrate digital technologies into her content instruction. When trainings focused on what digital tools were available or what they could do, participants struggled to see the integration piece. In fact, at no time did a teacher credit their participation in a technology-focused in-service professional development for enabling them to teach their content more effectively. While teachers did report learning about digital tools they and their students could use, they were not able to articulate instances in which they felt their ability to teach instructional content improved because of their learning how to effectively integrate the digital tools with their content.

What teachers were being presented with and what teachers taught and had available to utilize in their classroom lacked consistency. A carefully planned professional learning opportunity with the intended outcome of observable and sustainable application of that learning by the teacher in their classroom would define calibration. There were examples in which some participants believed what they experienced in their in-service opportunity aligned well with what they were attempting to do in their classrooms. As a result, they felt they were able to

realize the intended outcomes of the in-service PD. At the same time, many narratives provided by participants, along with their expressed thoughts and feelings, showed significant inconsistencies between stated goals and actualized outcomes. As a matter of fact, these instances were overwhelming in comparison to the instances in which participants felt the expressed outcomes were achieved within their classroom context.

It should be noted that the school system in which the research study was conducted, has undergone substantial changes in how professional development is planned and delivered. Relevant to understanding these changes in context, a couple years prior to the solicitation of participants, the district in which the participants teach transitioned away from having a dedicated instructional technology professional development team with instructional technology facilitators (ITF) who would provide PD at the district level and who might push into individual schools to provide a variety of additional learning opportunities. That team was incorporated into the district's team of instructional content facilitators (ICF) and a new role of instructional coach was created. At the time of data collection, most elementary schools had either a dedicated instructional coach or shared a coach with another elementary school. It should also be noted that before and after this change, most, if not all, of planning and delivering in-service PD has been outside of the control of the traditional classroom teacher. As a matter of fact, not one participant disclosed they had been directly or indirectly involved in the planning of technology-focused professional learning opportunity or in the way in which it was delivered. The structure, format, and content of their planned in-service PD learning opportunities were often determined by others and the pacing of these opportunities were beyond their control. In terms of self-rating proficiency, the highest rating a participant assigned to themselves in describing their current level of digital literacy was competent. Most teachers categorized

themselves as being a novice or fair. Calibration should include deliberate consideration for the competency levels of the participants, as well as the setting in which teachers teach. Participants reported clear evidence that such considerations had consistently not been made. These factors have been noted as they are relevant in making sense of context in which the participants experienced their technology-related, in-service professional development opportunities within the school system in which they teach.

Given the significant changes and issues surrounding calibration, how professional learning opportunities were afforded to teachers across this portion of the district and within the schools proved to be inconsistent. Inconsistency was apparent in the experiences of primary grade teachers versus their upper grade counterparts. Specifically, when the professional development focused on a digital device, oftentimes no distinction was made with regards to the availability or accessibility of the device in classrooms. Classrooms in which students were afforded access to their own device had teachers share more favorable impressions of their experiences with the professional learning opportunities. They presented themselves as having more encouraging feelings about their digital competency and skills. Classrooms in which teachers and their students had a limited number, if any, available devices reported less favorable impressions. Their levels of frustration and discouragement were increased because they were made to attend trainings for digital devices, they did not have access to or have enough availability to make work in their classrooms with their students. The desire of primary grade teachers for their students to engage in the purposeful use of digital technology was present, but as Madison reported,

> I feel like for the younger grades, K through 2, we use technology more in our instruction than students use it with us. And that is something I'd love to see like

> where the students are…like they are actually working on something like third, fourth, and fifth do. But again, we don't have the resources to do that.

Sophia indicated in one of her questionnaire responses that K-2 classrooms in her school have "little to no technology" and having to attend even a "30-minute in-service on tech that we actually don't have in our classroom…is ridiculous." On the other end of the spectrum, Emily taught in a 1:1 classroom where all of her students have access to a computer. When responding to the same questionnaire prompt, she shared how her school over the past few years has been supportive to its teachers providing "ongoing training" and that "all of the goals were related to the current trends and incorporated into our classrooms." Emily and Mia had taught in the same school for more than fifteen years, but their perspectives were not similar. Mia expressed discouragement when new digital tools were presented because her primary grade classroom often received leftover devices that were unreliable and insufficient in meeting the digital learning needs of her students. Unreliable and insufficient technologies presented itself as a hindrance to calibrating the intent of professional learning opportunities with the goals and outcomes of those offerings.

Another significant area that caused frustration among primary grade teachers focused on students' inability to access digital devices because of the complexity of logging into the devices. While the content focus of an in-service training might have been appropriate, their ability to implement it into their instructional time was significantly hindered by the fact that the students struggled, to the point of students crying in some instances, to log into the devices. As a result of time spent trying to help students log in, teachers and students were not able to engage effectively with the academic content or the digital technology. These frustrations were shared

time and time again by primary grade teachers, as well as by Amelia who reported her third-grade students having had similar struggles learning to use their login credentials.

Between schools there appeared to be inconsistencies with both the content trainers presented and how it was delivered. Emma shared how at a previous school within the school system she had an ITF who would push into her classroom and work with her and her students. At Emma's new school, she revealed a different situation. Now, she would like for "someone to be available, to come in the classroom to help." Like Emma, Lily had previously taught at a different school in the district. At her previous school, her ITF "was phenomenal…very hands-on, very patient with us" and as a result she loved the trainings she participated in and felt she has been able to apply it in her classroom effectively. At her new school, her instructional coach tended to bring articles to PD sessions and ask teacher to "shop around and look at the articles." While she believed herself to be an eager learner, she felt these "trainings can be monotonous." Abigail and Lily have been teaching at the same school for the past couple years. Abigail told how at some of her school's PLC meetings "something might be introduced, or they might introduce quite a few things, but we never really have the time to go into it in depth." For Emma and Lily, moving from one school to another has resulted in them experiencing considerably different approaches to PD. Matter of fact, there did not appear to be a consistent model being applied from school to school. This reality may be a byproduct of consolidation of the ICF and ITF roles into one instructional coach. At the same time, when one school was given a former ITF for their instructional coach position, that person brought with them that area of expertise, which may have helped some teachers continue in developing their digital competency skills. For other schools like Ava's, she has been left feeling she needs her school to have "a support

system to help me learn the technology and people in my building that could provide immediate help when needed."

Active Learning. Active learning calls for participants to be involved in their learning rather than passively sitting, watching, and listening to someone else present content. A statement, such as Olivia, "I see people tune out," would not be indicative that active learning is happening for any given number of attendees. Participants spoke to the idea that they were not given ample opportunity to be engaged learners. Isabella described herself as "I'm more of a do it" when it comes to learning new things. When asked to describe her experiences as a teacher participating in in-service PD trainings focused on digital technology integration, Isabella recalled,

> I do remember going to one where they did talk about integrating technology in the classroom, and there were a ton of different things that they talked about where the kids can actually do something and then record themselves to where we can go back and watch it and stuff…I took notes on so many different things. Just haven't—there wasn't a lot of time to do a lot of hands-on looking at it, playing with it, figuring it out and stuff.

Isabella's in-service experience illustrated her learning style was not given ample opportunity to be employed. Matter of fact, her experience was contrary what Abigail believes learners need. She voiced "the interesting thing is through practice, you just become more comfortable." Isabella recounted being talked at and being told about "a ton of different things," taking "notes on so many different things," and not having "a lot of time" to engage with the content. Not all of Isabella's training sessions were identical to the one she spoke of. Isabella did share of a different time she attended a training and felt supported in her learning. She reported, "Programs

were introduced, explained, and then we were given time to practice." She was able to ask questions and to "see which programs were suitable for my classroom."

Teachers felt they would be able to engage in training sessions if they were given examples of how the digital tool might be suitable for their classroom with their students and with the hardware and software accessible to them. Both Abigail and Sophia shared their feeling that if supporting research on something was provided, they would be more encouraged to become more active listeners. Similarly, Amelia indicated she would be more apt to utilize a digital tool in her classroom if she knew answers to "How can I use this to show growth?" Be able to see digital tools "in action, including the student's response to it," was an idea Abigail would like to see embedded in in-service training.

Being able to engage in hands-on learning was something Emma shared about during her interview. She described a time when she learned how to use Google Classroom:

> She would come into our classroom and help us teach the class how to do it. So then after, you know, that year, after she was finished teaching me and we did it together in class, I assigned a couple things on Google Classroom, and, you know, the kids loved it. It was great…. And so that year, I feel like I did a lot with technology because I had her right there in our school coming in…. It wasn't like she taught me how to do it, left me, and then I had to teach them.

Emma's experience with the ITF pushing into the classroom to help support her illustrated how active learning could look.

Coherence: At no time did teachers speak to the idea of how one in-service PD opportunity related to another PD opportunity. The closest thing to coherence may have been Isabella's participation in beginning teacher trainings, yet she did not identify any specific

examples in which one training was directly connected with another. Several teachers did share that they participated in in-service trainings and courses to satisfy renewal credits but none of those teachers reported how the trainings and courses related with one another.

Duration: Based on evidence provided by participants, most opportunities for in-service PD appeared to be isolated. As a result, teachers' in-service opportunities lacked connectivity with one another. Besides speaking to an inconsistent application of coherence, it also calls into question how duration could be realized. Sustained technology-focused in-service PD would allow participants to participate in a series of PD having a singular focus. Without these elements in place, teachers would have to make the efforts to piecemeal what would be available to them on their own, which appeared to be what a few participants attempted to do. Otherwise, teachers would rely on periodic PD that would likely cover a variety of topics during required teacher workdays, during staff meetings, and other required meetings, such as grade level planning.

In the state where the participants for this study work, teachers are required to earn at least eight continuing education units (CEUs) over the course of five years to renew their professional teaching license. At minimum, two CEUs must be categorized as digital literacy competency credits. Ten contact hours is typically required to ear one CEU. Sophia shared during her interview how she had taken an online digital literacy course for that purpose. The course was designed and facilitated by an educational agency outside of the school system in which Sophia worked. In terms of duration, that feature in this particular course was set by the outside agency. Sophia did not disclose the total number of contact hours or any other factor related to duration, but her description of the course's content conveyed it was an introductory by design and had a generic educator for its audience. Based on Sophia's reporting, its outcome

was more "to fulfill a CEU credit" because she felt it did not really give her "any helpful information to take back to the classroom."

Abigail also reported taking an online digital literacy course as a part of her renewing her certification. She commented during her interview that the course "was helpful" but did not elaborate behind that statement. Abigail also shared that she had more recently participated in a school-based book study on the same topic and that the course was facilitated within her school by an instructional coach. While she did not provide details about the number of contact hours for the online course or how regularly the book study group met, essentially, duration was achieved through Abigail's efforts of piecing together two in-service PD opportunities on the same topic. Her participating did provide her with the chance to delve deeper into the content and to review previously presented material.

Madison shared during her interview how she felt she had received some "good training" after she received a new interactive board for her classroom. Being one of the first at her school to get the new digital device, she and other educators were afforded access to on-site training provided by the company. However, later during the interview she expressed frustration with the training because it was "months before we knew we could do, like, one specific thing…hit the freeze button so that stays, and we could still work on our computer." As she continued, her description of the training did not sound as positive as she had original stated referring to it as "kind of like a one-and-done" and that "there's no follow-up" to it.

Olivia told of two different trainings she attended referring to one of the two as "a little class" and at its conclusion she felt that she still didn't "really know how to operate it in a first-grade classroom." As for the other training, Olivia indicated the content of the training "seemed like a really cool idea until I sat there and tried to do it and it failed every time." She did share

her opinion that with enough training she "could probably do it…but definitely, that wasn't enough." However, the content of that training was presented in isolation, so it was not revisited. Olivia did not get enough training to become able. The desire for duration was evident when Madison said,

> I don't think I've gotten out of it what, what should have been gotten out of it…I would love to have it where it's maybe not doing five hours in one day, maybe chunk it down to a specific skill on the computer and then come back and go over that, or have an assignment that we have to do and actually use it.

The frustration with the current reality of not being given time during their professional learning opportunities for hands-on practice was again expressed during Abigail's interview. She shared,

> I find at a PLC meeting something might be introduced, or they might introduce quite a few things, but we never really have the time to go into it in depth. And I'm better off just, like, learning, you know, one new aspect, but having the time to learn and practice and put it into the classroom versus, like, "Hey, here are all these…here's a list of all these different things you can do, and you can find this here and this is here." And I'm sitting here like, "Okay." I just smile and nod at that one, you know, because it's like, I don't even know where to start.

Teachers voiced their need for an increase in the duration. Addressing this need could be accomplished by increasing the number of sessions on the same topic, chunking the content by specific skills, and, according to Isabella, giving teachers "a lot of time to do a lot of hands-on, looking at it, playing with it, figuring it out, and stuff." Nevertheless, as illustrated by Abigail's comments, teachers have been left to "just smile and nod" because they feel overwhelmed by being talked at and not being given the time to work through the learning process themselves.

Instead of meeting the teachers' need for time by lengthening the duration of in-service PD, there appeared to be a focus on trying to present as many things as possible during a singular session.

Collective Participation. Abigail's participation in a book study on digital literacy was a positive experience for her. She shared how she met with colleagues to talk about what they were learning and trying out based on that learning. She admitted it required her to move outside her comfort zone and that she had to push herself toward building her digital literacy competencies. Abigail claimed she experienced "a huge year of growth" attributing credit to the fact that she and her students had appropriate access to digital access to actually put into practice what she was learning through her participation in the book study. As a result of that PD opportunity she felt encouraged to look for more opportunities to build capacity in digital literacy.

Like Abigail, Sophia also shared having taken an online digital literacy course to fulfill a continuing education requirement. However, her experience did not lead to similar outcomes. Her description of the course did not include instances in which she met with colleagues, and she stated her perception that the course's goal appeared to be "more giving information on what digital literacy is, or was, and not really giving me any helpful information to take back to the classroom." While Sophia acknowledged it is an area she needs to develop and believes she tries to push herself in, she has experienced more hindering factors than constructive ones. As a result, she still viewed herself as a "novice, at best" in spite of taking the online course.

The acronym of PLC (professional learning community) was mentioned on several occasions by participants. While Abigail's sharing her book study experience did not include her specifically using the acronym PLC or something similar, the idea of collective participation, which Desimone described as an interactive learning community of teachers participating

together in PD activities, was evident. Abigail shared during her interview, "We met as a group, and we've talked about what we're learning, and then try some things out that we had been learning." Madison described when she had been a Pre-K teacher in the district that the Pre-K teachers would come together to meet as a PLC. She recollected during a portion of those meetings teachers had time to go around the room sharing what they were doing in their respective classrooms in their buildings. Through those conversations, teachers were able to identify specific needs and to share resources. To Madison's knowledge, the school system does not have opportunities as an elementary school teacher like the ones she experienced as a Pre-K teacher, which has left her wondering, "Why am I reinventing the wheel and making this stuff when you've already found it, right...I feel like a lot of us reinvent the wheel."

Collective participation was a feature of effective PD that lacked consistency. Reliance of grade level meetings and staff meetings for teachers to develop digital competencies and skills contributed to that lack of consistency. An example of this type of reliance was communicated by Sophia. She shared how during staff meetings upper elementary grade teachers were given the opportunity to share how they were attempting to integrate digital technologies in their classroom. Many things Sophia would be told about sounded interesting, but as a primary grade teacher those ideas were not things she could do in her classroom because her classroom lacked the appropriate digital devices. Unlike Abigail's book study experience, where she was able to experience the growth because she had the resources necessary, Sophia was not going to able to take what she was learning about and add it into her instructional practices because she lacked an essential component of digital technology integration.

Research question three. *How do digital immigrant teachers perceive in-service professional development focused on digital technology integration could be structured to*

address their particular lived world? The purpose for this research question was to develop an understanding of how participants believe they learn best, what participants feel would better address their own unique needs and situations, and how participants imagine their learning might transform their teaching and students' learning. Data analysis for this research question provided distinguishing features the digital immigrant teachers who participated in this study perceive would address their concerns and would likely enhance their professional learning in the area of digital technology integration.

To gather participant input for this specific research question, 10 items were designed across the three data collection instruments. The questionnaire contained two questions. The first question asked participants to identify what quality attributes they believe can be found in effective in-service trainings, and the second question sought recommendations they felt would positively impact one's ability to successfully apply what has been presented. Likewise, participants were asked to share during their individual interviews any recommendations they had for the trainer or presenter that they believed would have a positive impact on their learning about digital technology integration and how to integrate these effectively into their classrooms. In addition to the interview question, participants were afforded two prompts that focused on specific strategies and activities effective presenters would use and participants would be engaged in during an effective in-service training. If those strategies and activities were happening, the teachers were asked how their response to the in-service trainings might change. Three questions were presented to the participants during the focus group session interviews that directly addressed this third research question, and a final question was provided for participants to communicate what was most important to them of all the things discussed during their respective session. Like the questionnaire and to the individual interview, during the focus group

session interviews participants were invited to speak to inputs they might contribute that might be integrated into the design of their in-service trainings that focused on digital technology integration. This interrelated, repetitive line of questioning was employed through the three instruments to provide a rich, thick description and achieve the saturation level essential to more fully understand the digital immigrant teachers' perceptions on how their in-service PD could be structured to address particular lived world.

A structural element apparent throughout the teachers' responses was a shared belief that knowing the audience is of utmost importance. This belief was expressed repeatedly throughout the three instruments. Audience was addressed on both the larger scale "one size fits all" mentality and the smaller scale of the educators seated in their specific training session. During her interview, Emily spoke at length to the "one size fits all" model. She disclosed both her opinion and how she perceived teachers at her school found its effectiveness, stating,

> A lot of discussion goes on amongst teachers, especially after in-services and at our school. We're a very different school climate. We've all been together for years, so we're more of a tight knit family. So, we're very open with each other and we'll have discussions afterwards, like, "That was ridiculous. Why did we even have to sit through that? They're trying to shove something down out throat, and that's not even pertinent to what I'm doing in the classroom." Because not every school is the same. … So, how can you create a whole in-service equally for the whole county?

In her opinion, the whole county "one size fits all" mentality amounted to "these are my thoughts and feelings, and I'm going to shove them down your throat" so everyone is going to get the same thing. What Emily proposed was the adoption of a "reasonable mentality" that is willing to

explore what teachers need and will help move teaching and learning forward classroom by classroom. She felt the responsibility to affect positive changes lies with those persons in leadership positions, arguing, "As an educator, that's your job to lead teachers, so how are you going to make this a better experience for them?"

Whether on a large scale or a smaller scale, Ava believed it is imperative that "there needs to an understanding of what the audience needs from the training". A quality attribute found in effective PD, according to Amelia, was the presenter having an established understanding of the specific needs of their audience. She felt this condition could be satisfied by "asking beforehand what they want to know." During her interview, Amelia conveyed "it would be great to have a survey go out from the presenter." She suggested the survey could ask attendees to give reasons why they would be attending, to share how much they already know about the topic to be presented, and "that kind of stuff." She continued, "So, if a presenter knew me as a learner and why I was there, I think that would even help them to present." Like Amelia, Emily also suggested a presenter could establish the needs of the teachers who would be attending by providing them with a survey. This recommendation aligned with Emily's own experience in which she completed a survey conducted by her school's media specialist. It was in that survey that Emily indicated her interest in learning about Google Classroom because she was changing grade levels and felt led to learn more about it. From Lily's perspective, knowing their audience would also include the presenter needing "to know all the levels of people's education on computers, for sure." During Ava's interview, she argued the success an effective presenter is able to achieve is tied to their ability to "find where everybody's comfort level was with technology, so that we weren't feeling either bored or left in the dark." She suggested the presenter "have an idea in mind, but then you adapt it to the needs of your audience." By

differentiating their instruction based on the comfort levels of the training's participants, it would become less likely Ava "would tend to check out" because the presenter would know her specific needs and be able to respond properly before "it's all the way up there and I'm still back here."

One aspect of knowing the audience Olivia addressed during her interview related to grouping teachers so "all the other people who don't feel confident and comfortable" with technology together while those who feel confident and comfortable can be grouped together making two trainings on the same topic. Olivia revealed,

> I would feel comfortable in a large group with a bunch of digital dinosaurs. Like, that's really what it will come down to…because I would know I'm not alone. I'm not holding up anybody. I, you know, I'm going to get my questions answered, and I will bet that I'm not the only one thinking them…so, it won't make you hold back.

During the focus group session, Abigail spoke to this idea of knowing your audience. She took the approach that the presenter needs to be cognizant of the ages of participants, stating,

> Yes, there are some 23-year-olds in there, but there are people in their fifties. There are people in their sixties. You have to really think about your audience. You know, and if you zip through it, people are—maybe a small percentage will understand what you're saying, but you need to be considerate and, you know, go at a pace that is appropriate. You know and do lots of check-ins. If everyone's staring at you because they don't understand what you're saying…then you need to pause. You need to stop, and you need to go a little deeper. You know, don't just sail through it because you have a half hour.

Isabella felt “knowing who the audience is, and what they're going to be taking from it and where they're going to be applying it” is very important. To illustrate her point, she noted when a first-grade teacher and a fifth-grade teacher goes to the same PD training the takeaways are likely to be different, so it becomes the trainer’s responsibility to give “ways that they can both apply” whatever is being presented. Another approach that could be employed would be limiting the size and make-up of the group. This way, the presenter would likely find it easier to meet the needs of the group. A second approach Isabella suggested was to develop a system in which participants were able “to specifically pick” from “several options.” Isabella found this approach empowering because “I could pick which I needed.”

As for other aspects of knowing one’s audience, the responses participants provided four distinctive, yet relatable, features they perceived would help digital immigrant teachers experience in-service PD focused on digital technology integration more positively and productively. These four learner-focused aspects included: (a) support, (b) opportunity, (c) resources, and (d) time. When the goals of PD trainings focus on the teachers learning and being able to apply the learning back in their classrooms, teachers in this research study indicated a willingness to participate in these kinds of PD opportunities, even if it might they were offered outside their regular work hours or during the summer months.

Support. A supportive environment was identified by Olivia as one characteristic of effective in-service PD she believed would have a positive impact on her capacity to learn. During her interview, Olivia expressed, “I think, again, just being in an environment where you feel like, you’re not the only one…. it’s just a more comfortable environment and that makes all the difference.” For Olivia, creating a comfortable environment for the participants, like herself, to learn would require PD designers consider employing alternatives to the “one size fits all”

approach that treats those "who don't feel confident and comfortable and haven't grown up with the access to technology" akin to those who "grew up in [sic] digital age and digital world." She acknowledged that scenario would create two different PD sessions covering the same overall topic, but, according to Olivia, "just having that intimate little training for something, that's important."

While Olivia would feel comfortable "with a bunch of digital dinosaurs," Lily indicated in one of her questionnaire responses that she has "become very knowledgeable" and feels "confident when using technology in the classroom." Similar to Olivia, Lily suggested the idea of providing two informational sessions for teachers to choose from. One session could be dedicated to "those that are struggling with the technology." The other session for who are feeling comfortable for the technology. By creating two separate sessions, in-service presenters could attend to pacing each session differently likely ensuring those who are struggling would get the support they need while giving other participants opportunity to advance their digital competencies and skills. Whether it be the same presenter presenting to the separate groups or two different presenters presenting concurrently, Olivia felt presenters have a responsibility to "be prepared to present in the way that fits that audience" if their intent is to realize the goals of the in-service training. In addition to being prepared to present, Amelia preferred they also be "prepared to help the trainees after the actual training" as well. For her, she would like for her trainers to give her "guidance and support after" which would include that they "even come into my room to assist me and the students with the technology."

Another aspect of knowing one's audience that had relatedness to Olivia's feeling that presenters have a responsibility to be prepared for their particular audience was brought up by Ava. The ability to read the room has to be a skill that presenters possess. By monitoring the

participants in one's training session, the trainer would be able to see if their audience is getting the content as it is being presented or not. If the trainer is monitoring, then in Ava's thinking, she might hear the trainer signal they are making an adjustment by stating, "Oh, I was planning on doing this, but I realized that this isn't what you guys—" or "this is what you need to be able to get to this point. So, I'm going to switch gears and teach you all this, and I'm going to make sure you get this." Ava shared that "too many times" in staff developments that the presenter acts like "they have to get through all this material, and so regardless of whether or not people are understanding, they got to keep move on." She felt the presenter would be supporting her learning better and the PD session would be more effective if they would focus on their audience's learning needs over getting through the material. Ava "would rather know a lot about one thing, then a little bit about a bunch of stuff that I'm not going to go back and try because I don't know enough about it."

Modeling and constant dialogue were two support ideas Olivia felt would benefit her. Having a trainer talk about and then do something without "then having us do it" did not help Olivia like the time a presenter modeled and then had the teachers do what she had done. Olivia felt what that presenter had been "was great." In addition to a trainer modeling and then giving participants opportunity to do it as well, Olivia would feel more supported by the trainer if they are engaging with their trainees by "having a constant dialogue" with them. Being asked questions, such as "Can we move on?" empowers participants giving them greater control over the pacing of the in-service and by providing them with opportunities to indicate their readiness to move forward, as well as their need to slow down and receive more support.

Opportunity. Participants often described themselves as learners who learn best by doing. Hands-on activities have been recognized as an effective practice in teaching and

learning, yet participants relayed they did not feel they are being given enough opportunities to practice what is being taught. During her interview, Emily highlighted the differences between what she views an effective in-service training and one that is not effective. She stated,

> You give a little bit of information, then you have everyone practice, and then you have a little reflective period. And then you give a little bit more, because you, more often than not, you, the person who's giving the training talks and talks and talks and talks and talks and you see this glazed over look on all the educators' faces. You've lost them.

During her interview, Madison related a "you've lost them" experience at a training she attended in her school. The presenter came to show the group some features on a new digital tool that had been purchased for their classrooms. Madison could see the gentleman had a set game displayed on the device, and he was saying something to the effect of, "You can move this and do this and go to this corner and cut and paste and…" and she was thinking, "Whoa!" The "Whoa!" was not one conveying amazement but rather the feeling of bewilderment when she followed her reaction by saying, "And I'm more of a person, like, if I do it, I'm going to remember it." When she participated in the focus group interview session, she shared another experience similar to the aforementioned. Based on what she could gather, she thought the presenter was doing "a review from what they had been the year before," so the presenter flew through the content. For her, it was a disaster because she wanted "more step by step" so she could be able to use what was being presented. She left feel annoyed and defeated because she "wasn't going to use any of these" things the presenter talked about. Madison believed with somebody supporting her, going step by step she can learn. One form that support could take would be more "hands-on where we're actually coming up and we're looking at the computer," but instead of her being expected

to sit there, watch, and get it. The way Madison sees the role of presenters and trainers is to teach as "more of a facilitator, and we're doing the work rather than sitting back and listening" because "that would be great for me."

Ava's position was similar to Madison's in the fact that she would actually like "having the opportunity to try out whatever they're showing us, having the technology available, having us almost like the students in a classroom, you know, where they're showing us this is what you're going to do, so I could see exactly how it would work." Abigail also conveyed she would prefer having "an activity that goes along with" whatever the trainer is presenting.

Having the opportunity to work through the learning process for participants was something participants believed would encourage them to want to learn more and to try to integrate digital technologies into their instructional practices. However, teachers tended to have the takeaway of "here you go" without really being given those opportunities. Isabella communicated she needs a more comprehensive approach if she is going to be a successful learner. She described her process being more like,

> I think me being able to walk through the steps and do it as it's being explained. After it's being explained, just me being able to visually go through and do it myself to where I can see and then make those connections of where I think it will work, this won't work. Can I? Can we do this? And then being able to ask those questions in the moment, too.

"Being able to" was a phrase used by participants. As it was used, it was essentially a request by participants for opportunities to have the teaching and learning practices shared to address their perceived needs. For example, being able to see what it looks like in other classrooms was a desire Mia shared. Like Mia, Isabella would want to be able to go in other

classrooms and really see how it works. Emma suggested, "If there's something that your teachers want, you want your teachers to do with technology in their classrooms, let those teachers come in and help the ones that don't know how. Live action, right there." Isabella would also want to be able to take a new digital tool back to her classroom, use it, and figure out how it might work in that setting. Besides pushing in-service opportunities into the classroom, Mia shared she would want to be able to ask her questions during the training sessions and to have trainers be able to circulate around the room helping trainees. Being able to be shown rather than just be told was signaled as an essential element for Amelia as she wrote on her questionnaire, "I can't just be told or hear how it works. SHOW ME!!!" Based on her own experience of moving grade levels, Emily felt it is important for teachers to be able to "receive the training you need to do that" transition successfully.

Resources. Providing digital immigrant teachers with the resources necessary for them to become effective integrators of digital technologies in their instructional practices requires someone to assess their situation along with their perceived needs. Participants voiced what they perceive their resource needs would be. These needs related to both their in-service participation and to their work as an educator in the classroom.

With regards to participation in PD trainings, both the physical space and tangible resources were discussed by teachers. Sophia indicated her preference for her in-service trainings would be "a very small group of people in a small room where you definitely have directions on how to do something in a packet next to you." She felt a smaller room with less people along with a printout of the information for the session, including the directions for how to use the digital tool, would be helpful. Besides having the hands-on resource of the packet of information and directions, Sophia also reported it was "difficult for me because when you're

sitting in a big media center, it's hard to see the specifics" on the lone video display. Mia talked about one of the trainings she attended that had a considerable number of participants, so it was held in a long room. She expressed appreciation for the accommodations of additional video screens along the walls because the size of the room and the number of people necessity the need for "those extra screens because it's just too hard from the very back of the room to see what's going on."

At the same time, Mia suggested trainings with larger groups should include "more people to help, even if they're just question answerers" because she did not get to have her specific questions addressed during the session. Having additional support personnel walking around was a recommendation Abigail shared because she might it would be helpful to her and other participants. Emily believed having "someone that's on your side and willing to teach you and show you" would be "invaluable." While it would not be reasonable for one presenter to be able to come along side each and every attendee at one of their trainings, being prepared to deploy additional support personnel to offer more individualized, immediate support was an idea the teachers felt would have a positive impact on their learning and their experience at in-service PD.

Similar to Sophia, who indicated a preference for hardcopy packets containing information and directions pertaining to the content of the in-service training, other participants communicated it as a preference as well. Olivia voiced she "would like a little packet of information to be right here that I'm going to follow," because she believed, "It's my brain." "Having the paper there with the instructions that I follow," she argued would be a valuable resource to have because "for me to go back and forth on my computer will be very hard for me

to do." Amelia also shared her appeal to be given "the steps on paper" so she could follow them more confidently and at her own pace.

Being able to walk out of an in-service training with a hardcopy packet of information and instructions would likely assist teachers in applying the content in their classrooms. Olivia suggested another resource that she would find helpful would be "having a little support line" teachers could utilize "where you could just throw out some questions or concerns." The support line idea might help address the feeling of one-and-done trainings by giving teachers a real sense that "you weren't left alone and never to hear from that person [the presenter] again." As previously mentioned, Amelia would want her presenter to be "prepared to help the trainees after the actual training." A support line, like the one Olivia advocated for, could be a tangible way a presenter could continue to be a valuable resource for their trainees.

As mentioned in the participants' responses to Research Question 2, teachers found it frustrating to be required to attend trainings on digital devices they and their students did not have access to in their classrooms. As a teacher who had taught primary grades for many years before transitioning to teaching in a fifth-grade classroom, Emily had experienced the differences between the digital technologies available to teachers and students in lower primary grade classrooms and those available in upper elementary school classrooms. To her, the obvious first step if all teachers are going to be required "to completely integrate it in the classroom" would be to address the digital device deficiency in primary grade classrooms because "those K-1 teachers need to a full set of laptops. Every kid in the classroom needs it because they're not going to become digitally proficient unless they all have one and they're accessing it every day." Providing appropriate and compatible resources at in-service trainings and in the classrooms was identified as an essential component in helping digital immigrant teachers develop the

knowledge, skills, and capabilities needed to integrate digital technology in their teaching practices.

Time. The concept of time was addressed by most participants. There appeared to be a consensus among participants that effective in-service PD would have them as more active in their learning. In order for teachers to become more active participants, trainers and presenters would need to address some of their training practices. Abigail suggested they "just don't talk too long." While she acknowledged they need to "talk a little bit" but they should also "let the people have some practice with what you're teaching" because "adult learners also need that time to kind of learn something, process it, maybe have a little practice time."

The ideas Abigail shared were echoed by Ava. She described an ideal in-service session having,

> They show. Maybe that might take 15-20 minutes, but then I think I would want the same amount of time to try it out because I don't know what I'm going to encounter. I think if they show us and then we were given the opportunity, I would think maybe like 15 minutes or, you know, enough time that I would be able to see if it works. If I encounter difficulties and be able to talk to somebody about how to fix, you know, like, what's going on and what does this do. Enough time that I'd be able to then have a conversation afterwards with my peers or with them about what we just did."

Ava also indicated she would want the trainer or presenter "to be flexible" with regards to time and pacing. She conveyed a scenario as follows,

> So, let's say that we're doing it and they realize, 'Oh, 15 minutes isn't long enough for these people to try it out because there is some difficulty going on or I

> need to work with you. There's time built in that instead of saying, 'We're going to get through this amount today,' that they have an idea in mind…. You have an idea in mind, but then you adapt to the needs of your audience."

Both Emily and Isabella expressed their need to be active learners at PD sessions. Isabella reported she sees herself as "a hands-on learner" so whenever she has someone tell or show her about something, she would want "a few minutes to look through it, like really, like look at it on my own in the moment before they move on." Emily also indicated that sense of immediacy stating, "If you're going to teach me how to do something, I've got to do it right then and there." For Emily, she would want the presenter to give her "some time to acclimate myself to it." Isabella communicated her impression that it "always helps me." Being granted time to practice the new learning in the moment was an attribute both teachers would appreciate having available to them at in-service trainings.

In addition to practice time within the scheduled session, participants also shared a desire for the sessions to be subdivided into smaller, more manageable learning opportunities. Madison felt digital technology integration in-service trainings should be formatted as "a series of training" with breakout groups that would focus on specific developmentally appropriate technologies for participants to select from. In her thinking, if it were organized "something similar to a book study where you need to come back with assignments using what you had just learned," then she might experience a more positive impact on her ability to apply what she was being presented with in her own classroom. Madison's thinking related well with what Olivia felt would help her in becoming more successful at applying the content and concepts of in-service PD in her own teaching practices. By chunking the content into bit-sized pieces, Olivia felt she could go back to her classroom and try to apply it better. Like Madison's idea of coming

back with completed assignments, Olivia felt "when you come back for the next meeting" there could be time to discuss what worked and what didn't, along with time to explore the "Why?"

Olivia's idea of in-service participants having opportunities to come together to discuss what worked and what did not does require members have a knowledge base from which to construct their ideas. Mia argued, "You have to understand how something works before you can integrate it and be creative with it." Successful digital technology integration requires teachers be able to work through the learning process. Participants recommended they be given the time to work through that progression before they can become successful in their implementation. As a matter of fact, of all the quality attributes of effective PD, Abigail named "to have time to practice what I have learned" as "the most important attribute" of all attributes when she is "learning new technology." Developing an understanding of how something works must proceed integration. Mia noted integration is not just about having computer time, but "it's threaded, you know, with the curriculum. So, help us do that." The help Mia and other digital immigrant teachers are asking for includes an in-service model in which content is scaffolded into a series of manageable chunks over time and in which each session participants are afforded the time to practice what they are being shown.

Summary

This chapter presented a thorough description of each participant, which included demographic information and pertinent elements of their formative school experiences with technology. Research results followed. The first section of results examined the development of themes and subthemes. The second section communicated participants' responses to the three research questions this study addressed. Since the study sought to capture digital immigrant educators' voices as they reflect on their lived experiences attempting to integrate technology

and attending related in-service professional development opportunities, the study's 11 participants were asked to share their voice by responding to questions and prompts embedded in the three data collection instruments. Through each of these mediums, participants communicated their lived experiences, beliefs, thoughts, feelings, and ideas. Data analysis utilizing the IPA research method led to the development of an exhaustive thick, rich description of experiences digital immigrant teachers have had attempting to integrate digital technologies into their instructional practices to better meet their charge of teaching digital native students in today's digital world.

Efforts made to uncover a deeper understanding of these teachers' educational experiences using digital technologies and their participation in technology-focused in-service professional development resulted in a large volume of data, which was analyzed using the IPA approach. Analysis of the data yielded three superordinate themes, namely (a) two sides to the digital technology integration coin, (b) inconsistency, and (c) learner-focused differentiation with specific components evident. Subthemes for each superordinate theme were presented and discussed. The responses each participant provided in the questionnaire, individual interviews, and their respective focus group interview session were examined in light of the research question to which they related. Through the presentation of participant responses by research question, the findings were put forth in a manner that allowed for making sense of what their experiences has been and for constructing a deeper understanding of how their in-service PD might be fashioned to meet their desires to learn and to integrate digital technologies into their classrooms.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this phenomenological study is to explore the shared experiences of digital immigrant teachers in a suburban school system. The 11 research participants were educated prior to today's digital-rich age and often presents challenges for digital immigrant teachers to teach digital natives using digital technologies. The study sought to capture these educators' voices as they reflect on their lived experience as they attempted to integrate technology and attend related in-service professional development opportunities. Chapter Five includes a summary of the study's findings which specifically answers the research questions. A discussion of the findings and its relationship to empirical and theoretical literature is provided. Next, the theoretical, empirical, and practical implications of the study's findings are examined. Finally, an outline of the delimitations and limitation, and the recommendations for future research, and chapter summary completes this chapter.

Summary of Findings

The findings of this study include addressing each research question using data collected from individual interviews, questionnaire responses, and focus group sessions. Following the data collection, an exhaustive process of interpretive analysis was initiated. Analysis of participant questionnaire responses and answers provided in the individual interviews and focus groups resulted in three superordinate themes. The theme identified included: (a) digital technology integration is a two-sided coin, (b) inconsistency, and (c) learner-focused differentiation with specific components. Each research question was answered using these themes originating from data collected from interviews, questionnaires, and focus groups.

Research Question 1

The first research question asked how digital immigrant teachers (born before 1980) described their own experiences with digital technology integration. When asked to describe their own experiences with digital technology integration, research participants communicated two distinct realities. Digital immigrant teachers experienced the integration of digital technologies very differently from the students they teach today. The classrooms in which they were once students differed from the classrooms in which they now teach. What their teachers used to provide instruction is not what today's teachers are being given to teach their students. Their experiences with digital technologies transformed over the course of many years from essentially being non-existent to now being a part of everyday life. Participants acknowledged they now regularly interface with digital tools, including the use of smartphones in their personal lives and computers in their professional lives; however, these interactions with digital technologies was not present during the participants formative years.

A research study parameter required all participants to have been born prior to 1980. While a limited number of digital devices were available at that time, people did not typically have access to them in their everyday living. School systems were not regularly allocating funds to acquire digital devices for their teachers and students. As a result, it was highly unlikely to see such digital devices in the classroom setting. It is important to note that several participants reported having no recollection of seeing any in a school prior to becoming a teacher. What participants did recall seeing in their schools were typewriters, film and overhead projectors, and books on cassette. While precursors to today's digital devices, these devices were starkly different from those found in today's classrooms.

Participants reported a sense of amazement with digital technology. The consensus viewed it to be an important asset with the capacity to enhance their instruction. Teachers reported positive aspects of its impact on their students. Students were motivated to use digital technology in the classroom. Some of the activities available on digital devices led students to be more actively engaged with the content. However, teachers also expressed significant reservations. Included among their areas of concern were the perceptions that digital technologies did not require students develop critical groundwork skills, hindered social interactions, and created an artificial sense in students that they did not have learn because they could just look things up online. These concerns produced reluctance in teachers to add more opportunities for their students to be in front of computer screens any more than they already were. Some participants voiced concerns over how their role as teachers were being fundamentally altered. They questioned if they would eventually be relegated to supervising students as they sit isolated behind computer monitors being taught by computers.

Research Question 2

The second research question asked the digital immigrant teachers to describe their own experiences with in-service professional development focused on digital technology integration. When asked to discuss their experiences at in-service PD focused on digital technology integration, participants were less likely to speak favorably of those experiences. Several reasons were evident in their reporting. Specifically, primary grade teachers expressed frustration because often they found the content being presented was not appropriate for their classroom context. Often, these teachers were presented with integration ideas, yet they lacked the digital devices to implement the ideas with their students. Another point of frustration for them was how their young students were required to log into devices and application with

credentials that proved problematic because of their age. Other barriers reported by participants included presenters going too fast, not having handouts to follow along with, and teachers not having the digital competency knowledge and skills required. Teacher descriptions of these experiences included teachers sharing how they were uncomfortable to ask questions to trainers. When they did ask questions, most participants felt their questions were not properly answered by the trainers. As a result of their less than desirable PD experiences, some participants felt "left in the dark," as Ava phrased it, when made to attend these types of in-service PD sessions.

While there were a host of instances in which technology integration-focused in-service PD experiences did not fulfill their intended purpose, other in-service PD experiences with a technology integration focus were attributed credit for helping teachers develop technological knowledge and digital skills. These positive experiences were characterized by personalized support and delivered over time. When teachers felt trainings were personalized, they reported greater success in learning the digital technology and integration ideas. Over time, they were able to take the steps necessary to integrate the digital technology into their instructional practices. Several participants discussed how invaluable it was to them when PD providers pushed into their classrooms and worked directly with them and their students in real-time. Being able to receive that level of support, especially when sustained over time, helped teachers develop digital competencies and to grow confident in their use of digital tools with their students. Appeals for push-in opportunities were expressed by other participants, but they had not yet experienced that type of personalized support from those responsible for providing their in-service trainings.

Research Question 3

Participants were also asked to share how digital immigrant teachers perceived their in-service professional development focused on digital technology integration could be structured to address their specific learning needs. Teachers discussed specific needs, such as handouts to follow along with and more time to explore and practice during training sessions. A common thread weaved throughout was their desire for in-service PD developers and presenters to appreciate them as adult learners by providing learner-focused differentiation. Teachers felt, as adult learners, they needed to be the emphasis of their technology-integration focused in-service trainings, rather than it be the trainer's focus to get through their presentation. Teachers expressed they needed to have more direct support, to have a variety of learning opportunities, to be given the resources they needed, and to have additional time to learn before being expected to integrate. Providing these elements would require developers and trainers to know their audience and differentiate according to those needs. While there were several participants who identified specific individuals who they felt were invested in them as adult learners, some of those individuals had been moved to other schools or had left the school system. As a result, while their desire to learn new things remained, their learning needs were not being properly addressed because those positive teacher-learner relationships were no longer in place.

The idea of presenters knowing their audience was discussed at great length. A way of addressing this element was proposed. The idea put forth was to give teachers the opportunity to self-select their technology-focused in-service professional learning opportunities. For many participants, they felt they were made to attend in-service PD that was not appropriate for their classroom or for them based on their current level of technological knowledge and digital skills. Teachers desired greater control over what they were attending and were not required to attend.

Participants felt they could not be successful because what was being presented was inappropriate, and as a result, they were frustrated their time and needs for professional learning were not being respected. Teachers knowing what opportunities were available to them and being able to select a learning path matching their specific needs was viewed as an essential element. Choice and a personalized learning experience could be incorporated into the overall professional development programs afforded to them.

The 11 digital immigrant teachers provided a thick, rich description of the lived experiences. The ideas they offered were numerous. Analysis of the data has afforded stakeholders of technology integration-focused in-service PD with much to consider. The findings showed digital immigrant teachers had not experienced digital technologies in their own formative learning years as their students are experiencing it today. Evidence revealed it can be a significant barrier for digital immigrant teachers. These teachers understood digital technologies are a part of teaching and learning today. Although they have this understanding and are dedicated to teaching their students in today's digitally rich world, digital immigrant teachers sensed they currently lack the technological knowledge and skill to be proficient at integrating digital technology in their instructional practices. They shared their need for more effective in-service PD if they are to become proficient at integrating digital technologies effectively and purposefully.

Discussion

This section will discuss the research study's findings in relationship to the theoretical and empirical literature presented in Chapter Two. Constructivism and Technological Pedagogical Content Knowledge (TPACK) served as the theoretical frameworks for this study. The study's findings underscore the importance of knowing that digital immigrant teachers have

experienced teaching and learning in significantly differing ways. The education they received as students prior to the advent of the digital age varied considerably from the education they are charged with providing to their students in today's digital-rich world. In addition, how digital immigrant teachers have experienced in-service PD focused on the integration of digital technology and how they perceive it could be structured will be discussed through the lens of the existing literature.

Theoretical Discussion

The theoretical works of Jerome Bruner were furthered by the findings of this qualitative research study. Narrative theory argues that one constructs meaning through culturally-shaped cognitive and linguistic processes (Bruner, 2004), and the meaning one constructs may help one make sense of "the way they have developed over time into the kind of person they are now" (van Manen, 1994, p. 159). Digital immigrant teachers who participated in the study shared their lived experiences and the ideas they have constructed based in those events of life. Their view of digital technology was one of wonderment but also of caution, which was evident through the stories they told and the ideas they communicated. How digital immigrant teachers viewed their overall capacity to learn was high, yet most tended to scrutinize their ability to learn about and how to use digital technology at in-service PD. Several participants described themselves as being a slow learner when technology was the content focus. One, in particular, shared her fear of using a computer around other adults in part because she had been a slow typist in middle school. The way in which each participant viewed themselves as users of digital technology could be seen in the stories they chose to tell and how they remembered those experiences, which served to strengthen Bruner's theory of narrative.

The constructivist theory espoused by Bruner was also supported by the research study's findings. Bruner's position on the context of culture was evident. The culture digital immigrant teachers grew up in was very different from the digital culture of their students today. They perceived when learning happens best included a strong sense of the human element of a teacher. The way most participants perceived their students' preferred way was to do activities on a digital device. This contrast led teachers to question the appropriateness of digital technology in the teaching and learning processes, especially the younger the students were.

In similar manner, digital immigrant teachers reported frustrations with their in-service PD when they were not given the kind of learning devices, such as handouts, they had been accustomed to when they had been in school. They reported instances in which in-service trainers would move rapidly through different application screens directing participants to click here and click there, which left many feeling more frustrated as they left the sessions more confused and unable to learn it on their own. Their in-service experiences were not addressing their learning needs.

Mishra and Koehler (2006) proposed the conceptual framework of Technological Pedagogical Content Knowledge (TPACK) based on their research that found "teaching is a highly complex activity that draws on many kinds of knowledge" (p. 1020). Twining et al. (2013) agreed teaching is complex, particularly when teachers blend multiple domains of knowledge. TPACK reasons teachers must move beyond the core knowledge components of content, pedagogy, and technology to create an interactive blend of the three domains (Koehler et al., 2013). The techniques a teacher might employ would require the educator have more than a base knowledge in any combination of the three components. Pertaining to the digital technology integration focus of this research study, An and Reigeluth (2011) noted TPACK

requires teachers possess a technological skillset that goes beyond technical skills alone. For teachers to be able to effectively integrate technology in dynamic ways, they need professional development that is learner centered rather than focused on technological devices. The findings of this research study reinforced the existing literature that supports the need for digital technology-related in-service PD to move its focus "from building teachers' isolated technical skills to preparing teachers to implement technology-enhanced, learner-centered instruction" (Polly & Hannafin, 2010, p. 55). Such a transition would require a fundamental shift in the planning and implementation of in-service PD. That shift should start with PD designers, trainers, and presenters rethinking what their starting point for designing in-service PD should be and preparing to present such PD. Specifically, the digital immigrant teachers who participated in this study argued learners need to be the starting point for their in-service PD opportunities.

Digital immigrant teachers revealed they see digital technologies as being capable of enhancing instruction, yet most viewed their current level of digital literacy to be at less than proficient. Participants indicated they believe they have the capacity to learn new digital technologies and how to integrate them into their teaching practices. Not only did they present themselves as being capable, they were able to express what they perceived they would need to develop digital competency. Support and time were both cited specifically. They were also open about their willingness to learn and to try to purposefully use digital tools with their students. However, because of the lack of a sufficient knowledge base and technical skillset, teachers knew they were struggling to implement the type of technology-enhanced instruction they are expected to provide students. In addition, most reported their in-service PD trainings were not providing them with what they knew they needed in the ways they felt would help them

become effective integrators of digital technology in their teaching practices and for improving student learning outcomes.

The idea of purposeful use of digital technology was cited explicitly on several occasions and referenced implicitly, as well. Participants indicated their desire is to provide students with purposeful uses of technology. Research findings pointed to digital immigrant teachers lacking considerable understanding to "make sensible and creative choices in their use of technology" (Baran, Chuang, & Thompson, 2011, p. 370). Teachers did not possess the technological knowledge to interactively blend that knowledge base with their content knowledge and pedagogical approaches. As a result, teachers could not pass "…the ultimate test of understanding" that "rests on the ability to transform one's knowledge into teaching" (Shulman, 1986, p. 14). The constructivist tradition advances the idea that learners construct new knowledge and ideas using existing knowledge. Constructing knowledge is viewed as an active and dynamic process. Likewise, finding understanding is sophisticated. Because digital immigrant teacher lacked the essential building blocks that develop through experience, they were not able to readily learn and assimilate the technological knowledge into the content they teach and the pedagogical approach they deem "best fit" for what they need to do instructionally. The results of these teachers' in-service technology integration-focused PD sessions provided additional support for the idea that one's desire to do something is not synonymous with having the understanding necessary to make it reality.

Empirical Discussion

Relevant to the study was the concept of a digital divide. The assumption individuals born prior to 1980 fit Prensky's (2001a) description of digital immigrants. This assumption was advanced by other researchers as a valid term to use when identifying persons born prior to the

advent of the digital age (Brooks-Young, 2005; Donovan et al., 2010; Stoerger, 2009; Toledo, 2007). The stance taken by this researcher prior to the data collection, was that evidence made available by the participants would substantiate that assumption. There was well-defined data brought forth that they believe they are considerably different from the students they teach today. Further evidence suggested participants view younger teachers coming out of college and into the classroom today are different being more like the students they teach than themselves. Prensky (2001a) cited examples of digital immigrants asking for hardcopy print outs in lieu of reading the same information viewable on a computer screen, which was found to be true in this study. While a comparative sampling was not assembled for statistical purposes, the fact that only two of the 11 participants perceived their digital competency to be proficient supported Al Bataineh and Anderson (2010) who found older teachers tended to describe themselves as being less than proficient with integrating digital technology. Participants also perceived their students to be eager to use digital tools and able to quickly learn how to use new technologies recently made available. In contrast, the tendency for these teachers was to emphasize how overwhelming it can be and how they need much more time than their students to learn the same new technologies. Matter of fact, Emily had remarked it was scary because "a 10-year-old is more competent than a 41-year-old in the realm of technology". These findings gave credence to Bunch, Robinson, and Edwards (2012) who argued while students are ready to use, their teachers are struggling to learn.

Nikolopoulus and Gialamas (2015) call from continued research that would examine how to help teachers learn, become more confident, and then become effective users of digital technology in their classrooms. Their call was heard and helped form the foundation for this research study. In their findings, they noted years of teaching experience could be a potential

barrier to technology integration. They reported the lack of experience with computers can influence one's level of confidence with technology use in the classroom. Those findings paralleled the findings of this study. Participants who reported any amount of computer experience during their formative education and college years were more apt to attempt to integrate digital technology in their classrooms. The opposite was also true. Participants who had reported not having computer experience during those years tended to have less confidence and were not as quick to make those attempts.

Another foundational element the researcher felt needed to be explored more closely through the research study was teachers' in-service professional learning experiences. The theoretical idea of constructivism framed the study. How teachers had experienced and made sense of their own learning was of much interest. By going back to their formative years, prior to the advent of the digital age and moving forward to their present reality of learning in this digital age, it was abundantly clear the vast majority of the participants' learning experiences were without the presence of digital tools. For them, their lived experiences involved good teachers who directly presented them with the content they needed to know and understand, with the skills they would need to use, and the meaningful human interactions inherent in positive teacher-student relationships. Based on this analysis of the lived experiences and ideas shared by the participants, these are the elements they perceive are characteristic of high-quality teaching and want to give to their students. The message these teachers heard in professional development sessions was digital technology integration is the new way of teaching and learning. Their school leaders and PD presenters are expecting them to become effective with their use of digital tools and that they will integrate the technologies and ideas into their instructional practices. In addition, their students come to them excited to use digital tools and are motivated

when they are made available. Participants agreed digital technology can enhance teaching and learning; however, they were not committed to giving up their core educational philosophies rooted in their own learning experiences.

Much research has been conducted about in-service professional development since the British government commissioned James Report (1972) argued "in-service training should begin in the schools" (p. 11). They reason in-service teachers benefit most in continuing their professional learning when their in-service PD addresses what they need as adult learners. The findings of this research study support their reasoning, but equally so, the findings also reveal when teachers believe they have "no input in the planning of professional development activities" the in-service trainings they attend feel "disconnected from the subject matter and…topics unhelpful and irrelevant" (Bayar, 2014, p. 323).

Digital immigrant teachers reported their in-service trainings often left them with feelings of frustration because the topics covered were not relevant to their classroom contexts. Primary grade teachers were especially frustrated when they were required to sit through sessions in which the presenters talked about things upper elementary school teachers and students could do with technology in a 1:1 digital device classroom. Often, when primary grade teachers were able to attempt integration, they experienced difficulties with complicated login procedures for their young students which greatly decreased the time they had available for students to engage with the digital tool. Additionally, several teachers reported discovering they would suddenly need a paid subscription after the free version of the application was no longer available. Other aspects of their in-service training experiences, teachers expressed displeasure when they felt their individual specific learning needs were not appreciated. As digital immigrants, they reported wanting to get hard copies of the information and step-by-step directions, but those paper copies

were not even offered. Ample time for attendees to pose their questions was often not provided during training sessions. Others communicated trainers did not answer their questions satisfactorily. Teachers communicated they desired direct, individualized support, but it was seldom provided. In summary, digital immigrant teachers felt they were not receiving what they needed and what was being offered did not align well with what their classrooms had for digital tools, nor was appropriate for their students.

A significant criticism with major implications voiced by participants aligned directly with Desimone's five features of effective PD, which are: (a) content focus, (b) active learning, (c) coherence, (d) duration, and (e) collective participation. The results were abundantly clear, time was a source of frustration for participants. In this study, the time digital immigrant teachers sought related to both the time to investigate and to practice, as well as, the duration of time. These teachers operated with the understanding digital immigrants specifically needed more time. Teachers need additional time to acquire and begin to effectively use the digital skills themselves if they are expected to be effective to help their students acquire and learn to purposefully use the skills needed to thrive in the global, digital world (Matherson et. al., 2014). As so many of these digital technologies are new to them, along with their belief that they want their students to become purposeful users of digital tools, teachers felt they would need more time to process the content being presented. They needed more time to investigate and dialogue with colleagues, time to practice, time to reflect, and time to go back to their classrooms to try the new content out before they would be able to integrate it into their instructional plans. Teachers sought this time as they participated in in-service trainings; however, the complaint often conveyed by participants was presenters regularly used up the training session time talking at them. Other training sessions were reported to have trainers telling them to click here and

click there but not allowing the teachers time to do the investigating they desired, so they ended up feeling lost and confused. These complaints contradict the conclusion made by Nikolopoulus and Gialamas (2015) that PD include time "to learn/practice/plan ways to use computers" (p. 291). Whenever participants did report having the time they desired in a PD session and provided time to practice and explore, the outcomes illustrated the conclusions made by Potter and Rockinson-Szapkiw (2012), Saunders (2014), and Winslow et al. (2014) that the benefits of the PD are maximized for teachers because the conditions of their PD enable them to more effectively acquire the knowledge and skillset needed to use technology in the classroom.

When in-service PD experiences were reported as beneficial to digital immigrant teachers, these experiences had very specific elements that participants were able to identify. Fundamental to effectiveness, based on the reporting and analysis, was the fact that their learning experience took "place in real-world contexts," which Saunders (2014) postulates to be the "most appropriate model" (p. 178) of in-service professional learning. Teachers reported success in their learning of digital technology and most prepared to integrate it into their classrooms with their students when the presenters were with them in the classroom and students were actively participating. This model of trainers pushing into classrooms would require additional trainers to meet the needs of all learners. It would also require the trainer-teacher relationship be viewed as a collaborative partnership. Teacher and trainer must have equal value and importance in the relationship to ensure trust, so trainers should not be given evaluative responsibilities that leave teachers feeling threatened as they are learning and attempting to implement. The focuses of the trainer need to be that they are in continuous communication with the teachers they are working with (Keengwe & Kang, 2013), are providing hands-on experiences (Winslow et al., 2014), and are providing targeted support "based on the teachers' needs" (Bayar, 2014, p. 322). This PD

model appreciates the trainer-teacher relationship as a collaborative one and build trust. In doing so, trainers may be able to more effectively address the negative beliefs and feelings teachers have been reported (Crompton, 2015) and were substantiated by this study's findings.

Participants time and time again voiced the belief in their capacity to learn. It is important for school leaders and professional developers to "consider that teachers, as professionals, are committed to learning and have the capacity to define what is necessary for their own improvement" (Adams, 2014, p. 135). Digital immigrant teachers who participated in this study expressed their commitment to learning and were able to define their needs. In-service PD needs to be grounded in the distinctive context of the classroom and would be most appropriate when it is taking place within the classrooms with students actively engaged with digital technology.

The findings of this study validated the conclusions of Kalman and Rendón (2014) "until teachers have an understanding of the implications of this new technology, they can do little more than use pre-determined software, display content, and have their students do the same" (p. 987). According to Paily (2013), technology integration's success "depends not only on the availability of technology, but also heavily on the pedagogical design" (p. 49). While digital technology has been made available to teachers to use in their instruction and for their students to use, teachers reported their in-service trainings tended to focus on the operation of the digital tool. To imply simply knowing how to operate the device or application will improve teaching and learning does not show appreciation for the complexity of teaching and learning. While it is not reasonable to argue that attempts are not being made because there is clear evidence that supports the opposing point of view, it can be reasoned that not all efforts are created and delivered with the fidelity necessary to ensure all digital immigrants acquire the knowledge,

develop the skillset, and construct the understanding they need to become effective integrators of digital technology into their instructional practices.

An unexpected subordinate theme brought to light was digital immigrant teachers' concerns about technology's unintended impacts on students. While it was expected teachers would want to ensure integrating technology would be purposeful for their students, the fact that participants voiced considerable concerns regarding how digital technologies could be harming students warrants discussion.

Based on analysis conducted by the researcher, a superordinate theme formed indicates digital immigrant teachers view digital technology integration as a two-sided coin. One aspect that was quite pronounced was the concern of teachers that digital technologies are having an unintended harmful effect on young people. Teachers did not identify specifically how they came to acquire groundwork skills, including a good work ethic, problem-solving and critical thinking skills, and the social skills necessary for positive and productive face-to-face interactions with adults and peers. Nonetheless, teachers perceived students had developed these skills throughout their non-digital formative years. Participants thought their students lacked these skills and believed digital technology should shoulder blame. Citing the Internet's vast and rapid capacity to make answers instantly available, teachers noted students were not developing critical thinking as they accepted the first thing to come up as their answer to questions. Teachers reported students were easily attracted to games and entertainment online and were often off-task and not taking their schoolwork seriously. Some students were being sneaky and going online to unacceptable sites leaving some teachers feeling they were spending more time monitoring students' online history and less time teaching and supporting students through their learning.

These concerns were not isolated and do not relate to a teacher's classroom management skills. Careful and comprehensive consideration should provide teachers with content and practical strategies during in-service PD so they can use digital tools effectively and explicitly model responsible technology use with students. Are students internalizing these ideas to develop the groundwork skills that will help them thrive in a digital world? If not, then what must be added to the designs professional developers are putting forth to address these concerns? If they are already an explicit component of the overall digital curriculum, then why are teachers perceiving these concerns are growing in intensity, resulting in increased levels of anxiety in children and decreased levels of healthy social interactions? Further research is warranted based on the findings.

Implications

The implications of this research have been partitioned into three sections to address the theoretical, empirical, and practical implications of the study. The theoretical examines how the constructivist and Technological, Pedagogical, and Content Knowledge (TPACK) lenses is applied to this research and conclusions have been derived. The empirical describes how the related research supports the implications. The practical identifies actionable implications that may enable stakeholders to apply pragmatic solutions to relatable situations in their school.

Theoretical Implications

The theories advanced by Jerome Bruner and by Mishra and Koehler framed the study. Three theories were the work of Bruner, including the theory of cognitive development, narrative theory, and perception theory. The conceptual framework of Technological, Pedagogical, and Content Knowledge (TPACK) was presented by Mishra and Koehler. The three theories and the conceptional framework are all within the constructivist tradition.

Park and Oliver (2008) theorize a teacher needs to be able effectively transform their own knowledge on a subject matter into a teachable format for students to learn. Digital immigrant teachers have experienced a fundamental transformation in their lived world. The advent of the digital age occurred at a time after the years of their formative learning. The arrival of digital technologies in the classroom happened for a significant number of digital immigrant teachers after they received their teaching credentials, so it is highly unlikely they experienced any meaningful learning with digital technologies prior to being expected to effectively teach with digital tools. As a result, while they were developing their content and pedagogical knowledge foundations, they were unaware that another base of knowledge would be required. Being unaware of a yet-to-emerge technological knowledge, they developed instructional practices built on their own formative learning experiences, their pre-service training, and their experiences as educational practitioners. The digital immigrant teacher's knowledge on the subject matter of teaching and learning was constructed primarily before digital technologies made their entrance into their classrooms. Digital technology has created a line of demarcation separating the digital immigrant teacher's formative learning from how they are expected to teach today's students.

The findings of the research study gave credence to Bruner's theory that postulates "'stories' do not 'happen' in the real world but, rather, are constructed in people's heads" (Bruner, 1987, p. 11). Learners, in this investigation digital immigrant teachers, construct new knowledge and ideas using existing knowledge. The bulk of their existing knowledge is grounded in their lived world where good teaching and learning take place through human interactions. The idea digital immigrant teachers can simply be presented with novel, foreign ideas and tools and expect seamless adoption is problematic (Czajka & McConnell, 2016). It is

not a matter of retraining digital immigrant teachers and they will integrate technology. Likewise, it is not responsible to assume it is like a fill-in-the-blank with any "latest and greatest" option being "best fit."

Narrative and perception theories helped the researcher in the development of study. The methods, data collection instruments, as well as the analysis and interpretation of the data applied Bruner's theories to provide the thick, rich description of the participants' lived experiences. The act of making meaning of the stories they told and the ideas they perceived was accomplished using direct quotes from the participants and interpreting the descriptive narratives digital immigrant teachers shared. This study help administrators, professional development presenters, and future researchers to better understand the digital immigrant teacher's experiences and identifies how PD can be improved and enhanced to support them.

TPACK, a conceptual framework, recognizes "there is no single technological solution that applies for every teacher, every course, and every view of teaching" (Mishra & Koehler, 2006, p. 1029). The "one size fits all" model that focuses on technology tools does not take into consideration the experiences, attitudes, and concerns of digital immigrant teachers. Participants communicated a varied array of in-service PD experiences, including those that were perceived as beneficial to the teacher and for their students. Other participants did not have many positive experiences to draw from and have considerable apprehensions about future in-services opportunities unless there are transformative shifts in how in-service PD is provided.

Based on the research findings, TPACK may provide the remedy to the quick "hit-and-run" approach to professional development. Participants reported trainers tended to use up the session's time talking at them and showing them digital tools in use. Trainers tended to ignore giving teachers support and opportunity to make connections with the content they teach and the

pedagogical approaches that best aligned. Digital immigrant teachers craved support systems, including having trainers push into their classrooms to help teachers gain real-time classroom experience using technology with their students. The framework offers "new ways of looking at and perceiving phenomena and offers information on which to base sound, pragmatic decision making" (Mishra & Koehler, 2006, p. 1019). Digital immigrant teachers are looking to see their technology integration-focused in-service PD is content-focused and is embedded with a human interactive pedagogical approach they know to be effective in promoting positive and productive teacher-student relationships. Applying a TPACK-minded approach to the design and delivery of in-service technology-integration focused PD affords teachers and their PD trainers opportunity to "to focus instead, and in a more ecological way, upon the connections among technology, content, and pedagogy as they play out in classroom contexts" (Koehler et al., 2013, p. 18).

Empirical Implications

A significant assumption leading into this investigation was that a digital divide exists. Based on this researcher's own experiences as a teacher, the working theory was today's students are more comfortable with digital technology and more apt to find ways to use digital tools in their educational and personal lives than the adults in their lives. Parents were looking to get their information from printed newsletters and were handwriting notes to their child's teacher. The newsletters teachers created were produced using a Word processing program, printed off, copies made, and then sent home in students' backpacks. Teacher desks were covered with photocopied pages from store bought workbooks and worksheets they had made for their students to complete. This working theory was supported by the research (Donovan et al., 2010; Salajan, Schönwetter, & Cleghorn, 2010).

A result of this research study and the growing body of literature has provided additional evidence to support the position. Prensky (2001a) argued:

> …As a result of this ubiquitous environment and the sheer volume of their interaction with it, today's students think and process information fundamentally differently from their predecessors. These differences go far further and deeper than most educators suspect or realize (p. 1).

Nearly 20 years later, educators are still trying to make sense of what has happened and what to do as a most appropriate response. While the number of elementary school teachers born prior to 1980 decreases at the conclusion of each passing school year, this contingent of teachers still represents a large block of the teachers educating today's youngest learners. Cox (2013) argues the push in education for technology integration has made it more important to expand the research possibilities and to do so "in a deep, rich, profound way" (p. 209). Ertner et al. (2012) note digital immigrant teachers lack technological expertise which inhibits their ability to integrate technology into their instructional practices. The lack of experiential knowledge and practical training contribute to their struggle (Al-Rawajfih et al., 2010). In-service PD has the potential to help teachers gain the practical training and the experiential knowledge necessary to become effective integrators (Borko, 2004; Bybee and Loucks-Horsley, 2000); however, the existing research and the findings of this study are in agreement that when the focus of PD is on the technology rather than the learners the desired results are not achievable (An & Reigeluth, 2011; Harris & Hofer, 2011).

The remedy to focusing on the technological aspect is to focus on the adult learner. The body of existing literature supports this position as a remedy solution (Donovan et al., 2007; Rushby, 2013; Smith, E., 2013). Providing effective in-service PD begins with having a solid

grasp on the real-world contexts of teachers and their specific set of learning needs. Incorporating that understanding with core features identified by Desimone (2009) should lead to more effective in-service learning and better, more consistent implementation of technology integration practices (Alenezi, 2017; Çetinkaya, 2012; Gibson & Brooks, 2012).

Practical Implications

The findings of this research study revealed digital immigrant teachers have experienced the advent of digital technology deeply on both a personal and professional level. Through their own narratives, a wide range of thoughts, feelings, and emotions were expressed. On a personal level, participants shared their amazement with technology's ability to make information instantly available and to connect people throughout the world. Yet, fears were also expressed. The amount of personal information available on the Internet, according to Emma "is terrifying." Isabella, a mother of three children, shared her belief that "it is hurting personal relationships." The belief that it is causing "anxiety in people" was shared by Lily.

These digital immigrant teachers voiced the fundamental desire to see their students be successful in their learning. They were willing to make adjustments to their instructional practices to ensure that success could be realized in a digitally-rich classroom environment but also expressed concerns about losing out on some of the experiences they value greatly, such as holding books in their hands, and not developing essential life skills properly (i.e., having face-to-face conversations with others, cutting with scissors, and having legible handwriting). Essentially, their desire for the digital technology-integrated classroom was for the integration to be purposeful in benefiting the learners and not at the expense of learning other real-world skills and abilities.

The practical implications must be understood in the light that digital immigrant teachers believe they understand digital technology differently than it is often marketed. Yes, teachers communicated their desire is for students to learn and create with digital technology. At the same time, they want educational leaders and other stakeholders to appreciate them as experts in the classroom. They know and understand the importance of protecting students' need for positive social interactions with adults and peers. At the same time, they acknowledged their own need to learn more about digital technology. They shared a common belief that learning how to provide their students with the ways and means to use digital technology purposefully should be the primary aim of their in-service PD.

The chief implication for developers of professional learning opportunities revealed in the findings was the need to reevaluate current technology-focused in-service PD. Participants voiced many examples of how their technology-related in-service trainings were not addressing their student needs because their classrooms lacked the digital devices being presented or because the content was not appropriate for their students. More importantly, teachers reported the trainings were not considerate of their needs as adult learners. In this case, no number of digital devices or the appropriateness of the content for students would remedy the fact that digital immigrant teachers felt their learning needs were not being properly addressed. As a result, they were leaving sessions unable to apply the content presented to them at the trainings. A full evaluation of current approaches and practices must be conducted as a first step in affecting change.

Bayar (2014) and McDonald (2014) reported many educational and governmental agencies have not made the needed transitions to better equip teachers so they can integrate technologies into the teaching and learning processes. It is not as much a matter of simply

equipping teachers with digital devices as it is with ensuring teachers are also being equip with the knowledge and practices to be able to implement effective technology integration. The demands on teachers to competently use and integrate digital technology in their teaching practices was reported by participants. In some instances, teachers reported being marked down in the teacher evaluations because they did not have competency in this area. Without transformative in-service PD, these teachers would continue to struggle with meeting these professional demands.

Teachers are not achieving the goal of purposeful integration in part because they are not receiving the appropriate support they need. The study's findings indicate a perception that the technology-focused in-service PD currently being afforded to them is not meeting their needs appropriately. Pushing in-service PD beyond "simply to inform of best practices and expect faculty adoption" (Czajka & McConnell, 2016, p. 13) would require a transformative shift in thinking from "what are we providing" to "who are we supporting". Adopting a learner-focused differentiation model with specific embedded components would address a key element of what participants perceive will help them increase their digital literacy competences and skills and lead them to become effective integrators of purposeful technology use in their classrooms.

Desimone (2009) called for in-service PD to offer teachers "a vast range of activities and interactions that may increase their knowledge and skills" (p. 182). It is imperative teachers be afforded a wide range of professional learning activities and interactions. It is especially important that included among these activities that digital immigrant teachers have learning opportunities full of interactions with other educators. Professional learning communities (PLC), book studies, classroom visits, partnerships, and classroom push-ins by instructional technology

facilitators were all perceived to be effective activities and interactions digital immigrant teachers would benefit from.

Emily discussed the powerful impact learning about and experiencing PLC in action has made on her professional growth. As the school system has moved toward full utilization of PLCs, this platform of professional development may lend itself well for the adoption of a learner-focused differentiation model for in-service PD focused on the integration of digital technology. Thoma, Hutchison, Johnson, Johnson, and Stromer (2017) researched the potential for literacy-based technology integration PLCs within the elementary school setting. They reported the model utilized by three literacy teachers over the course of a school year was found to have a positive effect on the teachers' integration of digital technology into their literacy instructional practices. Their findings noted improvements over time in teachers' instructional goal setting, as well as their thinking about technology. Likewise, teachers became more likely to integrate technology into the content despite bumps along the way. All five features Desimone (2009) identified as effective practices were evident in their study. It is important for designers to ensure observable evidence is present in the professional learning opportunities it provides to its teachers.

Intentional planning of in-service PD must consider the needs of the learners (Bybee & Loucks-Horsley, 2000). When academic content and digital technology integration come together as learning goals for teachers to master through their participation in in-service PD, it is imperative for the content focus to come first. Technology should enhance instruction of content. Content should never be a means to enhance the use of technology.

Deliberate planning must also incorporate time for participants to actively engage with the content and give time for them to identify and construct what Baran, Chuang, and Thompson

called “sensible and creative choices” they will take back to their classrooms. Designers need to ensure presenters are not monopolizing time at trainings that leave teachers sitting there passively listening. Because of the demands on teachers, time should consider at a premium. Time should be carved out for teachers to be actively learning the content and working to apply their learning to their classroom needs. Time for “make and take” activities should be integrated into the program designers plan to deliver to teachers. Additionally, time should be considered with regards to duration. The recommendations made by Desimone (2009, 2011a) is teachers participate in at least 20 contact hours per semester. Elementary school teachers operate on a school year calendar rather than a semester schedule. The recommendation would translate as these teachers should be participating in at least 40 contact hours spread out over a school year, with the understanding being that each in-service session should build “on what teachers already know and is appropriate for their level of knowledge and skills” (Desimone, 2011b, p. 65); should align with standards, the curriculum, and policies and should encourage and support “sustained professional communication among teachers who are working to reform their teaching in similar ways” (Desimone, 2011b, p. 65).

It is imperative school leaders provide explicit support for their teachers by providing the conditions for teachers to grow professionally in the area of digital technology integration (Matherson et al., 2014). For the most part, participants understood and agreed with the reality that administrators would be evaluating them in this area. However, an underlining perception among participants was apparent. They felt their evaluators did not fully understand what should really be happening when teachers and students are using technology effectively. In addition, it did not appear participants felt their school-based leaders knew how to provide effective in-

service activities beyond having some teachers report to other teachers how they were using technology in their classrooms with their students.

To improve the support school leaders are providing to their teachers, school leaders must address their own learning needs. As instructional leaders in their buildings, it is crucial school leaders to learn more about digital technology, what its use should look like in the classroom at the various grade levels with their building, and how to accurately evaluate its effective use by teachers and students. As cultural leaders in their building, it would benefit all stakeholders for school leaders to model their learning progression and to be candid when discussing their concerns and struggles.

Providing the most appropriate conditions for teachers to thrive in their own digital learning progress will also require school leaders to strategically invest in teachers' in-service technology integration-focused PD. Participants were abundantly clear the solution is not to bring in more outsiders or to have trainers take up their grade level meeting times talking to them about something new. They believed the best people to provide their in-service PD would be teachers. Based on teacher recommendations, the most important strategic investment school leaders can make is to ensure the teaching faculty has a dedicated instructional technology coach readily accessible to teachers. Their recommendation parallels Knight's (2019) call for schools to provide coaches "who have a deep understanding of the strategies being learned and who provide adaptive support" (p. 13-14). These coaches will partner with teachers to support them as they "learn new strategies in the context of their day-to-day work" (Knight, 2019, p. 13). Likewise, Devine, Houssemand, and Meyers (2013) argue a coach "is an on-site professional developer who supports teachers…by providing on-the-spot practical support to teachers" to ensure the "coaching supports needs-based, real-time, on-the-job learning" (p. 1130).

As school leaders would be responsible for providing teachers with the coach support, it is imperative there be a clear understanding that the coach would not have any form of supervisory role over teachers. Such responsibility would likely compromise trust in the teacher-coach relationship. The coach needs to be dedicated to assisting teachers with addressing their own, specific digital learning needs. As Devine, Houssemand, and Meyers (2013) argue the most appropriate coaching model has them pushing-into classrooms in real-time to work with teachers while students are using digital technology. Blending the push-in approach with a "vast range of activities and interactions that may increase their knowledge and skills and improve their teaching practice" (Desimone, 2009, p. 182) will require school leaders commit to making the investment and to the process. It is important to note that digital immigrant teachers will phase out of the profession through retirement and other means, so this strategic investment will likely be able to be phased out as digital native teachers who are accustomed to learning with digital technology replace them or transition to address different needs as they arise.

The teachers who participated in this research study were all elementary school teachers. Not all of them came into the profession by traditional means. Some chose teaching as a second career. Regardless of how they came to be teachers, a shared interest in helping children learn was communicated. Another interest shared amongst the participants was their own desire to learn new things. They communicated their belief that they are capable of learning digital technology though several participants were explicit in stating an understanding that it would take them longer than others. The desire to learn coupled with the belief that one is capable of learning has powerful implications for digital immigrant teachers. It is paramount these teachers approach new learning opportunities with these understandings about one's self. Equally

important is that digital immigrant teachers clearly demonstrate these ideas when they come to technology-focused in-service PD training sessions.

Digital immigrant teachers are problematic. The findings of this study illustrate that point precisely. Petrie and McGee (2012) reported PD developers cannot treat teachers as though they "would learn what was taught in the PD and apply it in the classroom" (p. 70). PD trainers who assume their knowledge of digital technologies will be easily transferred to their audience, set themselves up to be ineffective. Equally so, digital immigrant teachers cannot permit their partial knowledge of and limited experiences with digital technologies to be seen as making them inadequate. They need to be able to communicate with their words their desire to learn, as well as, their needs. Along with better training for PD presenters, digital immigrant teachers need to feel safe communicating their current levels of digital competence and comfort in expressing their specific needs to learn. If the goal is for teachers to learn what has been taught and to apply it in their classrooms, then there needs to be more realistic expectations on the part of trainers and digital immigrant teachers.

Participants identified they have needs that have not yet been addressed appropriately so they are able to integrate digital technology in their classrooms. The researcher categorized their expressed needs as SORT (support, opportunity, resources, and time). Just as digital immigrant teachers expressed their concerns that digital technologies are hindering their students' social relationships, they desire for their presenters to engage in a relationship with them, as learners. Digital immigrant teachers also need to be open to building relationships with trainers. They need to be asking presenters the questions they have at training sessions and presenters need to address those questions. Instead of teachers walking out frustrated, they need to walk up to the presenter and invite them to come into their classrooms to model what has been taught. As

Abigail stated sometimes it easier to "jump on the frustration bandwagon…you, kind of, have to tune that out a little bit and just try to keep moving forward." While others might move for the exit, it is best that one moves forward and makes that invitation to the presenter.

Digital immigrant teachers would be better served being proactive in addressing their need for more. In-service PD opportunities related to technology integration are available, as some participants reported they engaged in these opportunities. Like struggling students in their classroom, digital immigrants need an additional level of support for what they may be required to do. Participants expressed the desire for more opportunities. Additional in-service learning opportunities need to be viewed similarly to the interventions they provide to their students as these have the potential to give digital immigrant teachers more of what they need to fill in gaps and to strengthen developing skills. Digital immigrant teachers should seek out activities and interactions with the aim of cultivating their developing technological knowledge and digital skills. Participation in book studies proved to be a very powerful avenue Abigail took in furthering herself. Seeking out partnerships with more digitally proficient teachers has the potential to positively impact their learning. Planning classroom visits and entering ongoing dialogues with a range of other teachers are two activities digital immigrant teachers can engage in to self-promote their professional growth (Borko, 2004). Working directly with fellow teachers who can model ways to integrate technology has the potential to help digital immigrant teachers become more successful in integrating technology in their own classrooms (Mueller et al., 2008).

Communicating needs was identified by some participants as being a difficult thing to do during in-services trainings. While it may be difficult, it does not diminish the importance of expressing one's needs. If one desires to have proper access to the content being presented, then

presenters need to be aware and able to respond to the expressed needs of the trainees. Requests for packets of information and step-by-step directions were cited as resources participants perceive would help them access the content better. In addition, several participants voiced the idea of having a centralized location for teachers to access content and ideas for integrating technology into the content they teach. Sharing these and other ideas with school and curriculum leaders increase the likelihood digital immigrant teachers will gain access to the resources they need to advance their own technological knowledge and to improve student achievement.

Delimitations and Limitations

Taking the interpretative phenomenological approach resulted in some delimitation and limitations within this research study. Delimitations arise as a result of purposeful decisions made by the researcher. Conversely, limitations are factors largely beyond the control of the researcher. This section will include delimitations and limitations of this study.

Delimitations

This study included several delimitations purposefully made by the researcher. The first decision of note was the choice to limit the criterion used for soliciting participants for the research study. The use of a purposive sampling method enabled the researcher to focus attention on only participants who have experienced the context being investigated. Homogeneous purposive sampling was deemed appropriate based on the study's need for participants to be born prior to 1980. VanScoy and Evenstad (2015) note individuals born prior to 1980 were likely to have been educated prior to the advent of digital technology and its

integration in the school setting. This characteristic was critical to the focus of this research study.

The next criterion set by the researcher was to limit participants to those educators who attested to having not engaged in any extensive in-service professional development program or college-level classes specifically focused on digital technology integration. The decision to limit participants to only those individuals born prior to 1980 was made to increase the likelihood that participants had no or very limited formal experiential knowledge of learning with digital tools during their own elementary school years. This second decision was made to increase the likelihood that participants had not yet gained a proficient level of know-how and comfort with integrating digital technologies in their instructional beliefs and practices.

The third characteristic utilized intended to limit the participants to full-time, regular education elementary classroom teachers. These specific parameters eliminated all teachers at the middle and high school level, all content-specific teachers, all exceptional children's program teachers, and all gifted program teachers. By requiring participants be full-time, regular education elementary classroom teachers, the researcher wanted to eliminate the likelihood that participants would have time to focus their attention on a single content area but would likely be responsible for delivering instruction across multiple content areas each day.

Limiting participants to five neighboring elementary schools within a demographic area in which most students would have some level of access to digital tools at home. Student access to digital tools at home contributed to students and their families expectation of their teacher to be using digital tools in the classroom setting.

By limiting the number to 10 to 15 participants enabled the study's data collection and analysis to focus on going deeper into the meaning of participants' words rather than to simply

collect many voices. This research decision was made based on the selection of Interpretative Phenomenological Analysis (IPA) so the research would be able to extend beyond a simple description of the phenomenon. By extending beyond a simple description, the analysis would be empowered to move toward making sense of the participants' lived experiences in the different contexts these educators engage in, including but not limited to within their respective classrooms, grade levels, schools, and in-service professional development opportunities.

Limitations

This study had limitations. The first limitation included potential researcher bias (Ary et al., 2006; Brocki & Wearden, 2006). The researcher fit several key criteria delineated above. The phenomenon researched was digital technology integration in elementary education classrooms. The fact the researcher is a full-time regular education teacher at one of the elementary schools selected within the school system used for the research study presented concerns of bias. While every reasonable attempt had been made to put the researcher's own experiences, thoughts, and ideas aside (Moustakas, 1994) and to allow the shared voices of the participants to be considered, it would be impossible to set aside all of my experiences, thoughts, and ideas, especially because of the study's interpretative focus. To address researcher bias, I engaged in writing out details of my own experience with the phenomenon to capture my own conceptions, assumptions, and biases.

The voluntary nature of the study also presented its own set of limitations (Brownell, Kloser, Fukami, & Shavelson, 2013). They reported the potential for volunteer bias making it "extremely important" (p. 177) to be careful with the interpretation of results. By design, some will elect to participate or while others will elect not to participate. There was the potential for some participants to join in this study because they felt they were a good subject and could make

"a useful contribution" (Orne, 1962, p. 778). It would also be reasonable to conclude that persons who elected to not participate or those who had to be intentionally excluded may have very different perspectives and ideas based in their realities.

Teachers with whom I had taught with or were currently teaching with were among those individuals who were intentionally excluded. Similarly, school leaders were permitted to decline allowing their teaching staff from participation thus silencing their voices. In the process of solicitating sites within the school system, it should be noted that two building principals did refuse to permit me to contact their teaching staff.

Another limitation of the study includes generalization of findings (Lipscomb, 2012; Onwuegbuzie & Leech, 2010). While data saturation was achieved allowing for a deep understanding of the participants' experiences to be had, the fact the study limited the number of participants to 10 to 15 full-time regular education teachers created another set of limitations. Additionally, the elementary school setting, which traditionally has been staffed predominately female, was also a limiting factor. The eleven participants were all female. All participants were of the white race. Because of these factors, the male teacher's experiences and ideas were not heard. Similarly, no other race was represented, and the voices of members of other races were not heard or able to be considered as a part of the shared experiences. Though the research method and use of purposive sampling were sound for the type of research being conducted, the findings are limited.

Another limitation is the fact that even the most willing participant is limited to that which the participant remembers or knows is their belief (Brewin & Andrews, 2017). It is probable that participants may have forgotten key details, elected to include or exclude events, or not found opportunity to share stories that would have added to the research study. The study's

data collection instruments and the questions posed were all vetted as sound for this type of research, yet the participants may have been unwilling to share thoughts, ideas, and experiences deemed too personal or may have given responses that were perceived by the participants as being what the researcher wanted to hear rather than what the participants truly knows, understands, or believes.

Recommendations for Future Research

The aim of this interpretative phenomenology analysis research study was to describe the lived experiences of digital immigrant teachers as they have attempted to learn about and integrate digital technology in their classroom. The topic intrigued the researcher in part because of his own experiences as a digital immigrant teacher. Another aspect of the topic that interested the researcher was his impressions of fellow digital immigrant teachers as they worked through their experiences. Much research in the area of general in-service PD has been conducted, and there is a growing body of research exploring technology-focused in-service PD. Still, more research is warranted, especially in light of the ever-changing digital landscape which has a direct impact on teaching and learning in schools. While the findings of this study provide a thick, rich description of the phenomenon and fill gaps in the existing literature, much remains to be explored as digital technologies continue to work its way into schools and the teaching practice. It becomes more important for digital immigrant teachers to have the prerequisite knowledge and essential skills to meet the demands to integrate digital technology into their instructional practices.

Replication of this research study with other elementary school digital immigrant teachers would serve to expand the description of the phenomenon. Expanding the parameters to include digital immigrant teachers who teach at the middle and high school levels, as well as

including urban and rural settings, would provide a more complete description of digital immigrant teachers' lived experiences. Likewise, broadening the parameters further to include teachers born after 1980 would inform the professional development community, as well as school leaders on how teachers process their technology-focused in-service PD.

Professional development designers and trainers have been charged with the duty of educating digital immigrant teachers. Providing effective PD that enables teachers to return to their classrooms and effectively integrate technology has its own set of demands. Conducting a phenomenology study to explore the lived experiences of designers and trainers would contribute relevant information to the topic of technology-focused in-service PD.

School leaders also have responsibilities and are charged with ensuring students receive a sound education. School leaders must properly equip teachers with the instructional resources they need to provide their students a sound, relevant education. The findings of this study included participants describing both the digital tools they and their students have access to, as well as the in-service PD opportunities they have experienced. Quantitative and qualitative studies that examine school leaders and their role in affording in-service learning opportunities for their teachers and in equipping teachers with digital devices are recommended. Research-based decision-making is essential in providing the most appropriate set of digital tools and training their teachers and students need in these ever-changing times.

Educators and researchers cannot overlook the concerns participants expressed with regards to their perceived ideas of how digital technologies are impacting their young students' social and emotion well-being. Further study is warranted to accept or reject the validity of these concerns raised by the participants. Both quantitative and qualitative data is needed to make the

most appropriate determination as the potential for considerable societal harm may exist if these concerns are valid.

Summary

The findings of this interpretative phenomenological study were summarized by responding to each research question. Findings were then discussed and compared with empirical and theoretical literature from the literature review in Chapter Two. Next, the theoretical, empirical, and practical implications were described. Delimitations and limitations were considered. Recommendations for future research were outlined and a conclusion provided.

"Each generation gives new form to the aspiration that shape education in its time" (Bruner, 1960, p. 1) is just as true today as it was in 1960 when Jerome Bruner wrote these words. Digital technology has captured this generation's attention. Students are coming into the classrooms of today aspiring to use these tools. While students are eager to use digital technology, not all teachers have exhibited that same eagerness. To say these teachers who lack the same intensity of eagerness are resistant was not supported by this research study. These teachers are digital immigrants, and they grew up and were educated in the very different kind of world than the "whole new digital world" (Lim et al., 2013, p. 60). Yet, they are expected to teach using digital tools today. The participants have concerns and lack experiential knowledge because they did not use digital technology in their formative learning (Al-Rawajfih, Fong, & Idros, 2010; Matherson, Wilson, & Wright, 2014).

The purpose of this qualitative phenomenological research study was to explore the shared experiences of digital immigrant teachers by capturing these educators' voices as they reflected on their lived experiences, including their attempts to integrate technology and their

participation in digital technology-focused in-service professional development opportunities. As digital immigrant teachers represent a large segment of teachers in American public schools, a research-based investigation of their lived experiences was deemed necessary if schools are going to more fully realize the promises of digital technology transforming education (Albion et al., 2015). Eleven digital immigrant teachers participated in the study. Based on the interpretative analysis of their lived experiences along with the existing body of literature, there remains work to be done (Czajka & McConnell, 2016; Potter & Rockinson-Szapkiw, 2012; Smylie, 2014).

The study's data collected, analyzed, and yielded findings that focused on three superordinate themes: a) digital immigrant teachers have experienced digital integration as a two-sided coin, b) digital immigrant teacher have identified inconsistency as the central theme of their technology-integration focused in-service PD, and c) digital immigrant teachers believed for this kind of in-service PD to be most effective for them, they need it to be restructured to address their own unique learning needs and classroom contexts. The third superordinate theme called for technology-integration focused in-service PD to emphasize a learner-focused differentiation model with specific components embedded throughout the approach.

Two distinctions implications became evident as a result of this study. The first implication had to do with the topic of teacher concerns. While the topic had been researched with regards to their internal concerns as they related to themselves professionally, the findings of this study brought to light concerns teachers have related to their students' well-being. Participants voiced questions about the skills they perceived their students were not developing because digital technology has made many things too easy and instantaneous. Groundwork skills, such as problem-solving, struggle and perseverance, and critical thinking, were viewed as

becoming non-essential for students to develop due to technology's ability to give students information at a moment's notice. The ability and skills needed for positive, productive social interactions were also cited as being hindered by the presence of digital tools. Several participants noted they have seen their students select to self-isolate themselves behind a computer or tablet screen instead of interacting with their peers. These concerns differ considerably from the teacher concerns previously researched. If digital technologies are further integrated into the classroom, particularly with the youngest of students, then the question becomes when and how will students develop these essential life skills? Based on the concerns raised by the 11 digital immigrant teachers who participated in this research study, it is crucial the field of educational research does not dismiss their concerns because of the small sample size. Rather, by asking questions and listening to their voices more closely, the researcher was able to identify genuine concerns previously unspoken.

Purposeful use of digital technology was the call given by the participants of the study. There was widespread agreement that digital technology can enhance teaching and learning but should not be viewed as a replacement for the human element teachers provide to their students. Teachers understood they cannot exclude today's cutting-edge digital tools, but they need their technology integration-focused in-service PD to pay closer attention to their needs as adult learners who happen to be digital immigrants, as well. Interestingly enough, participants were not making excuses for why they were struggling to learn and integrate technology into their instructional practices. They were realistic in understanding their lack of experiential knowledge was a barrier, but it was not an excuse or a reason for special exceptions or treatment. Instead, they were requesting the same principles of teaching and learning be applied to them as would be expected of them delivering instruction to their students. Participants were seeking learner-

focused differentiation from their in-service providers that incorporated the core features of effective PD as outlined by Desimone (2009). The implication here is that in-service designers, trainers, school leaders, and teachers need to work in concert to identify the most appropriate models to support digital immigrant teachers as adult learners; to provide them with a vast array of opportunities to learn, practice, and attempt implementation; to give them the resources they express are needed; and to afford them with the time during individual in-service trainings and over the course of time that each will need to learn and grow professionally in this aspect of their instructional practice.

There has been a dynamic shift with regards to the tools teachers and students have available to them for teaching and learning. Today's tools are digital. Students have the desire, knowledge, and skills to use digital tools for learning. The findings of this study continue to support the position that many teachers are not developmentally in the same place as their students (Koehler, Mishra, and Cain, 2013). Specifically, the study found digital immigrant teachers are not developmentally in the same place as their students, along with many of their younger teaching colleagues for that matter.

In conclusion, the field of research has called for a dynamic shift in how PD is planned and implemented. Kapustka and Damore (2009) note the process of change had been largely dictated by policymakers and school administrators, while the shift desires for all stakeholders to be involved in this process of change (Twining et al., 2013). The research is clear in-service PD can bring about change in teaching and learning (Covay Minor et al., 2016; Desimone, 2009; Gibson & Brooks, 2012; Petrie & McGee, 2012). Yet, consistency in implementing technology integration is lacking because the diverse needs of adult leaders are not being properly addressed through in-service PD (Alenezi, 2017). Digital immigrant teachers who participated in this

research study expressed their lived experiences, voiced their learning needs, and shared workable recommendations. They were able to clearly demonstrate their commitment to learning and to articulately define what they will need to improvement (Adams, 2014). What they are asking is that their voices be heard, and their ideas be given careful consideration. Technology integration-focused in-service PD will be more effective by embracing the constructivist conceptual framework of TPACK and embedding the practical idea of SORT (support, opportunity, resources, and time) can provide a most appropriate structural framework in-service designers and trainers can build upon. Directly involving digital immigrant teachers in the formation and delivery of such in-service PD will help these teachers continue their quest to become effective at purposefully integrate digital technology in their classroom.

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APPENDIX A

IRB Approval

LIBERTY UNIVERSITY
INSTITUTIONAL REVIEW BOARD

December 20, 2018

Michael William Peck
IRB Approval 3553.122018: Digital Immigrant Teachers' Technology Integration and In-Service Professional Development: An Interpretative Phenomenological Analysis

Dear Michael William Peck,

We are pleased to inform you that your study has been approved by the Liberty University IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Your study falls under the expedited review category (45 CFR 46.110), which is applicable to specific, minimal risk studies and minor changes to approved studies for the following reason(s):

6. Collection of data from voice, video, digital, or image recordings made for research purposes.

7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies. (NOTE: Some research in this category may be exempt from the HHS regulations for the protection of human subjects. 45 CFR 46.101(b)(2) and (b)(3). This listing refers only to research that is not exempt.)

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
The Graduate School

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APPENDIX B

District Participation Request Letter

Dear [Recipient]:

Greeting! My name is Michael Peck, and I am a doctoral candidate at Liberty University in the School of Education. The purpose of this letter is to make formal request to conduct a doctoral level dissertation research study within the school district. The aim of the qualitative study is to build understanding of the experiences of digital immigrant teachers' professional development in the area of technology integration. The confidentiality of the district, its schools, and the participants will each be protected through the use of pseudonyms and other procedures designed to protect the privacy of the participants, schools, and the school system.

The scope of the proposed study is intended to involve four elementary schools with 10 to 15 participants. Participants will be individuals born prior to 1980 for the research's purpose of understanding the experiences of teachers defined as digital immigrants. Participants will be asked to voluntarily consent to complete a questionnaire, to be interviewed, to participate in one of two focus groups, and to review the transcript of their interview. The time commitment for each participant is likely to be less than six hours in its entirety. Participants will not receive compensation for their participation in the research study.

Upon your approval, I will contact the principals of each school sought to field potential the research participants from. Principals will be asked to give their consent for the study's potential participants to be fielded from amongst their ranks and to conduct interviews within their building but outside of the instructional day. Following the collection of consent forms from principals and then the participants, I will provide your office with an update and a detailed schedule for conducting the research.

Thank you in advance for your consideration in permitting members of your school system's teaching faculty the opportunity to participate in this research study.

Sincerely,

Michael William Peck
Liberty University Doctoral Candidate

APPENDIX C

School Participation Request Letter

Dear [Recipient]:

Greeting! My name is Michael Peck, and I am a doctoral candidate at Liberty University in the School of Education. On [Date], I received formal permission to conduct a doctoral-level dissertation research study within the school system. The purpose of this letter is to make formal request to solicit participants from your school's teaching faculty. The aim of the qualitative study is to build understanding of the experiences of digital immigrant teachers' professional development in the area of technology integration. The confidentiality of the school and participants will each be protected through the use of pseudonyms and other procedures designed to protect the privacy of the participants and schools.

With your permission, I would like to ask a select group of your faculty members if they would consider voluntary participation in a research study. Teachers selected to participate in the study will be asked to give their consent. Each participant will complete a questionnaire, be interviewed, participate in a focus group discussion, and review their transcript. While there is no monetary compensation for participation in their participation in the research study, their participation is greatly appreciated and will continue to the body of research on professional development.

Thank you in advance for your consideration in permitting members of your school's faculty the opportunity to participate in this research study.

Sincerely,

Michael William Peck
Liberty University Doctoral Candidate

APPENDIX D

Participant Invitation Letter

Dear [Recipient]:

Greetings! As a doctoral candidate at Liberty University in the School of Education, I am conducting a research study to build understanding of the experiences of digital immigrant teachers' professional development in the area of technology integration. You are receiving this letter as an invitation to participate in this research study.

As mentioned above, the research study intends to build understanding of the experiences of digital immigrant teachers' professional development in the area of technology integration. A digital immigrant teacher is a teacher born prior to 1980. Participation in an extensive pre-service or in-service training program focused specifically on digital technology integration in teaching and learning is an excluding factor. Participants in the study must be digital immigrant teachers who have not previously participated in an extensive digital technology integration program. In addition, participants must be willing to voluntarily share their experiences.

The role of the participant is very important and will include the following:

- Complete an open-ended response questionnaire.
- Participate in at least one interview to be conducted in person. The interview is expected to be at least 1-hour in length. The interview will be audio-recorded for accuracy.
- Review the transcript of your interview and the interpretations made by the researcher for accuracy and input.
- Participate in one of two focus group discussions with 5-8 other participants. The focus group discussion is expected to be at least 1-hour in length. The discussion will be audio-recorded and video-recorded for accuracy in transcribing the discussion.
- Review the transcript of the focus group discussion you participate in and the interpretations made by the researcher for accuracy and input.

If you would like to participate in this study, please respond to this email to indicate your interest. Please know, due to the research approach of the study, the number of participants may be limited by the researcher. You will be notified by me of your selection to participate at which time a consent form will be provided to you for review and signing. A signed consent form will be a requested prior to your participation in the research study.

Thank you in advance for your consideration of participating in this research study.

Sincerely,

Michael William Peck
Liberty University Doctoral Candidate

APPENDIX E

Consent Form

Technology Integration In-Service Training and Digital Immigrant Teachers:
An Interpretative Phenomenological Analysis
Michael William Peck
Liberty University
School of Education

You are invited to participate in a research study of digital immigrant teachers and their experience in-service training related to technology integration.

You have been selected as a possible participant because of your status as a digital immigrant teacher having been born prior to January 1, 1980; your attesting to the fact you have not previously participated in an extensive pre-service or in-service digital technology integration program; and your expressed interest in voluntarily participating in this research study.

Please read this form carefully and in its entirety. If you have any questions, please ask before agreeing to be a part of the study.

Michael Peck is a doctoral candidate in the School of Education at Liberty University. He is the sole researcher and conducting the study.

Background Information:

The advent of digital technologies, including computers and interactive boards, has changed the look of elementary school classroom. These classrooms are unlike the classrooms the majority of today's teachers experienced. With digital tools in the hands of teachers and learners has come promises of improved teaching and learning, yet a large body of statistical data and research indicate these promises are not being achieved.

The research study seeks to gather the experiences and perceptions of digital immigrant teachers with regards to their experiences with digital technology integration and in-service professional development focus on digital technology integration. Furthermore, this research study intends to gain the perspective of those individuals who have lived the particulars of the phenomena for the purpose of constructing an understanding of what is a good action for moving teaching and learning forward in this digital age.

Procedures:

Procedures for this study will align with the research design, Interpretative Phenomenological Analysis (IPA). IPA seeks to understand the perspective of individuals who have experienced a specific phenomenon.

The procedures are:

The participant will complete an open-ended questionnaire that will be hand-delivered to allow me to formally introduce myself to you. Participants will have approximately one week to complete the questionnaire prior to the interview. Hand-delivery or use of inter-official mail service are permissible.

The participant will be interviewed at a location agreed upon by the participant and researcher. The interviews will be face-to-face meetings that are audio-recorded in their entirety. The interview format will be semi-structured with open-ended questions. This format will enable the session to be more conversational in nature.

Following the conclusion of the interview phase, the participant will participate in one of two focus group sessions. The focus group sessions will take place at one of the school buildings. Sessions will be audio and video recorded. Questions will be presented in an open-ended question format by the researcher. The researcher will not directly participate in the discussion outside of asking the questions to the participants.

The data analysis phase will include the use of member checking. Member checking is a procedural move in which participants receive copies of their questionnaire responses and the transcripts from their interview and focus group session. Along with these documentations of their own words, participants will receive documentation of the researcher's interpretation of the participant's accounts. Participants will verify an accurate accounting of the participant's own experiences and that the interpretations are representative of the meanings and perspectives of the participant's experiences. Participants will review these documents to provide feedback to whether or not the researcher has described and interpreted the participant's experiences objectively and with neutrality.

Risks and Benefits of being in the Study:

The risks of participation are:
The participant risks may include feelings of discomfort in giving up personal time to be part of the study. The participant may feel uncomfortable talking about experiences the participant may found unpleasant or distressing to recall.

The benefits of participation are:
There are no direct benefits to the participant beyond knowing that they are contributing to current research literature by participating in the qualitative study. Other benefits may include feelings of being a part of a community to be defined solely by the participant.

Compensation:

You will not be compensated for participating in this study, yet your participation will be sincerely appreciated.

Confidentiality:

Ethical considerations have been made to ensure your identity is protected. Confidentiality and security of your personal information will be maintained through the research study's recruitment, data collection, data analysis, and presentation of the research finding period. Use of pseudonyms will protect you, your school, and the school system in which you are employed.

Voluntary Nature of the Study:

Participation is voluntary. Your decision to participate or not to participate will not affect your current or future relations with Liberty University, with your school, or your school system. If you decide to participate, you are free to choose to answer or not answer any questions. You are also free to withdraw from the study at any time without affecting your relations with the university, your school, or your school system.

How To Withdraw From the Study:

As your choice to participate in the research study is voluntary, you are free to withdraw at any time. Please contact Michael Peck at (omitted) or via phone at (omitted). With your withdrawal, any audio recordings of the participant will be erased and transcripts will be destroyed.

Contacts and Questions:

If you have any questions or concerns regarding this study and would like to speak to someone other than the researcher, please feel free to contact the Institutional Review Board, 1971 University Blvd., Suite 1837, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you wish to be furnished with a copy of this information for your records.

Statement of Consent:

I have read and understand the above information. Being signing, I have asked any questions I have and have received satisfactory answers from the researcher. I consent to participate in the study.

Signature of Participant: _____ Date: _____

Signature of Investigator: _____Date: _____

APPENDIX F

Superordinate Themes and Related Codes

Superordinate Themes	Related Codes
Digital Technology Integration Is a Two-Sided Coin	attitudes available access behaviors beliefs challenges concerns digital technology is… digital tools enhance/improve learning/need to learn natural/unnatural negatives new/novel positives skills social interactions students successes where is the research?
Inconsistency	consistent digital tools easy to use follow-up frustrations grade level help lessons needs not given opportunities PD format practice presenter/trainer/facilitator research to support claims resources support system talking/telling time use in my classroom want supporting evidence

Learner-focused Differentiation with Specific Components	activities adult learners attributes come to me different effective feeling lack of support follow-up location needs negatives PD format positives practice presenter/trainer/facilitator questions recommendations resources strategies support system time