

A PHENOMENOLOGICAL STUDY OF FIRST-CAREER MILLENNIAL NOVICE
ELEMENTARY SCHOOL TEACHERS' USE OF TECHNOLOGY

by

Karla Ontiveros Karr

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this hermeneutic phenomenological study was to describe the attitudes and understandings for millennial first-career novice (FCMN) teachers toward transformational technology integration in the elementary classroom as it relates to the technological, pedagogical, and content knowledge framework (TPACK). Three research questions framed this study: (a) How do millennial first-career novice teachers from the Midwestern United States describe their level of content knowledge, technological knowledge, and pedagogical knowledge (TPACK) to support their teaching practices in the elementary classroom? (b) How do participants describe their approach to instructional decision-making based on their technological knowledge in the elementary classroom? (c) How, if at all, do perceptions as preservice teachers now influence their perceptions as novice teachers in their current classroom setting? Self-reflective journals, task-based renderings, and semi-structured interviews were counted into the data collection process to achieve triangulation. Themes emerged with the application of the hermeneutic cycle. Line-by-line analysis gave way to descriptive codes along with interpretive reflection, rethinking, rereading, and rewriting to identify patterns of the phenomenon. The four themes were: (a) fluctuating context undermines quality of practice, (b) positive dispositional attitudes and growth experiences stabilize quality of practice, (c) professional support networks develop quality of practice, and (d) relative decision-making enriches the quality of practice. The FCMN teachers' ability to use technology for transformative learning develops only after stabilizing the setting and gaining a depth of content and pedagogical knowledge within the elementary classroom.

Keywords: novice teachers, technology integration, millennial, technological pedagogical content knowledge framework, TPACK

Copyright Page

Dedication

First, I dedicate the entirety of this work to my Lord and Savior, Jesus Christ. I obeyed when He asked me to step forward in faith and took on the task, but more than once I had to ask forgiveness for my delayed obedience. I know that it was only through the working of the Holy Spirit in me, and an enormous measure of grace that I was able to accomplish this feat.

I would also like to dedicate this manuscript to three women who sit at the feet of Jesus.

- To my grandmother, Concha Marquez Ontiveros Montes, I would like to thank you for the educational choices you made for your children. The legacy of those choices lives on through this document.
- To my professor, Dr. Jill Jones, thank you for setting high expectations for your students, and challenging us to *run toward the roar*. I was fortunate to witness how God used you during the summer of 2010. The legacy of those lessons lives on through me and others as we strive to teach my students well.
- To my colleague and friend, Dr. Amy Forshey, I would like to thank you for your example of persistence. During our seven years together, I saw you persist in circumstance after circumstance. Your final battle was anything but easy, but you demonstrated to those around you how to keep one's faith in God alive while taking one step at a time. The legacy of your tenacity inspired me to keep pushing to finish the task.

Lord use me in a way that is disproportionate to whom I am. ~ David Brainerd

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List of Abbreviations

First-Career Millennial Novice (FCMN)

Institutional Review Board (IRB)

Instructional Technology Resource Teacher (ITRT)

International Society for Technology in Education (ISTE)

Technological Pedagogical Content Knowledge Framework (TPACK)

Teacher Training Program (TTP)

Professional Learning Teams (PLT)

Professional Support Network (PSN)

Quality of Practice (QOP)

Relative Decision Making (RDM)

CHAPTER ONE: INTRODUCTION

Overview

Chapter one reviews the historical challenge to integrate technology into the classroom beyond the surface level and addresses the fallacy of digital-age learners now entering the classroom as teachers as superior agents for transformational change. The problem was the complexity of the task: teachers with insufficient knowledge trying to integrated technology beyond a superficial level in the elementary classroom (Clarke & Zagarell, 2012; Grunwald & Associates, 2010; White & LeCornu, 2011). This chapter discusses the role of the researcher, the problem and purpose of the study, significance of the study, definitions of key terms, and research questions.

The purpose of this hermeneutic phenomenology study was to describe how first-career millennial novice (FCMN) teachers from the Midwest region of the United States, describe their attitudes and understanding toward transformational technology integration in the elementary classroom as it relates to technological, pedagogical and content knowledge (TPACK) model (Mishra & Koehler, 2006). The study is significant because it has theoretical, empirical, and practical implications. It sought to describe first-career millennial novice teachers as adult learners and their approach to the instructional design as novice teachers. The body of literature provided insufficient research about teacher candidates' transition to professional practice and their process for applying teacher knowledge to their teaching practice. The gaps in the literature inspired three research questions to guide this study.

Background

Prior to the end of the 20th century, teacher preparation programs included educational technology as required coursework, in the process establishing it as an integral element for

instructing students (Bingimlas, 2009; Caudle & Moran, 2012; Clausen, 2007; Cuban, 2001; Figg & Jaipal, 2011; Friedman & Kajder, 2006; Kay, 2006, 2007; Keeler, 2008; Niess, 2005; Polly, Mims, Shepherd, & Inan, 2010). However, the work of Cuban (2001) presented evidence that because teachers were not taking advantage of technology as a means of infusing innovation to their teaching methods, teaching practices did not significantly change. Teachers often utilized technology for personal productivity but did not use technology to transform their practices or the students' learning experiences (Clausen, 2007; Katic, 2008; Wang, 2002). Focused efforts to educate preservice teachers during the late 1990s did little to increase the efficacy of novice teachers to teach with technology in a manner designed to transform instructional practice (Kay, 2006, 2007). The International Society for Technology in Education (ISTE) began the process of establishing educational, technological standards for students and teachers, publishing their first version for teachers by 2000. Since then, standards have gone through two more iterations to better align with research-based practice and the mission and vision of the International Society for Technology in Education. (ISTE, 2008; ISTE 2017)

The mission of the International Society for Technology in Education (ISTE, 2017), as indicated in the organization's standards, is to advance the effectiveness of teachers and deepen their practice. The latest version describes standards through the following roles: (a) learner, (b) leader, (c) citizen, (d) collaborator, (e) designer, (f) facilitator, and (g) analyst. The standards are closely aligned with elements of instruction and require teachers to use their knowledge of content, pedagogy, and technology to facilitate experiences, which advance students' learning, creativity, problem-solving, and critical thinking in a variety of contexts. The ISTE standards outline expectations for lesson design to include authentic learning experience, and assessments that maximize the role of the teacher as designer, facilitator, and analyst. Teachers are

responsible for modeling for their students how technology can be used to maximize the learning process (ISTE, 2017).

Teachers, confronted with daily instructional decisions, base their lesson and unit design on their prior experiences, contexts, and cognitive knowledge (Hogan, Rabinowitz, & Craven, 2003; Shulman, 1986; Smeaton & Walters, 2013). Mishra and Koehler's (2006) research looks deeply at how a teacher's knowledge of content, pedagogy, and technology within a given context impacts his or her ability to integrate technology effectively. This idea is conceptualized through a model called the Technological Pedagogical Content framework (TPACK) (Mishra & Koehler, 2006). Both ISTE standards and TPACK continue to have an increasing influence on the process of developing the ability of preservice and inservice teachers to use technological knowledge as a catalyst for transformational instructional practice (Cox & Graham, 2009).

Even with the knowledge gained over the last decade about TPACK and the development of technology standards for teachers, various barriers within the school context (Ertmer, Ottenbreit-Leftwich, Sadik, Sendurur, & Sendurur, 2012) add complexity to the already-difficult task faced by FCMN teachers when trying to integrate technology effectively. This circumstance has continued in many elementary classrooms despite the millennial generation's dexterity with digital communication and productivity (Palfrey & Glasser, 2013; Prensky, 2001; Tapscott, 2008). There was insufficient empirical evidence to claim that millennial novice teachers have an advantage when it comes to teaching with technology (Bennett & Maton, 2010). This study sought to address the empirical gap by giving a collective voice of millennial first-career novice teachers' "lived experience" (van Manen, 1990, p.35) as they integrated technology into the elementary classroom. The researcher used semi-structured interviews and document review of task-based renderings, and self-reflective journals for this endeavor.

Situation to Self

As a former instructional resource technology teacher and now as a teacher educator, I have observed how effective use of technology can invigorate the teaching and learning process. The notion of technology integration is fraught with a graduated magnitude ranging from peripheral shallow use of technology to transformative instructional practices that use technology to enhance, engage, and extend (Keren-Kolb, 2013; Kolb, 2017) the learning of students. As I have worked with teacher candidates in methods of teaching courses, I have experienced an interesting response from students, digital natives, who are supposed to have a natural disposition for using technology. They demonstrate significant resistance to problem-based projects that include technological elements as a significant portion of the end product, and require additional and continual support as they understand how to use technology for instruction (Kay, 2007; Lei, 2009; McVee, Bailey, & Shanahan, 2008) .

I also have experience working with novice and experienced teachers as they learn about and attempt to integrate technology into the learning process. One of my most surprising experiences was with a new teacher who had just completed a five-year program, which specialized in technology integration and provided a rich field-experience that included problem solving, mathematics, and technology. In her new context, which did not have the exact resources she learned from in her five-year program, she failed to integrate technology beyond a superficial level. She used her access to a new computer for her use only and deferred her students' computer lab time to colleagues.

My undergraduate experience was vastly different with little integration of technology, yet my induction provided me with professional development, which allowed me to discover how to use technology to motivate students and help them with the learning process. The contrast

of these two experiences is what first made me ponder how it is that some beginning teachers choose to use technology within their instructional practice while other flounder. Eventually, this question sparked a desire to work with inservice teachers in their development of technology integration as an instructional technology resource teacher. I continue to question and now seek to know how best to support preservice teachers as they transition into their induction as a novice teacher and understand how they make decisions about how to integrate technology into their instructional practice.

My epistemological assumptions helped to uncover the essential structures (Henriksson & Friesen, 2012) that “constitute the world” (Schwandt, 1997, p.39) to determine a millennial novice teacher’s perspective of technology integration. Novice teachers, instructional coaches, administrators, and teacher educators could benefit educationally from the “lived experience”(van Manen, 1990, p.35) included in this study. In order to understand how participants interact with technology in the context of the elementary classroom beyond their everyday usage for productivity and communication, I heard the voice of novice teachers as they shared their experience of how to navigate the induction phase, specifically as they think about the integration of technology into their instructional practices.

I approached this study from a post-positivism paradigm, which seeks to explore this phenomenon through the sense-experience. The phenomenological view requires specific description of the conventional “conscious experience of everyday life the life-world... as one experiences them” (Schwandt, 1997, p.114). I used the TPACK framework (Mishra & Koehler, 2006) and the adult development theory, constructive-development (Kagan, 1992; Drago-Sevenson, 2007) as a frame for the lived-experience of novice teachers in this hermeneutic phenomenological study. “Hermeneutic phenomenology is consequently the study of experience

together with meaning; it is a disposition or attitude of sensitivity and openness to everyday experienced meaning as opposed to theoretical ones” (Henriksson & Friesen, 2012, p.2). In addition, assumptions and philosophies I hold about novice teachers and the integration of technology were important to understand prior to the implementation of the study.

Problem Statement

Novice teachers need to feel comfortable operating within the elementary classroom setting (Collie, Shapka, & Perry, 2012; Klassen, Perry, & Frenzel, 2012) and recognize how to use all available tools to accentuate the learning process (Oh & Reeves, 2014). Teacher educators and school administrators are quick to classify undergraduate students and novice teachers as digital natives, thus making poorly-supported assumptions about their propensities toward technology-based knowledge (Bennett & Maton, 2010; Lai & Hong, 2014). While positivist research provided the teacher educator with studies that included self-reporting metadata regarding teacher candidates’ attitudes about technology (Shoffner, 2009; Swain, 2006), integration barriers (Goktas, Yildirim, & Yildirim, 2009; Gronseth, Brush, Ottenbreit-Leftwich, Strycker, Abaci, Easterling, & Roman, 2010), and access to technology (Brush & Saye, 2009; Ertmer, 2005) the information has been reported only in small bits, which only told part of the story (Sang, Valcke, Braak, & Tondeur, 2010). The information to date did not provide what Heidegger calls “*Dasein*, or human-being-in-the-world” understanding that gave voice to the phenomenon (Schwandt, 1997, p. 91) to first-career millennial novice teachers. The problem was that despite growing up in a digital age, millennial novice teachers often demonstrate an inability to integrate their daily knowledge of technology in a way that informed their instructional practice beyond productivity to include content and pedagogical knowledge as a mechanism to transform instruction (Kirkword & Price, 2014; Polly, Mims, Shepherd, & Inan, 2010).

Purpose Statement

The purpose of this hermeneutic phenomenological study was to describe the attitudes and understandings of millennial first-career novice teachers from the Midwestern United States toward transformational technology integration in the elementary classroom. The research plan was designed in light of Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge conceptual framework (TPACK) and Kegan's constructive developmental theory. Transformational technology integration was generally defined as an increased desire and action toward teaching that requires not only knowledge of content and pedagogy, but also knowledge of technology (Mishra & Koehler, 2006) and how technological knowledge contributed to instructional decision-making.

Significance of the Study

The study is significant because it has practical, empirical, and theoretical implications. This study investigated the practical implications of novice teachers at various stages in their educational journeys from teacher candidates to novice teachers. The goal was to understand the perceptions of novice teachers related to their beliefs, attitudes, and values gained due to maturity and experience from actual work experience in the context of the elementary classroom. The rationale for this study originated from my desire to see practicing teachers harness the power of technology as a transformative agent in the teaching/learning paradigm. Unfortunately, the opposite, or a peripheral use of technology, was more commonplace in the current PK-6 classroom for various reasons, including, but not limited to, administrative limits, instructional vision, high-stakes assessment initiatives, and lack of professional development and/or technical support (Lim & Khine, 2006; Morphew, 2012).

Members of the current generation possess foundational attitudes toward change: accepting change, expecting change, adapting to change all at an exponential rate of speed (Tapscott, 2008). Recent innovations have permeated every aspect of their lives except for within the context of education (Robinson, 2010). Understanding how to use technology as a means to effective teaching requires additional knowledge and professional development (Ertmer & Ottenbreit-Leftwich, 2010).

The empirical literature recognized the barriers to effectual technology integration (Bugenhagen & Barbuto, 2012; Haberman, 2012; Kealy, 2010; Lloyd, 2012; LeMaistre & Pare, 2010; Pellegrino et al., 2007; Sang, Valcke, Braak, & Tondeur, 2010; Tynjälä, & Heikkinen, 2011), requisite dispositions for teachers who integrate technology well (Ertmer et al., 2012), transformative practices supporting the use of technology (Keren-Kolb, 2013), and teacher preparation programs' efforts to address the perceived deficits (Caudle & Moran, 2012; Ertmer, 2005; Figg & Jaipal, 2011; Katic, 2008; Kay, 2006; Koh & Frick, 2009; Polly, Mims, Shepherd, & Inan, 2010). The voices of novice teachers expressing their collective experience and perception about the shift of technology from personal communication and productivity to the use of technology to create more dynamic learning experiences for students contributed to this body of knowledge. Teacher educators and administrators can no longer assume the millennial generation possesses superior technological prowess or that the digital native ever existed (Bennett & Maton, 2010; Lai & Hong, 2014).

Preservice teachers do not comprehend how to utilize technology in a transformative manner in the classroom if the majority of innovative exposures to technology have been outside of the field-experience setting. It is possible that teacher educators set unrealistic expectations based on assumptions about the abilities of preservice students to synthesize a limited view of

technology and traditional pedagogy into a transformative teaching style and a progressive educational philosophy.

Mishra and Koehler (2006) described three areas of consideration for teachers as they lesson plan: technological knowledge, pedagogical knowledge, and content knowledge (TPACK). The interplay between these three domains of knowledge ultimately determines instructional decisions and student outcomes and as a whole the theoretical implications. Teacher candidates learning must not only develop competent technological skills, but also know the vast number of technological tools available for supporting instruction, assessment, and meeting students' individual needs. The intent of this study was to bring a deeper understanding from which teacher educators, professional developers, technology coaches, and administrators can begin to address needs of the population. This study was significant in the following ways: (a) it sought to identify significant constructs for teacher educators to assist students' transitions from novice users of technology for personal productivity to users of technology for the purpose of generating transformational instructional practice that aligns lesson plans, units, and curriculum to the TPACK framework, (b) it revealed the progression of constructive developmental orientations alongside of the developing practice of the FCMN teacher as they approached the use of technology, and (c) it addressed FCMN teachers' perceptions of technology integration as an undergraduate and how little impact early educational technology experiences have on their current practice.

Research Questions

The purpose of this study was to explore the attitudes and understandings of millennial novice teachers toward transformational technology integration in the elementary classroom as it

relates to teacher knowledge that encompasses the Mishra and Koehler's (2006) domains of technology, pedagogy, and content. The research questions listed will guide the study:

1. How do millennial first-career novice teachers from the Midwestern United States describe their level of content knowledge, technological knowledge, and pedagogical knowledge (TPACK) to support their teaching practices in the elementary classroom?

Shulman's (1986) research helped to establish teacher knowledge as two domains, content and pedagogy, that overlapped to create a third region, pedagogy-content knowledge. He proposed that these two types of knowledge were integral to teacher practice specifically the decision-making process. Mishra and Koehler (2006) expanded his work and added a domain of technology to the scope of teacher knowledge. TPACK framework also included a dotted line that represents the context. The seamless integration of technology into all facets of the elementary classroom is only one of the expectations new teachers face as they enter into their professional lives as educators (Kagan, 1992; Kealy, 2010; Lloyd, 2012; Veenman, 1984). With question one, I heard from the participants their perception of their knowledge gaps and then how what they did know to impact their classroom setting and instruction.

2. How do participants describe their approach to instructional decision-making based on their technological knowledge in the elementary classroom?

To pinpoint what participants knew about instructional technology, I to ask about technology used in their classrooms and probed deeper to determine how this knowledge impacted their instructional decision making. The complexity of the task of instruction decision making is demonstrated as teachers seek to integrate technology into their instruction. The integration is often at a superficial level and does little to promote the use of technology as a strategy for

developing a culture of transformational teaching and learning (Clarke & Zagarell, 2012; Grunwald & Associates, 2010; White & LeCornu, 2011).

3. How, if at all, do perceptions as preservice teachers now influence their perceptions as novice teacher in their current classroom setting?

While it is true the majority of individuals in their twenties are accomplished digital device users, an administrator would be remiss in assuming that the novice teacher's ability extends beyond personal productivity, electronic communication, and social networking (Haberman, 2012; LeMaistre & Pare, 2010). Novice teachers of the millennial generation entering their first careers are part of a culture that presumes an unspoken expectation that they possess proficient a level of tech savviness (Bingimlas, 2009; Clarke & Zagarell, 2012; Figg & Jamani, 2011). This question helped to determine what experience or knowledge participants remembered from their undergraduate experience, and if they did remember how were they able to transfer the knowledge to their current setting in the elementary grades.

Definitions

1. *Control-fear* - the fear of losing control over students' actions and behaviors while engaged in the use of technological resources. i.e. 1:1 computing.
2. *Educational technology* - technological tools used in the application of addressing instructional concerns (Murphy, Richards, Lewis, & Carman, 2005) in meaningful ways to ongoing lessons, units, and curricula of the classroom to support creativity, critical thinking, problem-solving (Haugland, 2000) and 21st century skills.
3. *Novice teacher* - for the purpose of this study, novice teacher is defined as an educator who has taught in a school setting five years or less. Induction typically spans a three-year period, but Ertmer, Addison, Lane, Ross, & Woods (1999), suggest

- that proficiency with technology develops over the first five to six years for new teachers and may take that long to impact their instruction.
4. *Orientation* - categorical term that operates as a mechanism for describing professional development in the context of encountering new learning opportunities within the frame of constructive-developmental stages (Drago-Severson, 2008).
 5. *Professional Support Network* - a professional support network is a group of individuals who work together to support the needs of other teachers navigating the various contexts within the school environment.
 6. *Pull Factor* - an event or addition to the environment that stabilizes the context.
 7. *Push Factor* - an event or addition to the environment that destabilized the context.
 8. *Reflective Analysis* - is the ability to endure a growth experience, evaluate all facets of the circumstance and use data to plan the next best step for the learning needs of the students (Smith, Geng, & Black, 2017).
 9. *Technology integration* - the use of digital devices and products to support a variety of educational functions and purposes ranging from perfunctory to analytical.
 10. *Technological Pedagogical Content Knowledge* - provides a framework for understanding the cognitive knowledge of teachers, which includes a visual framework to show the interplay between the three domains of knowledge: pedagogical, technological, and content Koehler and Mishra (2009; 2006). The construct includes overlap between Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) indicating how the three domains work with each other in the decision making process of teacher decision making and instructional design (Koehler, Mishra, & Yahya, 2007).

11. *Transformational instructional practice* - An increased desire and action toward teaching that requires not only knowledge of content and pedagogy, but also knowledge of technology (Mishra & Koehler, 2006) and how particular characteristics of each work within the messiness of learning to support and allow for insights and connections with content and process that may not happen otherwise.

Summary

In chapter one, I provided a framework for the research that included an explanation of the problem and purpose this study sought to explore. It gave a brief overview of significant research studies and literature used to develop three guiding research questions. The purpose of this hermeneutic phenomenological study was to describe the attitude and understanding of FCMN teachers toward transformational technology integration in the elementary classroom. This study was significant because student teachers' transition to classroom teacher may hinder their ability to enact transformational instructional practice that aligns lesson plans, units, and curriculum to the TPACK framework and thus gave insight to teacher educators, and administrators for how to help FCMN teachers bridge the divide. Key terms were defined at the end of this chapter.

CHAPTER TWO: LITERATURE REVIEW

Overview

Chapter two reviews the theoretical literature and empirical literature. In the first part of the chapter outlines the understandings of millennial first-career novice teachers toward transformational technology integration in the elementary classroom through the lens of the theoretical literature. In the second half a review of the related literature underscores the path of the preservice teachers for learning about educational technology, barriers for usage, and their intent to use technology based on their beliefs and attitudes. The theoretical and empirical literature reviewed provides the needed evidence to identify the gap in the literature and to formulate the purpose, problem and research questions for the study.

Theoretical Framework

The theoretical framework includes Mishra and Kohler's (2006) Technological Pedagogical Content Knowledge theoretical framework (TPACK) along with adult development theory, specifically Kegan's (1994) work with constructive-development theory to better understand the development of new learning within various contexts.

Technological Pedagogical Content Knowledge Framework (TPACK)

The TPACK model (Figure 1) provides a framework for understanding the cognitive knowledge of teachers. Koehler and Mishra (2009; 2008) use this visual framework to show the interplay between the three domains of knowledge: pedagogical, technological, and content. Teacher acquisition of knowledge in varying degrees influences how the synergy of each type of knowledge working together constructs the TPACK framework. Technological Knowledge (TK), Pedagogical Knowledge (PK), and Content Knowledge (CK) overlap, indicating how the three domains work with each other in the decision making process of teacher decision making

and instructional design (Koehler, Mishra, & Yahya, 2007). The focus is at the center of the model, which leads to an understanding of the synergy created when all three elements work together in unison.

Technological Pedagogical Content Knowledge Framework (TPACK)

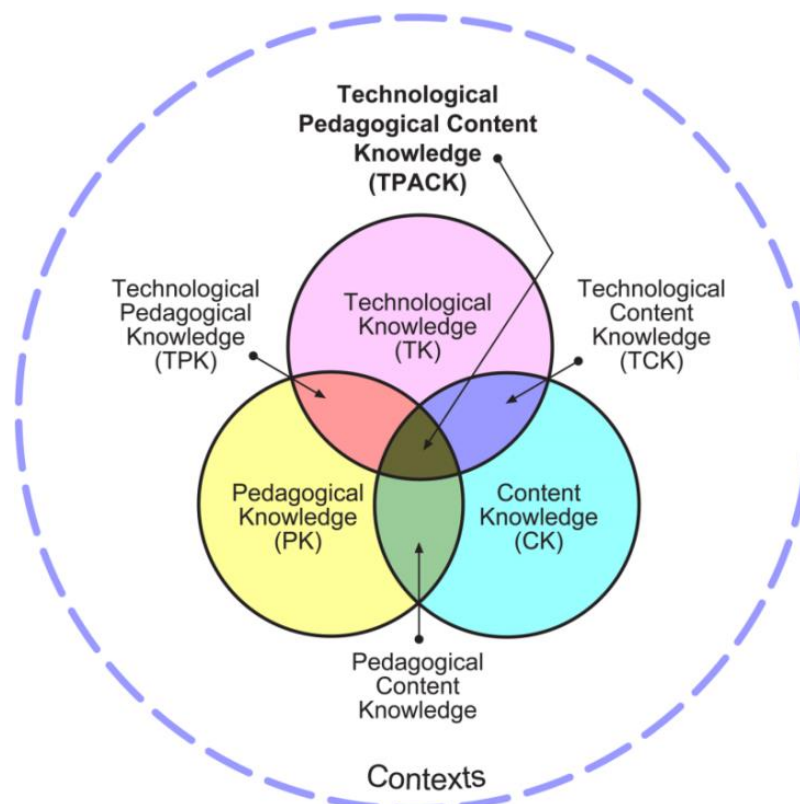


Figure 1. The TPACK framework consists of three domains of teacher knowledge. Each domain overlaps to create four additional regions interactions between the three domains. Adapted from “Using the TPACK Image” by M. J. Koehler, (n.d). Retrieved November 10, 2012, from <http://tpack.org>. Rights Free.

Each knowledge domain intersection creates three additional imbricated regions in the framework. These regions include pedagogical content knowledge (PCK), technological content knowledge (TCK), and technological pedagogical knowledge (TPK). The central portion of the model includes all knowledge domains-- , technological, pedagogical, and content knowledge (TPCK)—layering them to generate the fertile ground for transformational teaching practice and

dynamic learning experiences (Koehler & Mishra, 2008, 2009; & Mishra & Koehler, 2006). The expectation that all teaching will take place only in the TPACK region is unrealistic. The last component of the framework, a dashed line surrounding the entire model, represents the concept of context (Koehler & Mishra, 2006).

Koehler and Mishra (2006) explain that each setting within classrooms and schools present teachers with unique opportunities and challenges for activating their knowledge. A number of studies have tried to determine what types of settings and influences promote or dissuade the decision to use technology (Clarke & Zagarell, 2012; Cuban, 2001; Figg & Jamani, 2011; Kim, 2008; Raby, 2006; So, Choi, Lim, & Xiong, 2012). As teachers analyze their unique learning contexts along with specific content needs, they may find it impossible or ineffectual to use technology to support learning outcomes. But in alternative contexts, technology knowledge and pedagogical opportunities serve as primary influences for instructional design practices (Mishra & Koehler, 2006). The framework functions as a scaffold for assessing teacher perceptions, knowledge, and practice. For this reason, researchers were eager to use it as theoretical foundation for their empirical studies. Voogt, Fisser, and Pareja-Roblin (2012) discuss the progression of various researchers adapting their specific understanding of the model to their individual research. Some view the framework as an extension of Shulman's Pedagogical Content Knowledge (PCK) model (Cox & Graham, 2009; Niess, 2005). Others treat it as a specific unique body of knowledge (Angeli & Valanides, 2009), and a third group views it as three domains of knowledge working together within a unique setting (Mishra & Koehler, 2006). Each of the various viewpoints helps researchers to better delineate a comprehensive understanding of the TPACK framework (Niess, 2011).

Mishra and Koehler's (2006) TPACK model is based on the foundational work of Lee Shulman (1986) who developed the PCK model, representing two domains of knowledge, content and pedagogy). Shulman said teachers activate each knowledge domain in varying degrees during decision-making and the instructional design process (1987). The model "represents blending of content and pedagogy into a understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and ability of learners, and presented for instruction" (Shulman, 1986, p.8).

Expert teachers possess an extensive understanding of the general structures and "specialized curricular knowledge" (Shulman, 1987, p.13) within their subject areas while also using their professional knowledge of teaching practices. The last domain of the PCK model is the overlapping of both content and pedagogical areas. This is the place where teachers align their understanding of "student conceptions and misconceptions"--elements that make content areas "easy or difficult to learn"-- with appropriate teaching practices, which will maximize students' learning potential (Shulman, 1987, p.14). However, Shulman's PCK model is not without its critics.

Gess-Newsome suggested a reexamination of PCK given the contemporary view, which has changed since the original conception of the model (2002). After careful analysis of the PCK framework, she noted significant overlap in conceptual ideas, which ultimately contributed to an unclear differentiation between planes and borders (2002). This issue of "fuzzy borders" (Gess-Newsome, 2002, p.6) eventually highlighted extreme perspectives for how to view the model. The integrative perspective is at one end of the spectrum and the transformative perspective is at the other (Angeli & Valanides, 2009; Gess-Newsome, 2002; Graham, 2011). The integrative perspective views each contributing domain as developing separately with a

blend of both content and pedagogy during the act of teaching (Bulfin, Parr, & Bellis, 2013; Gess-Newsome, 2002). The transformative perspective argues that each body of knowledge, whether developed separately or through imbrication, is actually a transformation to PCK, a separate, unique, stand-alone body of knowledge (Gess-Newsome, 2002).

At first glance, the TPACK framework seems simple; the concept makes sense and is easy to explain. The complexity of the TPACK framework has surfaced as researchers have begun to unpack each domain and sub-domain through research. The complexity is particularly associated with the technological knowledge domain, as a body of knowledge, where the information is ever expanding (Koehler et al., 2007). The exponential intricacy of technological knowledge is continually evolving as the need to understand multiple hardware devices, peripherals, software applications, and web 2.0 generative websites is considered. The complexity of technological predominance today differs vastly from the previous context for teachers in the 20th century. The TPACK conceptual framework is one mechanism for analyzing how teachers utilize their technological knowledge in concert with their pedagogical and content knowledge as they design instruction (Cox & Graham, 2009).

The TPACK framework also has its critics (Angeli & Valanides, 2009; Gurung, 2013; Voogt et al, 2012). Researchers agree that Gess-Newsome's (2002) assessment of Shulman's PCK framework is valid, and as a result calls for careful scrutiny when also considering the TPACK framework (Angeli & Valanides, 2009). The teacher decision-making process involves more than cognitive knowledge (Voogt et al., 2012). Teaching requires decision making based on teacher beliefs about effective practice (Niess, 2005); beliefs that reverberate through a teacher's setting (Kagan, 1992), self- efficacy (Abbit, 2011), and access to resources (Lloyd, 2012; Shoval, Erlich, & Feijgin, 2010). A teacher's cognitive knowledge in isolation is not what

allows for the robust use of technology needed to support methodology and content. Cognitive knowledge typically develops in such a way that it creates difficulty in knowing which one of the TPACK domains is present or absent, primary or subordinate (Angeli & Valanides, 2009; Gurung, 2013; Voogt et.al, 2012).

Recent studies have used conceptual analysis and meta-analysis to help identify the exact definition and understanding of each domain (Angeli & Valanides, 2009; Cox & Graham, 2009; Neiss, 2013; Voogt et al., 2013). A desire to determine the capacity, to which preservice teachers perform in each of the TPACK domains, sparked the development of the self-evaluation survey tools. Teacher educators use validated surveys tools (Schmidt, Baran, Thompson, Mishra, Koehler, & Shin, 2009) to mark the development of preservice teachers. Researchers use them as tools in collecting data for their studies, but the value of these tools still comes into question due to the ambiguity of some domains within the TPACK framework (Chai, Koh, & Tsai, 2013).

Kopcha, Ottenbreit-Leftwich, Jung, and Baser (2014) assert there is a growing body of evidence that calls for refinement of TPACK so that critical elements of the framework can benefit theoretical and practical applications. Integrationists believe that outlining clear parameters for each domain area will strengthen the TPACK framework as research continues (Baran, Chuang, & Thompson, 2011), while those in the transformative camp posit their case for more research with TPACK as a unique body of knowledge (Angeli & Valanides, 2009; Gess-Newsome, 2002; Graham, 2011; Niess, 2013).

Constructive-Developmental Theory

Kegan's constructive developmental theory describes adult formation as the ability to build or construct new ideas based on experiences over time (1994). His ideas first developed as a balance between two alternative extremes, with individuals taking positions from one extreme

to the other (Kegan, 1982). Out of this work came various stages, or orders, to better describe the progress of interaction and the various factors and influences on individuals as they encounter their reality within a given circumstance (Drago-Severson, 2004; Kegan, 1994). Bugenhagen & Barbuto note, “no one order is better than any other, just more complex, and no one order is more valuable than any other” (2012, p. 39). Each consecutive order is therefore a condition for the next, and individuals are often found straddling between orders as there is a gradual evolution from one orientation to the next (Helsing, Howell, Kegan, & Lahey, 2008). Researchers avoid using stage terminology, instead replacing it with the term ‘orientation’ or way of knowing.

Orientation. No matter the term, the language used is a lens through which the individual interprets his or her professional world. Drago-Severson’s (2004) research describes four orientations common in adulthood in which an individual exhibits “developmental diversity”: the instrumental, the socialized, self-authoring, and inter-individual orientations. First-career novice teachers, given their age and experiences, will likely find membership in the first three post-adolescence orientations. A person’s way of knowing shapes his or her actions, his or her viewpoint of self, how he or she works as a teacher, and forms his or her professional identity (Drago-Severson, 2011, 2008, 2007, 2004).

Instrumental. Individuals of various ages operate within the instrumental orientation. They are generally older than adolescent age, but can be as old as an adult (Bugenhagen & Barbuto, 2012). With this orientation, individuals have yet to reach their full capacity to think abstractly and seek comfort in a concrete orientation to life (Drago-Severson, 2008). As instrumental knowers (Fahey, 2013) face unsure circumstances, they feel supported and are most comfortable when provided with specific answers, advice, and procedures to follow as they approach unfamiliar tasks (Drago-Severson 2008, 2007, Fahey 2013). Rules are followed

because they provide a framework for their reality; however given their proclivity to self-centeredness, they will navigate around rules if they are viewed as a barriers to their goals (Bugenhagen & Barbuto, 2012; Drago-Severson 2008; Fahey, 2013). A person functioning with an instrumental orientation is cognizant of his or her point of view and feelings (Bugenhagen & Barbuto, 2012); as a separate entity, which may or may not explain the entire reality of a given situation (Drago-Severson, 2008). They have difficulty recognizing other perspectives completely (Drago-Severson, 2008). As instrumentalists encounter various relationships and circumstances, they decide how they might individually contribute to a given situation or relationship or how it might benefit their experience or personal needs (Bugenhagen & Barbuto, 2012; Drago-Severson 2008, 2007).

Socialized. Constructive development continues as an instrumental knower progresses to a socialized orientation (Drago-Severson, 2008, 2007; Fahey, 2013; Kegan,1994). The socialized individual thinks abstractly and has a greater capacity for reflection (Kegan, 1994 & Drago-Severson, 2008, 2007), regards others' opinions and expectations (Drago Severson, 2007), and represents the majority of adult population (Kegan, 1994). Helsing, Howell, Kegan, & Lahey describe movement to the next orientation as the ability to "create a more complex psychological system" (2008, p. 444). The knower's focus shifts from self as primary in thought and deed to a secondary position, which subordinates his or her desires in order to profit the group (Drago-Severson, 2008, 2007; Kegan, 1994). One's own personal thoughts, practices, and actions function within a collaborative setting (Fahey, 2013). Relationships serve as the primary lens for the knower's thoughts about self. Decision-making behaviors are based on beliefs and values tied to those of individuals in authority, the institutions they value, judgments of approval, and an acceptance (Bugenhagen & Barbuto, 2012, Drago-Severson 2008, 2007). The socializing

way of knowing views interpersonal conflict, personal and professional (Bugenhagen & Barbuto, 2012), as an ongoing commentary of self that is often perceived as a threat (Drago-Severson, 2008). Individuals with a socializing way of knowing are eager to learn, seek purpose, and thrive in collaborative settings, all of which allow them to “clarify their own beliefs, and over time, to construct their own values and standards, rather than adopting those of others” (Drago-Severson, 2008).

Self-Authoring. Self-authoring adults are able to develop their own beliefs and no longer need the acceptance of others to validate their actions within a given situation (Bugenhagen & Barbuto, 2012; Helsing, et. al, 2008). They possess an internal, complex value system that gives them the capacity to generate their own ideas in relation to their own self-regulating authority (Drago-Severson, 2008). Kegan (1995) explains that those individuals with self-authoring capacities are able to determine the priorities by which they address their belief systems, standards, and mission. Also, they are able to manage interpersonal relationships in a manner that is productive and allows for assessment of others’ expectations in relationship to their own standards and judgments (Kegan, 1994). The self-authoring individuals maintain a deficiency in the ability to fully understand how counter viewpoints add value to the understanding and promotion of their own perspectives (Drago-Severson, 2008). Helsing et al., asserts there is no definitive predictor connected to “age, affluence, education or temperament” to determine when individuals will attain higher order capacities (Bugenhagen & Barbuto, 2012). Kegan’s work suggested that as few as one-half to two-thirds of the adult population have not fully developed beyond the socialized orientation (1994). Those who have met self-authoring capacities often find themselves positioned to lead others in the work of adaptive change (Kegan, 1994).

Providing effective feedback is one practical application that Drago-Severson and Blum-DeStefano (2016) recommend for using constructive- developmental orientations. It is an approach that takes into consideration teachers' *way of knowing* and utilizes the characteristics of the orientation to deliver timely and effective feedback to its maximum benefit. Developmental orientations influence the way in which individuals encounter new learning opportunities and set a context for growth experiences.

Related Literature

Millennial Generation

The millennial generation currently represents approximately 50 million individuals ages eighteen to twenty-nine. There is some debate about the start of the millennial generation but the birth range typically spans the years between 1984 and 2002 (Elmore, 2010, Howe & Strauss, 2000). Millennials are frequently the topic of conversation among career counselors, admissions boards, university faculty, human resource departments, and individuals within the technological industry (Mastrolia & Willits, 2013). This section is a brief overview of the generation's differences and surprising similarities to the previous generation. Included is a discussion about how the millennial generation describes their own age group, how the popular press depicts the generation, and how empirical studies describe their membership as a whole. Participation in higher education and their entry into work, career, and vocation is also discussed.

Characteristics of the Millennial Generation. The Pew Research Center report, *Millennials: Confident, Connected, Open to Change* (Taylor & Keeter, 2010), includes demographics across the generations with an oversample from the millennial generation. Demographics from 2,020 phone interviews shed light on the areas of lifestyle, technology use, educational aspiration, and work. Surveys, while not exact, provide a good picture of how

millennials view their own generation. Polled participants agree that their generation has unique qualities that differentiate it from previous generations, which is not a new phenomenon (Taylor & Keeter, 2010). While millennials describe themselves as more accepting of other races and ethnicities, less religious, and more apt to incorporate technology into their daily lives, they agree that previous generations “have the upper hand when it comes to moral values, respect for others, and work ethic” (Taylor & Keeter, 2010, p.6).

The popular press’ use of opinion polls and anecdotal research to fashion online commentaries, blurbs on broadcast news, and articles for the practitioner, cast an unflattering picture of the millennial generation (Mastrolia and Willits, 2013), which is portrayed as selfish, entitled, and narcissistic (Anderson, Baur, Griffith, & Buckley, 2017; Howe & Strauss, 2000; Laird, Harvey, & Lancaster, 2015; Twenge, 2010). Chopra (2013) reports that factors such as coddling of millennials and their development of abounding self-esteem as factors in their expectations of constant rewards and praise no matter the effort they expend (Alsop, 2008). The onset of the digital age is also identified as a culprit (Kirby, 2009). It has provided an easily-accessed platform where one can have a personal audience in just a few clicks of a mouse. Some suggest this phenomenon has led to a propensity for self-absorption among the millennial generation. Social networking sites allow them to broadcast their personal lives as “shameless self-promotion” (Twenge, 2009).

The popularity of the millennial generation and the constant proliferation of their traits by the popular press has the greater population believing the reported characteristics as fact. While the reports contain elements of truth, the pace of change driven by the whims of the entertainment news industry resulted in contradictory accounts. Popular sources also report on the millennial generation’s academic ability, preference for tolerance, inclination for

collaboration and connectedness, and proclivity for modesty, good conduct, and values (Gibson, 2010). millennials have been praised for their eagerness to help others and for a desire to reshape their world for the better (Sanburn, 2013).

Historians (Howe & Strauss, 2000) first projected millennials to be the most educated generation to date, and now recent statistics confirm that projection is on track (Taylor & Keeter, 2010). While one-fifth of millennials have already graduated, forty-four percent are either on track to graduate or report plans to re-enter college. However, each new semester brings a series of reports in the popular press about helicopter parents (Reinwald, 2012), the struggle for students who want to live independent lives, or the inability of millennials to communicate appropriately with professors (Scholnik, 2013). Emotional care and parental guidance are not the only types of support this generation seeks.

The Pew Research Center reports the following information about the economic condition of millennials (Taylor & Keeter, 2010). More than a third of millennials indicate dependence on parental financial support during their pursuit of higher education. Of students currently enrolled in college, one-in-four works either a part-time or full-time job. Those not completing college report the following reasons: too expensive, limited time, or a degree not required for their employment. This occurrence is due mainly to stages of life—completing their education, securing a job, setting up house. For many, this is a short-lived experience as their economic circumstances can change quickly during this time period. Due to changes in the economy or employment, a larger percentage of individuals aged 22-29 years old moves back in with their parents or enlist multiple roommates to cut costs.

The current workforce is now pulling from the millennial generation pool. Close to sixty-three percent of millennials are currently employed, which is a smaller percentage when

compared to the previous generation at the same age (Taylor & Keeter, 2010). While millennials enter the workforce early, they take longer to settle into their desired career paths than members of previous generations (i.e. Generation X, Baby Boomer) (Taylor & Keeter, 2010). News media began to report that businesses were fearful of hiring millennials because of their narcissism (Stein, 2013), need for flexible hours (Alsop, 2008; Matchar, 2012), and prioritizing personal engagements before work (Hershatler & Epstein, 2010; Smith and Galbraith, 2012). Human resource experts advise employers to coach, not boss their new hires if they hope to retain their employees (Matchar, 2012). Millennials respond to clear, frequent and direct feedback and benefit from autonomy with mentorship at the ready (Anderson, Baur, Griffith, & Buckley, 2017).

The Pew research indicates about two-thirds of employed millennials say they are likely to switch careers, and close to sixty percent have already switched careers at least once. Of the career-switcher group, one-in-six are likely to use their current position as a stepping stone into their desired career. One-third of employed millennials report finding their life's work and roughly one-in-three of these say it is likely they will stay with their employer (Taylor & Keeter, 2010).

Mastrolia and Willits (2013) assert much of popular literature about millennials operates with an assumption of credibility and is often taken as fact. It is not uncommon for practitioner journals and dissertations view these sources as credible, and then use them to build an argument for their studies within the context of their reviews of the literature. The popular literature is taken as truth and is often used alongside the sparse collection of peer-reviewed sources. Rigorous empirical studies for which a significant difference between generations is found are few in number (Mastrolia and Willits, 2013).

There is a call for changes in education to meet the needs of the next generation (Duncan, 2013). Departments of Education, school boards, and superintendents seek initiatives to support their students based on literature, which is not entirely substantiated with rigorous empirical evidence (Cuban, 2006; Weston & Bain, 2010). Reform efforts such as the implementation of 1:1 computing are costly and sweeping. The lack of credible research about millennial characteristics (Mastrolia and Willits, 2013; Treuren & Anderson, 2010; Twenge, 2010) does not give a sufficiently clear indication that significant changes in resources are warranted.

A misperception often exists that generational differences are stronger than those found in actual reality (Twenge, 2010). The literature on millennials perpetuates the problem by maintaining two unwarranted assumptions; one is that significant differences exist between the generations. The second is that each generational group is a homogeneity with no distinction in its membership (Treuren & Anderson, 2010). Donnellan and Trzesniewski (2009) conducted research which surveyed high school seniors from 1976 to 2006 in a variety of areas relating to habits and attitudes. The study found no significant distinctive between the generations in the perspective and attitudes about egotism, life satisfaction, reaction to authority, and other attitudes. There are few empirical, studies which seek to confirm the existence of a unique phenomenon among millennials (Mastrolia and Willits, 2013).

The Millennial Generation as Emerging Adults. Arnett argues that it is less about generational differences and more about the chronological pace at which adult development occurs due to an extended period of instability and insecurity (Arnett, 2004, 2006). He asserts there is a new developmental stage, emerging adulthood, which occurs between adolescence and adulthood. An emerging adult is between the ages of 18 and 29 (Arnett, 2004, 2006; Tanner,

2009), a time fraught with emerging complexity yet still exciting. Arnett (2006, 2004) describes five main features of emerging adulthood:

1. The exploration of identity.
2. Experiencing instability.
3. Focus on self.
4. Taking responsibility for themselves having not yet achieved adulthood.
5. Exploring possibilities.

Tanner (2009) explains the finding from extensive empirical research that identifies emerging adulthood as a distinctive developmental stage, which touches an individual's cognitive, emotional, and behavioral development.

When Arnett asked emerging adults what qualifies an individual as an adult, the overwhelming response across all groups indicated the following three indicators as the benchmarks for becoming an adult: "accepting responsibility for one's own actions, making independent decisions, and becoming financially independent" (Arnett, 2004, p. 2). These benchmarks are in contrast to the previous generational research used entering regarding the degree to which individuals entered workforce full time, completed undergraduate degrees, participated in the institution of marriage, and/or the frequency and age at which they had children (Arnett, 2006, 2004; Hamilton & Hamilton, 2006; Tanner & Arnett, 2011). In recent decades, there has been an increase in the marriage age and longer stints in higher education which have prolonged the time period between adolescence and adulthood (Arnett, 2006, 2004; Tanner, 2009). Individuals born after 1982, the millennial generation, are expected to experience a longer period of exploration and instability (Arnett, 2004).

Prior generational groups gained stability during their early 20s as they married soon after joining the workforce or completing college, and quickly after entering parenthood. These activities added stability to their lives and included significant responsibilities beyond themselves (Arnett, 2006; Hamilton & Hamilton, 2006). The current generation could spend up to eleven years as emerging adults. The current generation views the obligations of “marriage, home, and children not as achievements to be pursued but as perils to be avoided.” (Arnett, 2004, p.6). Obligations do bring stability but are also associated with a loss of freedom and independence. Emerging adulthood is “characteristic of cultures rather than countries” and does not necessarily apply to subcultures within the dominant culture (Arnett, 2004, p.22).

Many more students are entering college than in past years with up to 65% of high school graduates moving on to college (Arnett, 2004). Manufacturing jobs are not as prevalent as in the past and current students are aware that the most lucrative employment comes from jobs requiring a bachelor’s degree. Arnett (2004) describes how America’s high school structure and higher education tradition supports extending emerging adulthood. Students in high school are not expected to choose a career path until they arrive on campus. During those first two years of college, students are forming their identities, and determining their vocational goals. At four-year colleges, students typically take general education courses while determining their majors, and once decided, continue the remainder of their college careers building the skills needed to advance in their chosen fields.

Due to the exploratory nature of emerging adults, students often take their time finding what major is going to be a perfect fit. Students spending more than four years earning their undergraduate degree are not uncommon with some choosing to go right into graduate school (Arnett, 2004). Rarely will emerging adults know from an early age what field they want to

pursue as they enter college and their uncertainty during their early college years may have delayed their progress to complete their degrees in four years. Additionally, many work part- and full-time jobs to meet the demand of high tuition costs. Both circumstances leave students with a high-stress experience along with feelings of dissatisfaction and disappointed with their performances (Arnett, 2004; Hamilton & Hamilton, 2006). However, these circumstances provide emerging adults with opportunities to achieve in the presence of adversity, thereby building resilience (Masten, Obradovic, & Burt, 2006).

Emerging adults want to express their identity through their work. They seek employment enabling their personal development, while also allowing them to help others along the way. Their careers play significant roles in their lives as adults because they view them as reflections of their identities (Arnett, 2004; Tanner & Arnett, 2011). With such high expectations for careers as conduits to self-fulfillment and self-expression, emerging adults may find that the reality of long-term employment falls short of their ideal dream jobs (Arnett, 2004). Only millennials born during the years between 1982 and 1983 are entering into full adulthood, leaving millennials born between 1984 and 1995 in the developmental period of emerging adulthood. More than the assumed unique characteristics of millennials, the most significant factor in how this generation is viewed may be this extended period of emerging adulthood within the context of the current culture.

Millennial Generation and Technology. Prensky's (2001) introduction of the terms, digital natives and digital immigrants, divided the generational population. He used these descriptors to characterize a younger generation's technological sophistication and the older generations' ineptitude to function in the technological realm. Prensky's suppositions were not grounded in empirical research (Bennett, Maton, & Kervin, 2008), yet educators, teachers, and

researchers alike began to view their constituents and peers, as well as their educational decisions through this lens.

In 2001, digital natives were described as individuals born after 1980, which have grown up in a digital environment which has included computers, video games, digital music, cell phones, and the Internet (Prensky, 2001). Family Internet use in private homes had significant growth from eighteen percent of the total population in 1997, to seventy-three percent in 2008 (Thomas and Brown, 2011). The worldwide web's reach extended further than the wired infrastructure of broadband to an extensive system of wireless access, which shaped personal interactions in western culture, in addition to every output of information, digital and non-digital (Thomas and Brown, 2011). Other authors have also suggested the nature of the environment resulted in digital natives possessing particular character traits. They are described as fast thinkers, adept multi-taskers, and technophiles, and as individuals who respond to instantaneous gratification, and frequent rewards (Palfrey & Glasser, 2013; Prensky, 2001; Tapscott, 2008). The above definitions resulted in the categorization of all millennials, born between 1984 and 2002, as digital natives. As the Millennial generation became inundated with stimuli, and as they developed a craving for interactivity, the result was the simultaneous development of features of discriminatory attention spans (Prensky, 2001). These observations both ignited new practices for consuming information, and also gave rise to a perceived need for innovative approaches for learning (Thomas and Brown, 2011).

Digital immigrants are likened to individuals who are forced to function in a new environment as they navigate the process of second language acquisition. They were individuals living in a technological age who will always "possess an accent" (Prensky, 2001). They learn how to function within the new environment, but still rely equally on traditional alternatives

(Gasser and Palfrey, 2008). Digital immigrants or the settlers in the digital environment project a variety of characteristics. They range from sophisticated users who embrace the changes with wonder and awe, to begrudging, slow-to-acquire technophobes who require step-by-step explanations for each digital task (Gasser and Palfrey, 2008; Prensky, 2001). The description of digital natives and digital immigrants subsequently leads to discussion among administrators, professional developers, and teacher educators about the necessity for educational reform, specifically in the area of educational technology.

The educational community adopted the hypothesis that the current educational system lacked the ability to meet the needs of the digital learner, and set forth to address one of the single biggest problems to face the educational landscape (Bennett & Maton, 2010). Selwyn (2009) describes the expansive growth of information pertaining to the character and lifestyle of the newest generation in his review of the literature. A host of new terminology was used to describe its membership. 'Digital natives' (Prensky, 2001, p.1), 'i-kids' (Prensky, 2009, p.1), 'the net generation' (Tapscott, 2008), and 'homo-zappiens' (Veen and Vrakking, 2006) were a few of the descriptors within the body of literature that promoted the salient agenda of change. This new age of learning was cited in the general press and gained popularity as a topic of interest for educational researchers.

The new learner class came under scrutiny. Educators began to notice a push back from students when they were asked to use Web 2.0 technologies as a means to express their learning (Bennett & Maton, 2010; Margaryan, Littlejohn, & Vojt, 2011; Selwyn, 2009). Educational researchers began to investigate the empirical evidence underpinning the notion of generational disunion that subsequently generated a new learner type. Margaryan, Littlejohn, and Vojt (2011) investigated the adoption of digital technologies by university students for the areas of learning

and socializing. Their findings showed students' technology use supported traditional pedagogies, had limited use of collaborative and creation tools, and lacked the ability to use new technological literacies intuitively. Researchers recognized "a dependency on guidance from teachers" for successful navigation of cutting-edge technologies in the learning process (Margaryan, Littlejohn, & Vojt, 2011). Prensky (2009), who coined the term, digital natives, eventually suggested that to progress further, researchers should no longer use such artificial distinctions because the point has been reached where all individuals are growing up in a digital culture.

Teacher Preparation

Beginning teachers enter their new classrooms with high expectations, anxiousness, and excitement for the coming school year. Throughout their undergraduate education, they have worked earnestly to obtain a liberal arts foundation, learned educational theory, and participated in hours of field experiences through practicum and student teaching (Grossman, 2005). Despite comprehensive undergraduate experiences, novice teachers face a number of struggles during their induction phase (Groth, Dunlap, & Kidd, 2007). Classroom management, student motivation, and differentiation of instruction based on students' individual need are all areas which require proficiency and present as struggles for the novice teacher (Clausen, 2007).

The qualifying of acceptable candidates is not a new phenomenon. Early in colonial America, qualification was linked to moral character, religious perspectives, and knowledge of content (Angus, 2001; Warren, 1985). As the demand for teachers grew during the common school era of the nineteenth century, normal schools became a popular route for teacher candidates. Upon completion of all requirements, the equivalent of a high school diploma, candidates were issued a certificate and could seek employment, in some cases without the need

of further examination. This model became the precursor for teacher colleges at the dawn of the twentieth century (Angus, 2001).

During the first half of the twentieth century, normal schools transitioned to teacher colleges, and education departments became schools of education, the gatekeepers of credentials and certifying bodies of teacher licensure (Angus, 2001; Mirel, 2011). At the time, reform strategies encouraged longer “teacher preparation in academic studies, professional studies, and practice”, and remained and were maintained as a focus until the late 1950s (Warren, 1985, p. 10). Criticism of the educational system and teacher preparation increased with the launch of Sputnik, which incited fear the United States was losing the lead in the areas of science and technology and prompted reform efforts to increase connecting discipline-based content, specifically math and science, with appropriate pedagogy (Angus, 2001; Mirel, 2011; Urban & Wagoner, 2003).

Reform efforts included steps to accredit teacher preparation programs; the National Council for Accreditation of Teacher Education (NCATE) resulted from those initiatives (Angus, 2001). Unfortunately, the reform effort to connect content preparation with pedagogical preparation in liberal arts colleges was debated and resulted in a variety of responses (Angus, 2001). As *A Nation at Risk* (National Commission on Excellence in Education, 1983) prompted reformers to revisit problems associated with teacher preparation, the breakdown of discipline-based content in relation to methods coursework (Angus, 2001; Meril, 2011) continued as part of the conversation (Angus, 2001). Reports from the Carnegie Task force and the Holmes Group called for research-based guidance when forming teacher education programs (Angus, 2001).

With new focus on demonstrating research-based theories as a foundation for instruction, new ideas entered into schools of education (Warren, 1985). Lee Shulman’s (1986, 1987) work,

emphasizing cognitive teacher knowledge, introduced the Pedagogical Content Knowledge model (PCK) during the mid-eighties (Mirel,2011). The model emphasized content knowledge along with an understanding of the appropriate pedagogical strategies for teaching the subject (Mirel 2011; Shulman, 1986). This model was the basis for Mishra and Koehler's (2006) TPACK model, which included technology along with content and pedagogy. Five research initiative investigating recent pedagogical approaches have appeared in current literature reviews: field experiences, case methods, media materials, portfolios, and practitioner research (Grossman, 2005).

Teacher education has continued to emphasize the importance of pedagogy in schools, colleges, and departments of education along with research based initiatives through the demonstration of evidence-based accreditation. Even with efforts to teach prospective teachers research-based pedagogical instruction, there is disconcerting evidence that these strategies are absent from novice teachers' practice. Wyss, Kocher, and Baer's (2017) study of first year teachers added to the literature evidence that the context of new teachers has a significant impact on their practice as they orient toward the more experienced teachers and adopt their practices. The researchers go on to say, "If support is lacking there is a danger that preservice and novice teachers rely on old patterns which are influenced by stored images of other teachers... or conform to the desired teaching identities of the school" (p.202).

As of July 2013, teacher preparation programs answer to one accrediting body, the Council for the Accreditation of Educator Preparation (CAEP), which will continue to evaluate and endorse excellence in educator preparation for the purpose of improving the achievement of P-12 learners (<http://caepnet.org/about/history/>, 2013). This history establishes the necessity for

current educational researchers to move forward with fortitude, poignant purpose and a concentrated vision.

Teacher Preparation and Educational Technology

Teacher Candidates. Even with a daily overexposure to a technological world, few teacher candidates and beginning teachers understand how to transfer personal knowledge of technology and imbricate it with pedagogical practice to become transformative curricular designers and teachers (Kay, 2007; Kim, Jain, Westhoff, & Rezabek, 2008; Pellegrino, Goldman, Bertenthal, & Lawless, 2007). The inability to integrate technology as a transformative agent to practice is partly a function of the vagueness of the definition of effective integration of technology.

Ambiguous Definition. In the past, technology has functioned in a supportive role, a helpful tool in the learning process. Technology has the potential to take on a more powerful role and become transformative in the learning process. The problem lies in the alignment of teachers' educational philosophies and their individual interpretations of technology integration. Teachers who use PowerPoint slides to outline lecture notes believe they are integrating technology. This assumption is correct only if the evaluator uses a lens of supportive technology (Friedman & Kajder, 2006; Keeler, 2008; Niess, 2005). Careful examination of teachers' practices prompts investigators to analyze if teacher practice has changed given the advancement of technological tools. An increased desire and action toward a transformational instructional practice requires not only knowledge of content and pedagogy, but also requires knowledge of technology (Mishra & Koehler, 2006) and how particular characteristics of each work within the messiness of learning to support and allow for insights and connections with content and process that may not happen otherwise.

Wetzel, Foulger, and Williams (2008) found evidence that a shift in paradigms requires intentional thought and effort in the construction not only of students' outcomes, but also the assignments supporting the use of technology to transform the learning process. The researchers used the addition of two assignments, the Innovations Mini-Teach Project and the Wisdom of our Elders Project, to a methods class to make an intentional adjustment to the curriculum, and concluded that even with the shift in assignments, not all the students could identify how each of the other assignments would help them enrich the curriculum or serve as ongoing, developing resources (Wetzel, Foulger, and Williams, 2008). The research recognizes preservice teachers' short-sighted perspectives as students as continual barriers to their understanding (Pellegrino et al., 2007).

Coursework. Teacher preparation programs (TTP) follow various methodologies for educating teacher candidates about the integration of technology. While the choice of methods is not insignificant, a level of intention is necessary for teacher educators to demonstrate models aligned with new technologies and strategies in an effort to eliminate teacher candidates' propensity to revert to the old constructs; namely those of their own elementary school teachers (Kay, 2007; Wang, 2002; Wyss, Kocher, Baer, 2017). One common method for disseminating technological knowledge--functions, productivity, and current issues in education is to present the content in a stand-alone technology course (Gronseth et al., 2010). Another approach is to blend technological strategies into the various methods courses required of the teacher candidate.

Teacher educators possess a formative influence over their teacher candidates and are well positioned to model appropriate practice for technology integration (Koh & Frick, 2009). Kim, Jain, Westhoff, and Rezabek (2008) conducted a quantitative study of teacher candidates ($n=92$) who were experiencing this blended model, and identified a positive perception of teacher

candidates who were able to observe their professors model the integration of technology within their methods classes. The study also showed teacher candidates to have a stronger intent to use technology as a strategy to enhance instruction in their own teaching practices. This study was later supported in a 2012 study that found that instruction that models how to use technology in a given content area for preservice teachers was an effective strategy for preparing student to teach with technology (Tondeur, vanBraak, Sang, Voogt, Fisser, Ottenbreit-Leftwich, 2012). This context allows students to grapple with pedagogical decisions related to both content and technology. Wang (2002) explains that teacher educators and candidates who design instruction based on the constructivist educational philosophy are more willing to integrate technology in an appropriate manner, keeping students at the center of the learning process.

However, Voogt and McKeenny (2017) conducted a study that included findings related to the practice of early literacy teacher educators and revealed TTP still struggle with preparing preservice teachers because of their limited knowledge, technological expertise, and time to investigate the topic within a content heavy course. The study also expressed that teacher educators thought the topic to be relevant, but did not know how it should be best taught. Furthermore, their perception of addition crucial content included the importance of teaching criteria evaluation of software and how to best fit in technology as appropriate to meet instruction goals, pedagogical sound practices, and specific conditions of the classroom (Voogt & McKenny, 2017).

The final iteration is a combination of the stand-alone technology course and a battery of methodology courses with professors integrating technology into the various content-specific methods (Bingimlas, 2009; Caudle, 2012; Clausen, 2007; Cuban, 2001; Figg & Jaipal, 2011; Kay 2007; Polly, Mims, Shepherd, & Inan, 2010). Methods courses work in tandem with practicum

experiences out in the field. Students gain insight into how inservice teachers use technology in the elementary classroom in these field placements.

Field Experience. As teacher candidates progress through their coursework, many have opportunities to participate in classroom –based field experiences, in which they are able to observe methodology in action. Coursework in isolation does not provide enough support for preservice teachers. However, exposure and modeling within various field experiences provide a context that “effects change within a learner’s frame of reference” (Katic, 2008, p. 158), providing a reference to the actual classroom where theory and praxis come together for the teacher candidate. Hixon and So (2009) discuss five distinct benefits from observing technology use in the field; in those experiences pre-professionals begin to build an idea of how to begin to integrate technology effectively through exposure to various teaching environments, shared experiences, reflection, developed cognition, and technology integration pedagogy.

Unfortunately, the ideal context is not available for all teacher candidates. For students who do not have teacher educators or mentor teachers who utilize technology beyond personal productivity or only as a means to enhance delivery of content, a gap in their learning is present.

Teacher Educators. The academy bears the weight of responsibility for providing high-impact experiences for undergraduate students. In the field of education, high-quality experiences should demonstrate to teacher candidates how to integrate technology effectively into content instruction. These experiences require a nuanced approach for teacher educators as they model lessons for integration (Keeler, 2008). Koh and Frick (2009) identified four patterns for teacher educators who wish to help increase the computer self-efficacy of their teacher candidates: guided practice, opportunities for success, collaborative discourse, and validation of performance. Students who experienced an increase in computer self-efficacy within their

coursework have an increased intent to integrate technology into their own instructional practices (Kim et al., 2004; Koh & Frick, 2009).

Novice Teachers

Characteristics. Novice teachers are individuals new to the profession of teaching, experiencing significant growth in the first three years of their careers. In a longitudinal study, Ayers (1983) studied new teachers and found that their behaviors changed the most from year one to year three with no significant change during years four and five. According to Zumwalt and Craig (2005), the majority of new teachers are female, Caucasian, and monolingual, but the membership as a whole is made up from all socioeconomic levels. Close to half of beginning teachers leave the profession in the first five years of their teaching careers (Ingersoll, 2003; Keigher, 2010). In addition, the percentage of new positions for new teachers also increases each year due to resignations and retirements (U.S Department of Labor, 2012). Novice teachers bring passion, positivity, and know how, both of which are necessary attributes as they face the challenges of acclimating to a new school context and as they continue to form their professional identities.

Cultural Immersion and Transition. Some of the initial difficulties are attributed to beginning teachers' inability to navigate successfully within contexts that do not mirror the field experience context (Kagan, 1992; Stallions, Murrill, & Earp, 2012). The process of navigating new cultural contexts along with managing administrative requirements divides the focus of the teacher. Lloyd (2012) indicates that elements beyond instruction such as grading, monitoring makeup work, providing tutoring, and procedural tasks also add to the workload. Those individuals who do manage all required tasks may find themselves in a setting with expectations that are difficult to maintain. In his single-subject study, Lloyd (2012) found that his participant

to successfully adhered to the practices espoused in her teacher education program, overcame obstacle after obstacle, and demonstrated high-levels of student achievement yet was unable to sustain high quality practices and left the profession after two years. Cultural immersion and transition are immediate challenges novice teachers face as they begin their professional journey (Kagan, 1992).

Instruction. In a study of graduates' transfer of skills to practice, researchers found that education was the only field to report the priority of adaptation over innovation (Tynjälä, Slotte, Nieminen, Lonka, & Olkinuora, 2006). With the heavy load of responsibility and expectation, novice teachers' instruction can manifest as traditional in appearance. Smeaton (2013) recognized through his observations that novice teachers primarily used direct instruction and did not use structured cooperative learning. They also struggled with the pace of the lessons and often failed to leave adequate time for a lesson closure. Hogan, Rabinowitz, & Craven's (2003) observations of teachers showed their lessons were content-focused rather than student-focused. It is not necessarily a realistic expectation for novice teachers' focused on maintaining the many required first-year responsibilities to seek out innovative instructional practices given the multitude of tasks they are trying to balance (Bingimlas, 2009; Clarke and Zagarell, 2012; Figg & Jamani, 2011). Administrators should be careful in making the assumption that all new teachers will be able to utilize technology to facilitate innovative, digital lessons based on their experiences as members of the millennial generation, especially when faced with significant challenges and barriers (Haberman, 2012; LeMaistre & Pare, 2010).

School Context. School context is organic and includes complex relational elements. It contains its own norms and conventions, policies, and procedures. The school setting context includes the physical arrangement and the access to resources. It also includes administrators,

teachers, and students who comprise the demographic description. These individuals pay attention to working conditions, possess attitudes and beliefs, and attitude about changes (Kagan, 1992). Novice teachers enter a veteran-oriented culture, which already has established norms, values, and accepted professional practice (Kardos, Johnson, Peske, Kauffman, & Liu, 2001; Shoal et al, 2010). The central administration has assigned leadership to the school, but within the context of the school also exist influential teacher leadership among the school populations. All of these elements are part of the schools' context, but this section of the literature review will focus on barriers and technology usage.

Barriers. Classroom management, motivation of students, differentiation, assessment, access to needed resources, and parental relationships, are some of the challenges new teachers encounter at the start of their careers (Kagan, 1992; Veenman, 1984). Novice teachers experience a high level of stress, not only due to expectations to perform with a high level of effectiveness even from the beginning of their careers (Kealy, 2010; Lloyd, 2012) but also from the emphasis placed on student performance on high-stakes tests (Smeaton, 2013). Novice teachers encounter difficulty with maneuvering classroom spaces and resources within the classroom (Kagan, 1992; Lloyd, 2012; Shoal et al., 2010), learning what technological resources are available and how to use them, and procuring resources under the correct procedure in order to remain in compliance with policy (Lloyd, 2012; Smeaton, 2013).

Novice teachers underestimate the amount of time required to create lesson plans. The time dedicated to this task is significantly longer the time required by expert teachers (Hogan, Rabinowitz, & Craven, 2003). Beginning teachers quickly discover the need to be intentional about planning every aspect of their professional lives, including development of content expertise (Hogan, Rabinowitz, & Craven, 2003), lesson presentation, and student interactions

(Kagan, 1992; Lloyd, 2012). With all the challenges of teaching, beginning teachers can feel overwhelmed, stressed, and frustrated (Tynjälä, & Heikkinen, 2011). These ongoing challenges directly impact their performance and level of self-efficacy (Fives, Hamman, & Olivarez, 2007; Kagan, 1992; Shoval et al., 2010).

Formation of Professional Identity. As they gain experience and mentor support through the induction, novice teachers' lessons become more individualized and differentiated to meet the needs of students. However, seeing significant student achievement gains can take up to three years for a novice teacher (Glazerman, Isenberg, Dolfen, Bleeker, Johnson, Grider, & Jacobus, 2010). Understanding their own attitudes, self-efficacy, and development in their formation as a professionals is important for novice teachers. Caudle and Moran (2012) recognized that beliefs of new teachers and teaching practice interacted and deepened with experience. Pârlea-Buzatu's (2010) findings show interactions between mentor and novice helped beginning teachers to develop career-oriented goals, glean understanding from others, and seek guidance. Formation, while influenced from outside sources, is ultimately a personal and internal task. Through this process, novice teachers also gain an increased level of awareness and knowledge of self (Caudle & Moran, 2012) and continue to develop their professional identities. The teachers recognized the act of teaching is a learning process, continued to develop a belief systems that challenged traditional teaching methods, and began to believe their actions were appropriate.

Attitude. Beginning teachers possess excitement about the profession, enthusiasm while working with students, vibrancy during teaching and passion for the craft of teaching. Fresh from teacher preparation, they are eager to reflect on their practices (Stallions, Murrill, & Earp, 2012). Kagan explains that it is not until teachers immerse themselves completely into the classroom

that valuable self-reflection can take place in the process of understanding their “image of self as teacher” (1992, p. 152). Youthful teachers promote motivation through their enthusiastic presence and current understanding of culture (Smeaton, 2013). Novice teachers are open and responsive to support from both formal mentors (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009) and informal support systems (Pogodzinski, 2012). They also desire administrative guidance, teacher assignments reflecting their expertise, adequate resources, and opportunities for professional development (Moore-Johnson, 2000).

The transition from preservice to inservice teaching is an ongoing assault of challenges that potentially erode the attributes each novice teacher brings to the profession. But the novice who maintains positivity, resilience, and perseverance has the potential to do exceedingly well. Yost explains, “resilient teachers think deeply, problem-solve, and feel confident in their ability to meet the needs of their students. This leads to high levels of self-efficacy, which in turn leads to greater persistence and risk-taking” (Yost, 2006, p. 74).

Self-Efficacy. Novice teachers who can find a high level of job satisfaction (Lloyd, 2012) and can continue to develop a significant measure of self-efficacy will stay in the field (Jamil, Downer, & Pianta, 2012). Bandura’s (1977) cognitive learning theory, specifically on the role of self-efficacy, informs the researcher about how individuals’ personal viewpoints regarding their abilities guide their own behavior and developmental processes. Further studies describe self-efficacy as an accurate predictor of future behavioral outcomes based on past experiences (Grusec, 1992). Feedback synthesized over time, and various experiential outcomes promote results tied greatly to the belief in or hope for worthwhile rewards. Goal setting and self-evaluation tactics help individuals move toward improved performance based on their perceived positive outcomes. However, negative performance can also be an outcome for individuals with

high self-efficacy if they have unrealistic perceptions of their abilities in relation to a desired standard (Bandura, 1977; Grusec, 1992). Positive feedback provides encouragement while negative outcomes propel individuals to goal achievement. Bandura cautions that while “self-efficacy has directive influence on choice with activities and settings” care must be taken to remember that “expectations alone will not produce desired performance if component capabilities are lacking” (Bandura, 1977, p. 194). If capabilities are paired with incentives, the efficacy of an individual is influenced in the choice, and the intent to complete the task remains despite challenging circumstances and high levels of stress.

Personal efficacies are determined through relevant, received input. “Performance accomplishments, vicarious experience, verbal persuasion, and physiological states” are the four areas that combine to create a person’s “expectation of mastery” (Bandura, 1977, p. 195). Performance accomplishments are central to efficacy because they are personal experiences, which are tied to both success and failure. Bandura suggests three additional factors for consideration. First, individuals form vicarious experiences through modeling and examples. Next, the idea of suggestion and self-instruction—verbal persuasion—provides evidence of task viability. Finally, the element of struggle or stressful circumstances, physiological states within the task, elicits emotions, which constitute internal motivation for purposeful task completion (Bandura, 1977). Novice teachers’ attitudes, along with the ability to access and evaluate their own self-efficacy, build the foundation for moving forward in the process of continuous professional development especially when they are open to including others in the task of self-improvement.

Digital Identity. A recent national survey of 1,600 teachers by the Public Broadcasting indicates that teachers use the Internet as a primary source of media-based instruction. Related to that

finding are the additional findings that teachers not only possess confidence in technological devices (laptops, tablets, e-readers, and mobile) and the ability of web-based systems to engage students, but also that participation in online professional communities enables teachers to connect, collaborate and share resources (Vockley & Lang, 2011). The barrier of access has almost disappeared. It is seldom an issue of access, but it is a matter of knowledge of technological skill and how to use these skills to impact the teaching and learning process. Using technology for the novice teacher develops over time and can take as long five to six years to become proficient user (Ertmer, et al, 1999).

In 2006, Raby conducted a qualitative study using the multiple case-study design to understand how and why some teachers are successful technology integrators while others are superficial users. She found that teachers move through four stages of development that increase in complexity. The first stage is awareness with one element; the second stage is indirect contact. Stages two and three are personal use and professional use, each including elements of motivation and exploration appropriation. The final and most complex stage is pedagogical use, which encompasses motivation, familiarization, exploration, infusion, and appropriation (Raby, 2006). Raby concluded in her work that each stage is not mutually exclusive to a set of characteristics, but is rather an ongoing cyclical process with each new development or addition of technology. The task for technology coaches and administrators is to facilitate the integration of technology, thereby moving the teacher along an ongoing process (Raby, 2006). The teacher should engage and reengage the cyclical process again and again. The level of development is not dependent on membership of a specific generation (Grunwald and Associates, 2010; White & LeCornu, 2011).

White and LeCornu suggest individuals behave differently when integrating technology based on factors such as motivation and context, and could be more accurately described with terms associated with place and time; visitor and resident replace descriptors of native and immigrant (2011). These terms allow for a more accurate description of levels proficiency. According to White and LeCornu (2011), a teacher who easily uses word processing software to support instruction of a writing workshop is considered a resident of that part of the technological landscape. The same teacher may have no experience with social media (Twitter, Instagram, or Facebook) and does not understand how the function of these sites might help students engage with the content of language arts, and is thereby considered a visitor in that region of technology integration. These terms help others recognize various digital technologies and the skill set required for each element or device. The definition allows one individual to encompass both a resident and a visitor in the expansive landscape of educational technology. Backlash against the concepts of digital natives and immigrants within the literature (Bennett & Maton, 2010; Margaryan, Littlejohn, & Vojt, 2011; Selwyn, 2009), counters the general public's perceptions of millennials as digital natives who possess a high level of technological proficiency, and therefore expertise in the effective integration of into instruction.

Millennial First Career Novice Teachers and Technology Integration

Novice teachers are teachers in formation. The formation of beliefs begins during their methods courses, practicum experiences, and student teaching as preservice teachers. Intent to use technology is an element that develops during the formation process, yet does not necessarily result in transformative integration of technology or include practice aligned to their espoused philosophical beliefs (So, Choi, Lim, & Xiong, 2012; Kim, 2008). The integration of technology is not intuitive, but is rather a practice developed over time with just-in-time guidance (Figg &

Jamani, 2011). The body of literature on how preservice teachers and tenured teachers navigate the process of integrating technology is significant and growing; yet limited for novice teachers particularly studies that include participants who are millennial first-career novice teachers. Recent studies dispel some of the assumptions made about the millennial generation. Clarke and Zagarell (2012) explain the superficial experience most millennials have with technology, word-processing, and social networking, as one lacking a deep understanding of how technology works. “Newer teachers might very well use technology more in their personal lives but when it comes to frequency of tech use in the classroom they do not seem to have any edge over veteran teachers” (Grunwald and Associates, 2010). Teachers indicate that barriers such as insufficient time to plan lessons with technology, explore websites, and learn software as hurdles for not including the integration of technology (Bingimlas, 2009). While these barriers are not a new phenomenon, being common to veteran and novice teachers alike, the surprise is that the digital native is also experiencing this challenge when many would argue that because millennials have come of age in a digital era, they should be able to circumvent similar outcomes faced by their predecessors.

Starkey’s (2010a) study of digitally-abled beginning teachers at the secondary level found that context is instrumental in determining the ability of the teacher to apply their knowledge experience to their teaching practice. Elements such as policy, structure, access within the context, along with the support of mentors with relevant pedagogical supports and expertise including their own view of efficacy was important in the novice teacher’s ability to integrate technology into his or her teaching. Starkey explains the growing body of research, which examines how teachers are integrating digital technologies, but there are few studies that

seek to understand how beginning teachers integrate technology into their practice in the early years of their careers.

Starkey (2010b) extended the research question with a small number of digitally-abled participants during their first year of teaching. The researcher looked at multiple case studies and how the participants made decisions about how to use digital technologies within their teaching practice. The paper explores participants' pedagogical reasoning and action within the context of Schulman's model (Starkey, 2010b). Findings indicate that new teachers with a self-perception of digital ability could see the potential of new technologies but could not provide a theoretical justification for use. Starkey proposes that a broader interpretation of knowledge and teaching within Shulman's model of reason and action could build upon existing learning theory to provide a framework for forming teachers in the digital age. He goes on to introduce the emerging theory of connectivism. The position of teacher as source or conduit of knowledge shifts to a new position of learning expert (Starkey, 2010b). Pedagogical content knowledge in the digital age includes knowledge of subject/content, approaches and perspective of how to teach and create subject knowledge, and the process of using critique to gain knowledge through making connections (Starkey, 2008).

Grunwald and Associates (2010) survey of more than 1,000 teachers and administrators revealed that age and years of experience make little difference in their frequency of technology use to support learning. Of teachers who completed their teacher preparation since the year 2000, 53% felt teacher preparation programs taught them how to incorporate technology effectively in the classroom. Tondeur, van Braak, Siddiq, and Scherer (2016) worked to develop an instrument to measure the perceptions of preservice teachers in regards to the support given while learning to integrate technology into their practice. Their research concluded that novice teachers were

lacking in their abilities to integrate technology and that there were steps TTP could take to remedy their deficits. The remaining inservice teachers explain that most of their technological learning took place when consulting fellow teachers rather than designated specialists or technology specialists who were directly responsible for professional development. This conclusion is significant in that speaks to the type of training needed once teachers enter the field of teaching and the need for TTPs to revisit their methods.

Summary

This review began with a discussion of the theoretical literature of the TPACK framework and constructive-development theory as a theoretical framework used to guide the inquiry of this study. Both the framework and theory address areas pertinent to professional growth for novice teachers and their ability to integrate technology. Review of the related literature underscores the path of the preservice teachers for learning about educational technology, barriers for usage, and their intent to use technology based on their beliefs and attitudes. This review also includes a comprehensive description of millennials as emerging adults and provides a discussion of the misconceptions and assumptions of the generation which have influenced administrators' thinking and rationale for pursuing technological initiatives (i.e. 1:1 learning, Interactive White Boards, Bring your Own Mobile Devices). While there is much to learn from the literature about the attitudes, dispositions, and education of preservice teachers, this review of the literature also reveals gaps in the research examining how beginning teachers not only transfer technological skills into their instructional practices (Kay, 2006) but also explores an additional level of complexity that is transformational for both the teacher and student. This study will add to the body of literature by specifically addressing the phenomenon

of millennial, first-career, novice teachers' use of technology, as well as, their perceptions of how to transform their classroom by teaching appropriately and effectively with technology.

CHAPTER THREE: METHODS

Overview

Chapter three discusses the research design, procedures for the collection and analysis of data and for this research study. It reviews the purpose of the study, outlines the process used for identifying participants, and describes the types of data I collected for analysis. The chapter also summarizes how I addressed elements of trustworthiness (credibility, dependability, transferability, and conformity). The chapter ends with the ethical considerations for the study.

The purpose of this study was to describe the attitudes and understandings of millennial first-career novice teachers toward transformational technology integration in the elementary classroom as it related to the technological, pedagogical, and content knowledge framework (TPACK). Technological advances now permeate almost every facet of American society. Educational reformers would argue that the field of education has only begun to tap into the full potential of technology as an innovative vehicle for learning (Robinson, 2006; 2010). Traditionally, teacher preparation programs have offered one educational technology course (Kay, 2006; Pellegrino, Goldman, Bertenthal, & Lawless, 2007). Most courses in this category included learning outcomes focused on personal productivity software and electronic communications.

Schools, colleges, and departments of education have often made the unwarranted assumption that teacher candidates can make the leap from knowing software applications to seamless technology integration with only one course. The research instead suggested that the method that holds the greatest promise to integrate technology is modeling effective technology integration within all methods courses, thereby creating an atmosphere in which teachers can construct meaningful visuals and experiences upon which to base their own practices (Kay,

2006; Kim, Jain, Westhoff, & Razabek, 2008; Polly et al., 2010). The ability of future educators to captivate today's learners and beyond will greatly depend on their ability to harness the power of technological innovation and bond it to pedagogy and content expertise.

Design

This chapter delineates a qualitative inquiry. The hermeneutic phenomenological approach was selected because the literature already had attempted to establish quantitative relationships between various practices within teacher education programs and effective technology integration in candidates' field placements. What was missing from the literature is the voice of novice teachers who were currently "living" their teaching experiences. The focus of this study was to capture the thoughts and reflections of novice teachers as they moved into their actual teaching experiences to understand their own beliefs, attitudes, and perceptions of technology as they pertained to their everyday lives, within their own learning environments and the learning environments of their students in the elementary classroom.

The research plan was designed in light of Mishra and Koehler's (2006) Technological Pedagogical Content Knowledge conceptual framework. I used the varying domains from the framework as a lens to identify the presence or absence of components within the teachers' perspectives. I used the conceptual framework constructs to evaluate participants' various data contributions. This qualitative study was designed to understand the use of technology from the viewpoint of novice teachers and understand the nature of the relationship that quantitative research has previously established (Bingimlas, 2009; Clarke and Zagarell, 2012; Figg & Jamani, 2011; Kim, 2008; So, Choi, Lim, & Xiong, 2012).

Qualitative inquiry included "a variety of educational research approaches" (Ary, Jacobs, Razavieh, & Sorenson, 2006, p. 449) to study a particular phenomenon. I used a hermeneutic

phenomenological design approach. Bogdan and Biklen (2007) describe the phenomenological approach as the “attempt to understand the meaning of events and interactions to ordinary people in particular situations” (p.25). It gives participants a voice. Hatch (2002) describes hermeneutic phenomenology as constructivist in nature and as an approach assuming a myriad of contextual realities that factor into the value and meaning attached to those experiences of the researcher and thus warrant further investigation.

Taking a hermeneutical approach, I translated the collective voice of novice teachers to teacher educators and professional development personnel. The ‘lived experience’ (van Manen, 1990, 2014) of novice teachers not only uncovered the interaction with technology as a personal productivity/communication tool, but also teased out their perceptions of how deftly they can use their teacher knowledge as a decisive measure for integrating technology to construct student learning within the elementary classroom. The design allowed for participants’ voices to stand as the evidence for their perceptions, while pushing the researcher to identify themes contributing to their thought process and instructional decision making for using technology rather than making those assumptions from the beginning. The hermeneutical phenomenological approach was missing from the body of research, which is primarily quantitative or from mixed-methods studies.

Research Questions

The following research questions will frame this investigation:

1. How do millennial first-career novice teachers from the Midwestern United States describe their level of content knowledge, technological knowledge, and pedagogical knowledge (TPACK) to support their teaching practices in the elementary classroom?

2. How do participants describe their approach to instructional decision-making based on their technological knowledge in the elementary classroom?
3. How, if at all, do perceptions as preservice teachers now influence their perceptions as novice teacher in their current classroom setting?

Setting

Qualifying participants were working as classroom teachers at various school sites and have taught for one to five years. All elementary school sites are located in the Midwest region of the United States. There are various sites that include rural, suburban, and urban developed environments. All sites are classified as elementary schools serving grades kindergarten through sixth grade. There were seven sites total. Further description of each site is included as part of the participant portrait and in Table B. Priority consideration was given to the participants' requisites over their assigned site location.

Participants

A purposeful sampling (Patton, 2002) of participants was chosen based upon their involvement in elementary classrooms with access to technology. The determination of eligibility for this study required all participants to have five or fewer years of instructional experience in the elementary classroom. Each graduated from an accredited university with an elementary education major and obtained a state teaching license. I used convenience sampling initially (Merriam, 2009) to select participants based on the criteria stated above.

I then initiated snowball sampling (Bloomberg & Volpe, 2012; Patton, 2002; Seidman, 2006), asking each participant and current teachers to recommend other novice teachers who might fit the criteria. From those recommendations, I contacted the potential participants via

email and evaluated them against the participant criteria listed below. The qualifying criteria for this study are:

1. Current, first-career, general education teachers with five or fewer years of experience instructing in the elementary classroom.
2. Graduate of a university with a major in elementary education.
3. Member of the millennial generation, born after 1982.
4. Access to technology in their teaching and learning context i.e. classroom, school.

Phenomenological studies require “experientially rich accounts” (van Manen, 2014, p. 353), rich and detailed data, from each of the participants (Creswell, 2007). The opinion varies as to how many participants are needed. Patton (2002), Ary et al. (2005), and van Manen (2014) do not indicate a specific number of participants. Van Manen (2014) does impart significant guidance that it is more important for the research to ask how many examples or descriptions are appropriate to adequately study the phenomenon. Lincoln and Guba (1985) along with van Manen (2014) concur that data are collected until no new information is revealed, or saturation. Seidman (2006) suggests that the criteria for enough participants are dependent on sufficiency and saturation. After interviewing eight participants I had reached saturation and snowball recommendations had ceased.

In an effort to add sufficiency and maximum variation (Creswell, 2007; Merriam, 2009; Seidman, 2006), I selected a range of participants that reflects various sites, gender, years of experience and grade levels so that a number of populations outside the sample could connect to the experience. For this study, I started with three participants and continued to collect data from additional participants until the point of saturation was reached. During data collection I invited 30 individuals to participate, 15 responded, 9 completed consent forms and the initial survey.

Due to unforeseen events on the part of one participant asked to withdraw from the study. After the participant withdrew from the study I destroyed all data that had been contributed. After evaluating each participant, I sent an electronic mailing to eligible participants with an invitation to participate. Participation in the study was voluntary and subjects had the right to remove themselves from the research at any time. Given the nature of qualitative research, pseudonyms will be provided to ensure the right to privacy (Seidman, 2006). The informational email will provide details of the study stipulated by the Institutional Review Board (IRB).

Procedures

This study included self-reflective journals, task-based renderings, and semi-structured interviews as elements for data collection (Creswell, 2007; Merriam, 2009; Patton, 2002). Prior to the collection of data, I submitted the study for approval by the Institutional Review Board (IRB) at Liberty University (see Appendix A). I followed all the procedures outlined for the study by the IRB and obtained a consent form from each participant selected for the study (see Appendix B). The number of participants in this study is limited to those who are millennial novice first-career elementary teachers who have all graduated from an accredited university located in the Midwest region of the United States.

These data sources are designed to capture the voice of novice teachers within their first five years of teaching and to identify their attitudes, perceptions, and beliefs about technology beyond personal productivity, to the deeper and more relevant elements of technological, content, and pedagogical knowledge, extending ultimately to a theoretical framework for transformative instructional practice. I used systematic data analysis process when examining self-reflective journals and interview transcripts (Bloomberg & Volpe, 2012; Creswell, 2007)

The Researcher's Role

I am a full time faculty member at a private Christian liberal arts university. My duties include teaching various foundational and methods courses along with supervising practicum students and student teachers. Before coming to the university, I served in various classroom settings both at the elementary and middle school levels.

My interest in educational technology began 23 years ago as I embarked on my teaching career as a middle school teacher of grade six students. I soon discovered how using technology could capture the interests of my students, give them motivation for learning content, and allow them to create student-centered projects showcasing their understandings and new knowledge. I invested time in improving my technology skills but always viewed each technological component with two additional lenses, content and pedagogy. I worked in the general education classroom for nine years. During the last four years of my public school career, I worked as an Instructional Technology Resource Teacher (ITRT) for the school district and at two elementary schools. This experience allowed me to continue to work with students and with their teachers.

As an ITRT, professional development of the faculty was a large portion of my responsibilities and took on many different forms. I observed a range of skill levels in both pedagogy and technology, varying attitudes toward technology, and misconceptions about what defines effective technology infusion into the curriculum. Just as it was not always clear that technology was an effective support to the learning process, neither was it always clear that technology could be used as a vehicle for creating meaning and capturing the learning process. I am currently in a unique position as someone who knows the realities of how inservice teachers are integrating technology at various levels, and now works to prepare future teachers. I can serve as a translator to bridge the gap between how our current students view technology within

their daily lives and technology within the realm of school. Ultimately, I gained insight into the perceptions of novice teachers and how those perceptions transition from undergraduate understandings of technology integration to that of new classroom teachers.

For this study, I did not have previous student-teacher relationships with any of the participants. I contacted previous students and colleagues to help me recruit first-career novice teachers within their professional networks. I met with participants for the interview in a location of their choosing or through Skype.

Data Collection

Data collection is the process of using a variety of methods to uncover meaning within the structure of participants' language, contexts, and actions (Merriam, 2009). The primary source of data collection came from semi-structured interviews. Other data sources included in the study included document reviews of task-based renderings, and self-reflective journals. Data collection started when the study was granted approval from the Institutional Review Board (IRB). My research included adult participants and was not harmful; therefore I submitted an Expedited Review Application along with my proposal in its entirety to the committee. I began the process of data collection upon verification from my chair and committee.

I contacted each participant first by email to establish a time to conduct a phone orientation. I sent an electronic copy of the informed consent form for the participant to review. I described how data will be collected, reviewed the consent form, and explained privacy protection procedures and the time commitment required for the study (Seidman, 2006). In addition, I asked them for names of individuals who might qualify as participants for the study. I informed participants they could withdraw from the study at any time without repercussions (Stake, 2010).

Self-Reflective Journals

Janesick (2004) reports self-reflective journal writing is not just for the researcher but is also a worthy process for participants. The process assists participants in thinking more deeply about a topic and provides a type of member check to work in conjunction with interviews. Narrative inquiries capture the lived experience (Merriam, 2009). Journaling is a familiar process for participants, one that will help to capture their current perceptions as novice teachers. The instructions for the self-reflective journal were explained during the orientation. Participants received an email notification inviting them to participate in a self-reflective journal accessible via a unique web link included in the email. The secure site included a scripted prompt and area for response (see Appendix C).

Participants entered their name, selected their participant number, and responded to the prompt on the form. Each form used a standard format. Once the form was submitted the responses were logged into a secure cloud-based spreadsheet document with password protection. The participant and the researcher were the only individuals to have access to the self-reflection prompts and responses. Writing to a specific prompt helped each participant to capture thoughts on a specific topic, provided congruent data for the study, and transparency for the researcher (Ortlipp, 2008).

Table A

Standardized Self-Reflection Prompts

Prompts

1. Please write about an experience related to using technology to teach. (Include the following elements: a description of events, feelings/perceptions associated with the

teaching event, and an analysis of personal perceptions as they relates to student outcomes.

2. Please write about your lesson planning process. What are your key decision-making factors when planning instruction? How do you consider the use of technology, if at all, within a lesson?
 3. What dispositions or personal characteristics are required of teachers to teach with technology? Which qualities do you possess? Which are you seeking to develop?
 4. How did your undergraduate experiences, if at all, influence your perceptions about teaching with technology in your current classroom?
-

Task-Based Renderings

Participants completed a task-based activity prior to each interview. The task-based activity included the participants' renderings of their teaching-learning environment(s) and how technology use has been represented in that space. Teachers were asked to create a drawing of themselves and their students using technology in their specific learning context. Participants drew the image with provided materials in face-to-face interviews. For those using video conferencing, I asked them to create their drawings prior to the session and share their drawings with me via email as scanned documents.

Participants were asked to discuss their drawing and what thoughts and perceptions came to mind as they reflected on the use of technology in the classroom. Haney, Russell, and Bebell (2004) support drawing as a means of documenting important information from children, a technique often used by psychologist but has little prior use in educational settings for educational research. The researchers cite several instances where this technique is now in use

and how the use of a specific prompt for participants is preferred. For this study, the purpose of the prompt pertained to the current classroom teaching context with the intent to gather information from the participant about their setting. The task also informed the research about the current perceptions of how to teach with technology. The use of task-based rendering allowed for a much richer description of response during the interview.

Interviews

Kvale and Brinkmann (2009) introduce the craft of qualitative interviewing as a process allowing participants to give insight into their world through a simple conversation, which includes questioning, listening, and learning. Interview data was the primary source of data. I conducted the semi-structured interviews using an interview guide and a conversational format (see Appendix D). I used additional unscripted questions for clarification or to gain further insight into the participant's experience. Questions used during the interview aligned to the main research questions, but were left them minimal and general to leave time for additional questions.

I gave participants the option of using a video conference interviews or in-person interviews. The use of video-conferencing allowed for timely collection of data and allowed for the inclusion of participants that might have been excluded. (Bertrand & Bourdeau, 2010). Video-conferencing is a comparable alternative to face-to-face interviews and does not compromise the data collected (Bertrand & Bourdeau, 2010; Deakin,& Wakefield, 2013; Hanna, 2012; Janghorban, Roudsari & Taghipour, 2014). Video-conferencing added an element of convenience for the researcher and for two participants living in other state.

The process of interviewing provided the opportunity for participants' contribution of unique information that was not attainable through observation (Stake, 2010). Simply it is a way for the participant's to tell their story (Seidman, 2006). The following questions were designed

to elicit responses descriptive of the essences (Henriksson, & Friesen, 2012) of their daily experience or life-world (van Manen, 1990). I used an interview guide to focus the conversation on the purpose of the study (Kvale, & Brinkman, 2009; Seidman, 2006).

The goal of the first question built rapport (Creswell, 2007; Merriam, 2009) and allowed the participant to tell their story from a logical beginning.

1. How long have you been teaching and what prompted you to become a teacher?

Novice teacher finds themselves in new contexts along with an inundation of superfluous duties beyond instruction often themselves burdened with expectations that are difficult to maintain. (Lloyd 2012; Kagan, 1992; Tynjala, et al.,2006). The next set of questions, numbers two through four, asked participants to continue their story as they explain their typical day and describe their personal experiences as a novice teacher which included challenges, celebrations, and adjustments in an effort to establish their transition to a new context.

2. Describe any personal experiences you have had as a novice teacher.
3. What are some of the challenges you have faced as a novice teacher?
4. What does a typical day in your classroom look like?

These early experiences help highlight the formation of the novice teacher as they develop their beliefs (Caudle and Moran, 2012), attitudes (Kagan, 1992), and self-efficacy (Bandura, 1977) as a professional educator.

Constructive-development theory describes adult formation as the ability to construct new ideas based on new experiences over time (Kegan, 1994). Moore-Johnson (2000) and Parlea-Buzatu (2010) both agree that novice teachers are open to and benefit from induction relationships such as assigned mentors (Darling-Hammond, et al., 2009) and informal support systems (Pogodzinski, 2012) along with self-reflection (Kagan, 1992) and opportunities for

professional development (Fahey, 2013). Drago-Severson's (2011, 2008, 2007, and 2004) body of work explains that knowing shapes one's actions, and viewpoint of self. Actions and self-analysis of skills and experiences over time will form the teacher's professional identity (Fahey, 2010). Question five asked participants to share more about their experiences with the induction process and interaction with professional development to establish their viewpoint of self, actions, and level of support. Questions are listed below:

5. How do your experiences with induction and professional development as a novice teacher fit into your day, week, and/or grading period?

6. What is your first impression of yourself when thinking about how to use technology?

Recent innovations have permeated every aspect of their lives except for within the context of education (Robinson, 2010). Understanding how to use technology as a means to effective teaching requires additional knowledge and professional development for teachers (Ertmer & Ottenbreit-Leftwich, 2010). The level of development is not dependent on membership of a specific generation (Grunwald and Associates, 2010; White & LeCornu, 2011). Raby's work explains that teachers move through an ongoing cyclical process of four developmental stages that increase in complexity with each introduction of a new technology. A level of awareness or indirect content must precede personal use. Once the teacher has adopted the technology into her daily life it moves into the skill set of a productive professional. In the final stage, teachers integrate the technology to support their pedagogical choices.

The following open-ended questions establish how the participants interact with technology in and out of the classroom:

7. How do you use technology on a daily basis?

8. How else have you used technology in the classroom?

9. How does your skill level impact your use of technology in the classroom?

Questions ten through thirteen are tied closely to the literature already explained in the literature review. Mishra and Koehler (2006) described three areas of consideration for teachers as they lesson plan; technological knowledge, pedagogical knowledge, and content knowledge (TPACK). It is the interplay between these three influences that ultimately determine instruction decisions and student outcomes. It is important to understand what novice teachers perceive about their teaching practice. The following open-ended questions allowed participants to voice their perspective of their current technological skill, their instructional design process, and instructional practice within the context:

10. I would like you to discuss your drawing (task-based rendering). Describe what teaching with technology looks like in the learning context.

11. Describe a lesson you designed to integrate technology specifically.

12. How do the content objectives and /or pedagogical choices influence the use of technology to instruct?

13. What personal characteristics does a teacher need to possess in order to teach with technology?

Teacher educators and administrators can no longer assume the millennial generation possesses superior technological prowess or that the digital native exists (Bennett & Maton, 2010; Lai & Hong, 2014). Researchers soon began to recognize a push back from millennial students when encountering new technologies integrated into coursework (Bennett & Maton, 2010) and noticed their proficiency with social networking but lacked the ability to use more complex technological literacies intuitively (Margaryan, Littlejohn & Vojt, 2011). Students demonstrated that proficient work with new technologies required support from an instructor.

Questions fourteen through sixteen gained insight into how millennial novice teachers view their preservice experience with technology and how they now use it as they design instruction

14. What kinds of experiences did you have with technology as a preservice teacher?

15. How did your undergraduate experience shape your perception of teaching along with technology?

16. Does it influence your instructional design process, if at all, as a practicing teacher?

Once a participant had submitted all four self-reflection prompts, I contacted the individual by electronic mail and schedule a time for an interview. I conducted 35-60 minute interviews either face-to-face at a convenient location for the participant or through a video-conference site. Interviews continued until saturation was met.

Data Analysis

It is not difficult to understand that philosophical beliefs would influence data collection methods and the approach for how “to unfold the meaning” (Kvale & Brinkman, 2009, p.1) of experiential data sources. Phenomenological studies are not done in isolation. It is a process that is founded in collecting the voice of individuals, which, Heidegger calls “*Dasein*, or human-being-in-the-world” understanding (Schwandt, 1997, p.91) of those who experience a common phenomenon (Crotty, 1998). Phenomenology describes the common experiences as they are unearthed from an extensive collection of data sources (Merriam, 2009). The process of theme analysis is used to reduce the phenomenon (Creswell, 2007) to what van Manen calls the “universal essence” (1990, p.177). These essential themes brought together highlight the nature of the “lived experience” (van Manen, 1990, p.35) that Moustakas (1994) explains as a description of the phenomenon, not an explanation or analysis.

Van Manen (1990) explains that this Husserlian perspective allows the researcher to identify “qualities that make a phenomenon what it is” (p.107). He goes on to question though the practicality of the process. How exactly are we “to forget what we already know, we might find our presuppositions persistently creep back into our reflection” (van Manen, 1990, p.47). The hermeneutic phenomenological approach, instead of suspending or bracketing presumptions, asks the researcher to use self-reflection and embed these reflections alongside the interpretive process (Lavery, 2003). It is through a process of cyclical, repetitive and ongoing reflection and interpretation that the researcher can be fully immersed in the data and obtains a rich description of the phenomenon (Henriksson, 2012; Lavery, 2003; van Manen, 2014). I was able to immerse myself into the data by collecting reflective journal before meeting with the participant for the face-to-face interview. Just prior to the interview the participants completed a task-based reading. The immersion into the raw data through various data sources provides an opportunity to “mine meaning” (van Manen, 1990, p.86).

Full immersion in the data is a creative, consistent process that operates in cyclical, holistic, and atomistic fashion (Magrini, 2012; Kvale & Brinkmann, 2009). My interaction with the data began as I collected the reflective journals. Reading them ahead of the interview was helpful because I was able to get to know the participants and make good use of the interview session. The reflective journals were the first source to undergo open coding. I highlighted key ideas and assigned large segments of text initial codes (see Appendix E). These beginning codes were an important reference as I started to transcribe and code transcripts.

Interviews served as the primary data source for this hermeneutic phenomenological study. I recorded each interview using a Livescribe Echo digital voice recorder to add a degree of accuracy to the data point. All audio files were stored on the Livescribe device with the

password protection feature. Additionally, the recording device was secured in a locked location. During the interview process, I was able to reference data from the reflective journal and task-based rendering to elicit more detailed response (see Appendix F). It came about naturally as a way to prompt a participant during an interview. It also helped to establish triangulation between the three data sources.

After each interview, I listened to the recorded interview to grasp the entirety of the conversation. I listened to sections of the interviews multiple times as I transcribed the interview and checked the transcript for accuracy against the audio recording. As I was transcribing, I was taking mental notes along with written notations about key ideas or categories. Merriam (2009) explains that a brief analysis after the collection of raw data is preferable; therefore, data collection and initial data analysis will begin concurrently. After listening to the first two interviews, I made slight adjustments to the phrasing of questions on the interview guide (Kvale & Brinkmann, 2009; Merriam, 2009; Seidman, 2006). The analysis of these data sources further developed my understanding of the phenomenon as themes emerged and the descriptions of the experience were clarified and a deeper understanding of the essentials (van Manen, 2014) was evident.

During the thematic analysis of the data mining, I made hand written notes logging my holistic insights into the Echo Pen Notebook during each interview. I later referenced those notes as I listened to the audio file and also while completing the transcribing process for each completed interview. Each interview was transcribed verbatim to create a document that was careful to include verbal and non-verbal account the participants' experience (Seidman, 2006). I transcribed the audio file following the interview myself; it was during this process that I really began to know the participants. Once the interview was transcribed, the participant received an

electronic transcript and completed the member checking process. Member checking serves to assure the accuracy thus enhancing the validity (Creswell, 2007; Stake, 2010). A backup file was downloaded to a password protected computer and a hard copy of the transcripts, reflective journals, and task-based renderings were printed and stored in a secure and locked location.

I took care as the primary researcher to organize the various data points systematically so to ease the daunting process of working with the cumbersome amount of data associated with qualitative research (Bloomberg & Volpe, 2012; Stake, 2010). Documents were organized by data type, data source, location, audio file or digital file, Transcriptions and additional documents were structured to inform the process of using a systematic format that allowed for the next cycle of analysis. For example, the task-based renderings were evaluated based on characteristics in the classroom along with the response given to question 10 on the interview guide (see Appendix G). It is the process of rereading and rewriting (Magrini, 2012) which enables both interpretation and description (van Manen, 1990).

The transcripts were read multiple times using the three approaches van Manen (1990) describes as holistic, selective, and detailed (p. 92-93). I printed hard copies and progressed with reading the interview adding hand-written notations for significant concepts and significant ideas in the margins. I began to see common categories appear among these data related to the question asked during the interview. I then reread each interview this time in the digital format so I could use MSWord comment feature to use the line-by-line method to code phrases, statements, and sections. I also added comments that were in the form of question or interpretations about segments of the transcript (see Appendix H). These captions served as some of my memo journals.

Next my process took on a tactile style. I printed each transcript and reflective journal. I reread the transcripts along with my notes and drew a cut line for each segment of text. I then cut apart the transcripts and began cluster the ideas according to like concepts. I organized the strips of text into labeled envelopes. I had categories with large amounts of text; therefore I would reread the segments of text and further divide text into more specific subcategories. I made dividers for the sub-categories using blank paper. Finally, after rereading segments, I would write out memos (see Appendix I) that captured the essence of the segments into statements and noting significant quotes on the paper containing the text strips. The writing and rewriting process was used in an effort to capture the phenomenon through describing the textural structures of the collective experience.

The thematic analysis process operated with flexibility. At first I created an outline from the categories and sub-divided areas but the categories did not communicate the essence of the text. Thematic analysis is not a “rule-bound process”, but one that requires the use of creativity to harness complex “meaning” structures and themes (van Manen, 2014, p. 320). I asked myself a series of questions, reread memos, and sections of text from transcripts. It was then that I began to recognized themes (see Appendix J).

Trustworthiness

Credibility

Credibility within a study, according to Creswell (2007) is an accurate interpretation of participants’ meaning from various sources. The researcher’s task is to use data sources from each participant carefully to reconstruct the reality of the phenomenon. The researcher’s proximity to the number of participants’ experiences serves as the validating component (Merriam, 2009). Fashioned together, participants’ interviews, observations, and personal

documents form a collection of experiences for the purpose and context of the intended research. Ultimately, the process of uncovering the facets of multiple accounts permits the researcher to view the glimmer and sparkle of the developing shared phenomenon. Triangulation, the collection of data through multiple techniques (Silverman, 2001), adds credibility to the goal of determining the reality of the participants. Through task-based renderings, self-reflective journaling, and individual interviews, I provided multiple opportunities for participants to add to individual data sets. I conducted member checks of all transcripts with participants throughout each of the varying sources of raw data to verify content and correct interpretation. Allowing for novice teachers to share their reality in multiple ways will solidify the trustworthiness and credibility of the study.

Dependability and Confirmability

Quantitative research requires reliability within any given study, inviting other investigators to obtain results similar to the initial researcher. This is a challenging task for the qualitative researcher. The philosophical underpinnings of reality postulate that no one has the same reality; therefore, the exact duplication of previous research findings is nearly impossible. Merriam (2009) proposes dependable findings “are those which are consistent with the data presented” (p. 221). In an effort to document my research process and establish consistency, I recorded an audit trail (see Appendix K) throughout the data collection and data analysis process in addition to writing memos about the process. Consultation with the dissertation committee provided feedback in the areas of bias, and readjustments in process.

Transferability

Transferability refers to the degree to which the results from a qualitative study can transfer to another setting (Trochim, 2006). I organized and systematically labeled all raw data

along with the accompanying analysis and filed these data electronically and with hard copies in a secure location. The burden rests upon the researcher to provide a rich description of the research methods, findings, and assumptions for the study (Merriam, 2009; Silverman, 2001). Trochim (2006) further explains that the responsibility transfers to other researchers as they decide if it is prudent to replicate the study within their context. I continued to add rich descriptive elements to sampling, data collection, and data analysis procedures to my data log, audit trail, to document my journey (Merriam, 2009).

Ethical Considerations

I worked diligently to act in an ethical manner in all aspects of this research study. My objective was to cause no harm to any participant, and report the findings of this research in a manner that recognized my personal bias yet demonstrated with accuracy the voice of the participants. I set out to represent the academy well and seek to contribute to the scholarship of others in a manner that demonstrated competence, honesty, and a servant's heart.

The goal of this study was to describe the attitudes and understandings for millennial first-career novice teachers toward transformational technology integration in the elementary classroom as it relates to the technological, pedagogical, and content knowledge framework (TPACK). Their experiences gave further insights about how to best strengthen teacher education in preparing future teachers to teach in an ever-changing world and gave further information about how to help novice teachers during their induction periods.

I used pseudonyms to protect the individuals and institutions involved in this study. All documents are numbered to ensure anonymity of the participants. Each participant was assigned a number on a participant roster, which was kept in a location separate from other documents. Interview transcriptions were identified with participant numbers, pseudonyms, and printed on

colored paper unique to each participant. All digital recordings, transcriptions, and documents associated with this study are saved on a hard drive and Livescribe Echo digital recorder. All devices and documents were password protected.

Summary

This study sought to understand millennial novice teachers in the elementary classroom as they begin to develop an emerging perception of technology integration as a way to transform their instructional practice. Chapter two outlines the progression of research in the literature featuring novice teachers and their interactions with technology during their induction year. However, the literature did not yet reveal how the current generation of millennials is coping with the task of using technology to transform their instructional practice. This study sought to uncover the experiences of millennial novice teachers and their emerging perspectives of how the use of technology in the classroom given that these individuals had grown up in a primarily digital age.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this phenomenological study was to describe the experiences of millennial first-career novice teachers' decision-making and teaching practices in the elementary classroom. I used a hermeneutical phenomenological design that allowed me to interpret the lived experience of participants (Kafle, 2011; Van Manen 1990). I collected reflective journal entries, task-based renderings, and interviews to capture the essence of the shared experience of the participants.

The following research questions were explored:

1. How do first-career novice teachers from the Midwestern United States describe their level of content knowledge, pedagogical knowledge and technological knowledge (TPACK) to support their teaching practices in the elementary classroom?
2. How do participants describe their approach to instructional decision making based on their base on their technological knowledge in the elementary classroom?
3. How if at all, do perceptions as preservice teachers now influence their perceptions as novice teachers in their current classroom setting?

The chapter presents participant portraits, reviews research questions, reveals four themes, the analysis of each data source, and describes the alignment between emergent themes and the research questions.

Participants

A total of 15 individuals responded to the inquiry email. During data collection, I invited thirty individuals to participate, only 11 completed consent forms and the informational survey. Three participants asked to leave the study and their data were destroyed. Eight participants completed all elements of data collection, and were assigned a pseudonym for confidentiality during the reporting process. Each participant is a first-career millennial novice (FCMN) teacher working at the elementary level with experience spanning from kindergarten to sixth grade. Participants were born between the years of 1987 and 1993 and meet the age requirement for inclusion in the millennial generation. Seven females and one male were chosen and agreed to complete reflective journals, a task-based rendering, and an individual interview. Six of the interviews were completed in person and two were completed via Skype. After the eighth interview, saturation was reached and sampling methods, purposeful and snowball were no longer effective.

Portraits

Anna

Anna (pseudonym), 24, is in her second year of teaching. She teaches fifth grade near her hometown in a rural school perched atop of a hill looking down over a small town. Initially, Anna stayed close to the public university she attended, securing her first teaching position as a sixth grade middle school teacher. Anna is now one of two fifth grade teachers at the small school. Anna teaches language arts and social studies to both classes; her teammate teaches math and both teach reading to their homeroom classes. But she struggles with the class schedule and structure. "I don't even really teach social studies that much. It really is just math and language

arts focus, and I feel like our scores are almost suffering because we are not teaching everything.”

Anna desires to implement interdisciplinary unit plans like she created during her undergraduate experience. It is not necessarily “getting out our social studies book but embedding it (the content) within our math and our English and... science ... and putting it all together.” Earlier in the year she found learning centers beneficial for her students but has since changed her instruction to review. Given the high stakes testing that are administered each spring, Anna possesses a sense of urgent responsibility for using instructional time efficiently. At present, she only uses the school computer lab for Google classroom assignments and avoids using the laptop cart because of inconvenient and problematic logistics that impede quality instruction

Next year will present Anna with even more changes. Anna will move grade levels next year due to low enrollment in fourth grade. She understands that is a change common in a small school. This change will be her third grade level in her short three-year career. Additionally, her school district has announced a 2:1 digital device initiative for next year progressing to a 1:1 program the following year.

Bella

Bella (pseudonym), 28, is only a few months into her first year as a teacher. She has recently graduated from a private Christian liberal arts university. Her journey is unusual because she did coursework through a distance-learning program while working as a paraprofessional. “I tried being a paraprofessional just to make ends meet through college and, um, I loved it. ... I decided I wanted to more than just work as an aide.” Bella completed her field experiences and student teaching at her workplace.

Bella's current position began mid-year, so assimilating herself into the classroom climate has been her first priority. She is working to establish an effective behavior plan and prepare students for the upcoming round of high stakes standardized tests. Bella is one of four fourth grade teachers in a rural public school located at the edge of a large town.

Students access technology through the school district's 1:1 initiative. Students and teachers use various web-based applications such as Education City and Google Classroom on their laptops. Each learning environment is equipped with a document camera, interactive whiteboard and a projector. At the end of the school year, she was hired by another school district.

Elena

Elena (pseudonym), 30, says that the word that best describes her short five-year career is the word transition. "I have been in about ... every situation you can think of, um, which is kind of crazy ... I've been in rural schools, been in urban schools, I have been in a mixture of the two. You know, I've been in really small schools, and a really big school corporation." She has taught in the special education classroom along with multiple grades at the elementary level. Currently, she is a kindergarten teacher in a rural public school centrally located in a large town.

Elena attended a private liberal arts university in a large Midwestern city. The university's core values emphasize the application of theoretical knowledge to robust authentic experiences that ultimately serve the community. Elena is quick to share her university experience as a point of pride and gives praise to the education program she completed. It "is very much behind the Reggio Emilia approach." The philosophical influence is apparent in her interview as she describes her daily classroom rituals and process for instructional decision-making.

As a member of the district technology committee, Elena is working with district representatives to develop a plan for the dissemination of grant funds. In previous settings, Elena has had more access to technology and has viable ideas for how she will use technology in her classroom once more is available.

Grace

Grace (pseudonym), 27, recalls poignant moments in time that inspired her to become a teacher. “Honestly, I loved my first grade teacher. ... It was her first year teaching and like she was just magical and so I loved school.” Later Grace found herself nurturing little ones, helping with swim lessons, and babysitting. She says, “ I just kind of liked it from there...you find what you are good at and that is kind of where I fell in...and practiced.”

Grace teaches second grade at a rural public school in a large town. She graduated and met the requirements for licensure and certification in elementary education and exceptional needs from a private Christian liberal arts university. Grace’s post-graduation employment consisted of three consecutive long-term substitute teaching contracts and a coach’s position. She culminated her last substitute contract, with an offer to teach second grade at the same school. Grace has finished her fourth year of teaching second grade.

At the start of her second year as a classroom teacher the school district adopted a 1:1 device program that issued mini-tablets to students in the lower grades and laptops to students in upper elementary. The school has been using the mini iPads for three years. Grace’s classroom is one of four in the grade level and the school is located outside the limits of a large town.

Kiefer

While attending a large state university, Kiefer (pseudonym) imagined he would teach fifth or sixth grade math. But when a first grade position opened up in his home school district, he knew not to refuse the offer from a small rural school with limited openings.

Teaching students this young is not what he had envisioned. It was a setting focused on “learning to read instead of reading to learn.” He readily admits he had a lot to learn about teaching school at the primary level. It “is hard to figure out at first...I was very fortunate. My mom taught first grade when I started ... and she has all kinds of friends. They were always emailing me stuff.” He continues to lean in for support from the professional support network built during his first two years of teaching.

Kiefer taught one year in first grade and then looped up to second grade with the majority of his original class. Kiefer, 25, is again in second grade this year, for a total of three years of teaching. As Kiefer’s revealed his experiences, I quickly learned that he is honest about his shortcomings and possesses a teachable disposition. He eagerly expressed how he adjusts his behavior to maximize strengths and diminish weaknesses, so that he might better instruct his students and enable them to reach the highest level of achievement possible.

Lauren

Lauren (pseudonym), 26, started teaching early, as the oldest of five children. “I just love helping people out and ...truly wanting others to somehow learn.” Lauren graduated from a small Christian liberal arts college and student taught in a rural public school in a small town. At the end of her student teaching experience she was offered employment at that school.

Creating a classroom climate that is welcoming is a top priority for Lauren. It goes “further than anything if someone feels safe and cared for in your classroom.” She is quick to communicate her goal is to establish an environment that lets her student know, “I respect you.”

Lauren teaches sixth grade and has four years of teaching experience. She is one of five sixth grade teachers in a departmentalized content structure. Lauren's teaches mathematics and has recently pursued more education to earn a certificate for teaching high ability students.

Not only does Lauren demonstrate her love for learning, she also serves as a teacher leader in her school district. Her administrator has asked her to represent her school at district and regional conferences and report back to the faculty. During the summer, she worked with another teacher to create curriculum guides for mathematics in grades five and six. Her school district adopted a 1:1 device initiative that provides tablets to primary grade levels and Chromebooks to upper grade levels last year.

Payton

Payton (pseudonym), 28, attended a small private Christian liberal arts college and graduated with a degree in elementary education. Like many new teachers, she had to start with a part-time position. She worked for two years as a preschool teacher at her current school. She then was hired to teach fourth grade at a large private (PK-12) Christian school located in the suburbs of a mid-sized city. She has taught elementary school for five years.

"I have an eagerness to learn. I love, love learning." captures Payton's desire to learn. Her enthusiasm for learning is contagious. I want my kids to get excited...I can teach them something new, so they can be excited."

Laura is pleased with the progress her school is making in the area of technology. This year she was actively involved with a professional learning team (PLT) that investigated different ways to integrated technology into literacy-based lessons. Her access to 1:1 tablets facilitated the process of learning new ideas and applying them into her classroom setting. She

continues to develop in the area of educational technology, but is eager to learn all she can to be an effective teacher in all areas.

Sarah

Sarah (pseudonym) says she became a teacher because “life shapes you.” As the oldest of five children she often led and taught her siblings. She and her parents arrived from Jordan when she was a baby, but now at age 27, she has lived in a large Midwestern metropolis for the majority of her life. Sarah is now employed as a third grade teacher in a large public school district in the city. She is an energetic, passionate, and hospitable teacher. “I want my kids to feel like it is a home away from home ... my mom was always like whenever guests come over you serve them the best of your food, you give the best china, and the best plate ... I want my kids to feel [that] when they come in and it is the best classroom they have seen a comfortable setting that is, attractive, clean, organized, and well-supplied.”

Her motivation for cultivating an accepting, safe, environment for all children comes as a result of her experience as a Muslim child growing up after the attacks on the Twin Towers, September 11, 2001. “Life shapes you.” She discusses how being bullied made her hate elementary school. “I think that is what drove me to be an elementary school teacher. I am never going to let a kid go through what I went through, at least not in my class.”

As a teacher, Sarah considers the whole child when making decisions and educating students in her classroom. Students are made comfortable with the provision of flexible seating options while working and testing. Students also have choices while participating in what Sarah calls *mindful breaks*. These quiet reflective moments allow students to practice yoga with their teacher, rest their mind, or read for pleasure.

Sarah is in her fifth year as a teacher. She spent her first year in first grade and then moved to third grade the following year. Sarah has continued her education and last year graduated with a Master's degree. She serves as a teacher leader within her school and provides professional development for teachers across the school district.

Table B

Millennial First-Career Novice Teacher Study Participants

Participants	Age	Years Teaching	Grade Level	School's Developed Environment	University
P1- Anna	24	1.5	5 th grade	Small Town Rural 6,700	Public University Traditional 10,288 undergraduates
P2- Bella	28	< 1.0	4 th grade	Large Town Rural 10, 250	Private Christian Liberal Arts/ Distance Learning- Online 243 undergraduates
P3- Elena	30	5.0	Kindergarten	Large Town Rural 29,308	Private Liberal Arts Traditional 4,034 undergraduates
P4- Grace	26	4.0	2 nd grade	Large town Rural 57,085	Private Christian Liberal Arts / Traditional 3,200 undergraduates
P5- Kiefer	25	2.5	2 nd grade	Small Town Rural 6,700	Public University Traditional 39,000 undergraduates
P6- Lauren	26	4.0	6 th grade	Small Town Rural 3,404	Private Christian Liberal Arts/ Traditional 2,127 undergraduates
P7- Payton	28	5.0	4 rd grade	City Suburban 114,620	Private Christian Liberal Arts/ Traditional 3,000 undergraduates

P8- Sarah	27	5.0	3 rd grade	Metropolis Urban 2.7 Million	Public University Traditional 8,412 undergraduates
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Results

To capture the essence of the phenomenon, I assembled the participants' collective voice through reflective journals, semi-structured in-depth interviews, a task-based rendering and document analysis. From the raw data, I first used reflective journals to establish simple codes that could be applied to interview transcripts. As I continued to reintroduce myself and reflect on these data and apply initial simplistic codes, the appearance of more significant statements, codes, and categories were uncovered. I clustered participant responses to capture elements of the phenomenon and identify initial themes and sub-themes. From the data analysis process, four essential themes emerged about the quality of practice for FCMN teachers.

The four themes are (a) fluctuating contexts undermine quality of practice, (b) dispositional attitudes and growth experiences stabilize quality of practice, (c) professional support networks develop quality of practice, and (d) relative decision making enriches quality of practice. The following section provides a qualitative narrative for each theme and reflects the phenomenon through a combination of my interpretation and the words of the participants.

Themes

Theme One: Fluctuating Context Undermines Quality of Practice (QOP)

Teacher knowledge and context are the two major elements of the TPACK framework. FCMN teachers possess varying degrees of knowledge in the areas of content, pedagogy, and technology. The model uses a dotted line orbiting around three intersecting knowledge domains to represent and ever-changing variables that are present or absent from any given context.

These elements are significant factors that influence daily decision-making (Koehler, Mishra, & Yahya, 2007). The lived experience of FCMN teachers uncovered in this study describes the instability of three present conditions –*transitions, knowledge gaps, and tensions*. The instability of the setting or the fluctuating context undermines the quality of practice.

Transitions. “Let me just get my bearings,” is an idiom used to describe the phenomenon of identifying the unknown relative to what is understood or familiar. This conversion of perspective makes way for progress and is a shared experience among participants. FCMN teachers encounter unpredictable employment status, misaligned expectations from previous experiences that now cast a shadow over the current circumstance, and reconcile what was known to what is now.

The first challenge a new teacher will face is the hiring process. In the best circumstance it plays out in predictable fashion. A teacher candidate completes student teaching, graduates, interviews, obtains employment for the next school year, preferably in an area of expertise and desired grade level. Of the participants interviewed only one had the ideal circumstance. The words of the participants describe obligatory short-term jobs from the proving ground, unintended grade level assignments, and self-imposed transfers or grade-level shifts after one year.

It is in during these first months as a professional that FCMN teachers realign their expectations and reconciles what they thought was known to the reality of the now. Anna worked for a year in one school and then moved closer to her hometown. She admits, “It [teaching] is not completely what I expected.” Sarah and Kiefer had both assumed that their first job would mirror their previous field experiences but were placed in a contrasting context. Kiefer explains, “So my first couple [field placement were] fourth and fifth grade. My whole time in school

[undergraduate] I thought that was where I was going to be. When I got hired as a first grade teacher, it was way younger than I thought ... that first year was very tough.” It is a reality he quickly had to reconcile.

Sarah shares a similar experience. “Fifth grade seemed to be my niche. I did my clinical in 5th grade; I always got placed in 5th grade classrooms. So maybe this is a sign that I should be a fifth grade teacher.” She quickly was offered a temporary position [long-term substitute]. “I literally just graduated last week and you want to hire me? So I go to the school and I taught for only like a month and a half and it was 6th, 7th, and 8th graders and I love it. I think I always worked well with older kids.”

Soon, Sarah had an interview for a full time position. “So I got a phone call from the school that I am currently in and it was for a 7th grade science position, so then I interviewed and she hired me on the spot.” A few weeks later, Sarah was offered a first grade position instead. “So at that point I was like a job is a job ... and I was just overly confident. I was like, I got this. I dealt with crazy teenage boys, I can handle first grade.” Sarah also had to reconcile her preconceived ideas with reality of her now. “That was the hardest year of my life!” Sarah stated with great conviction. “But, honestly because classroom management was so hard for me in first grade, since then my classroom management is on point.”

The cycle of instability would continue for both novice teachers. The next school year, Kiefer moved to second grade due to low enrollment and Sarah moved to a different grade level. Sarah’s self-reflection helped her recognize she was suited to another grade.

I did not think I would like 3rd grade but honestly, this is me being you know; anything is better than first grade cause I could not do first grade anymore. You know what it is? I don’t know, I just can’t teach vowels all day long. It’s not for me. It’s not. There are

some teachers that are like, I love teaching digraphs and this and I am like that's awful.

You know I wanted to get more content into these kids.

Payton and Grace had to navigate the proving ground when they took short term jobs that would give them an opportunity to show what they could do if given a full-time position. Payton worked part-time as a preschool teacher at her current school before earning a position in fourth grade. She recalls, "It was a way to get my foot in the door."

Bella worked as a teaching aide and then started midyear as a 4th grade teacher. When I spoke to her she had been on the job for three months. Her main focus was establishing classroom management and preparing students for high-stakes state testing.

Grace, now at the end of her fourth year in second grade, recalls her first year as a long-term substitute. She filled a variety of temporary positions.

I took a maternity leave. I was kind of was a jack-of-all-trades. I was an aide for first grade ... I became the Title 1 teacher ... [and then] the special ed teacher was leaving to go on maternity leave. So then that was my first year, I kind of did five jobs; oh and I coached swimming. I jumped around and in the moment, I was very worried that I am in Kline (pseudonym), am I going to continue to have a job? How am I going to support myself out here when this maternity ends and what not? ... In my first year in second grade, it was so nice to like [have the] practice and [to have been] in the classroom but not have some of the responsibilities.

The unknown, both inside and outside of the classroom, is a factor that can undermine quality of practice.

Elena started as a kindergarten teacher and then changed to the upper grades as a special education teacher. At present she is back in the kindergarten classroom. Elena characterizes her transition to the classroom in the following way.

Um let's see. A lot of transition would be the best word to explain it. Um, it's just been some very interesting things that have happened. ... My eyes have been open to some things, I did not know completely existed in our world. The realities of some things, that just in my mind, just couldn't possibly exist. And things, I did not know people could do, I guess. Is another way of looking at it, I guess. It has been kind of eye-opening to me.

Elena's experience shared some of the ideas she had to reconcile as she transitioned from preservice to inservice.

When your [in the] first year of teaching, [you think], 'oh yeah, I have to teach this' and ... You are going okay, 'I have all these ideas in my head and I have all of these things that I you know.' I guess for me your [are] bright-eyed and you are green. And you are going, 'oh this is going to be wonderful and work' and then you come to that first time that it doesn't work and you are 'what did I do wrong?'

The sway of transition ripples across the context disturbing the FCMN teacher's equilibrium of familiarity (Bugenhagen & Barbuto, 2012; Drago-Severson 2008, 2007). If the continuity of the context is not established then the teacher may remain out of balance. The instability of misaligned expectations, temporary positions, and transfers from one grade level to another in a short time has potential to undermine the quality of practice.

Tensions. Geographers use the terminology push-pull factor when describing what draws people to a place and drives them away (Rosenberg, 2017). The term can also be used to describe the tension that happens within the context of a classroom environment of FCMN

teachers. For this discussion, a push-factor is an event or addition to the environment that destabilized the context. A pull-factor is an event or addition to the environment that stabilizes the context. The essence of these pushes and pulls is a byproduct of the steps for establishing a classroom's environment, communal and physical, and the classroom management structure (Kagan, 1992; Lloyd, 2012; Shoval et al., 2010). The result of these fluctuating tensions, change the context and impact quality of practice.

For FCMN teachers, the large number of decisions needing to be made can act as a push-factor even when those decisions are necessary (Kagan, 1992; Veenman, 1984). Communal environmental decisions for the most part are an intentional plan and act as a pull-factor, but the surprise events can become a push-factor if FCMN teachers are not able to make good decisions quickly.

Pull-factors in the classroom environment. As a teacher approaching her fifth year, Grace has summer rituals that help her to avoid push-factors. Once she gets her roster she begins with getting to know her students from their official school documents. “Does someone have a birthday the first day of school?” Grace continues, “That happened to me my very first year of teaching. And I was like okay today’s your birthday and I don’t even know how I am going to handle birthdays, sorry [laughs].” The minute details and the large ones, too of daily life in the classroom establish the tone or feel of the setting for students.

Enacting intentional procedures is an action that starts from the second students arrive. Sarah shared, “I always greet them every morning they walk in.” Both Sarah and Elena use the morning welcome as a way to build a positive classroom environment. Elena said, “I greet my student every morning. They have to shake my hand ... or a high five. They can give me a hug if they want. I don’t care; I am very open because they are five. I don’t deny ... they are five. I

keep that very consciously in my mind. Now do I expect a lot of them? Yes, I do. But I don't forget they are five [laughs]. That is my main thing." Elena is not alone in considering how setting goals within the communal environment benefit its members.

A hospitable environment is a pull-factor that stabilizes the context. Lauren explains, "My goal ever since that first year ... my first true goal in teaching is to really care about those kids and provide a safe environment, where they are loved in my classroom and then to make sure they are learning something academic." Kiefer shares, "I feel like if you ask a lot of the kids, they enjoy being in here. I try to keep it relaxed and fun ... to keep a good balance." Sarah believes hospitality also extends to the physical environment.

When [my students] come in [they think] that it is the best classroom they have seen. And it's fun [because] they will come in and say 'whoa this is awesome, it looks so nice.'

They can tell a difference. So that is kind of the vibe. I think I was one of the first teachers to start implementing flexible seating. So I got rid of the desks. It's funny because I think of flexible seating, I did not even know the term of it. I was just so sick of desks because they are just a garbage pit and we do not need this, you know? So we started using tables and then I was basically like 'sit where ever you want during a test, pick a spot you really like. You know sit wherever you want when you are reading.

Where ever you want to do your work just go ahead and chill.' ... I just like to make sure my kids are comfortable.

It is through the experience of everyday living in the classroom that Sarah determined how she wanted the classroom to function, and over time push-factors lessened and pull-factors increased resulting in a standard operational functioning mechanism within the context.

Push factor in the classroom environment. The participants speak from their experience. Their stories tell of instances that were steps to establish pull factors to help lessen the impact of a fluctuating context. However, the FCMN teacher is more likely to encounter push factors at the beginning of their career that can undermine their effectiveness. Access to needed resources is one barrier to overcome Anna knows she is to integrate technology but push factors limit access.

I try to at least once a week either use the carts or the computer lab. Like today we went to the computer lab. But it is hard [to be consistent] because we have K-5, a lot of people have time slots, so I might want to do something that day [but] I can't because somebody else is in the lab.

Last year, Anna was in a building with 1:1 laptops with continuous access to technology, but now she recognizes a push-factor that happens when time and resources do not align. "I never even heard of [Google Classroom] until this year. Which I feel like is a complete disadvantage from when I was 1:1 last year." In her new setting, she has access to professional development and gained knowledge that would have benefited her previous context. Now in her current context she has to navigate logistical barriers to use technology (Starkey, 2010a) even though she has more effectual knowledge.

Bella's experience and knowledge of using interactive whiteboards and accompanying software diminishes because more than one push-factor is present. "I think I am pretty comfortable with it, but I can't figure out my SmartBoard right now. I think I need the tech lady to come in here. Cause I worked with that a lot at Bonnet Peak (pseudonym) and no problems. I did SmartBoard lessons and everything." The previous teacher was going to have the board removed, but Bella had been able to stop it before the start of her position in January. As a new

teacher, she has not had the time to contact the needed human resource to address the technical logistics or access program resources. Kiefer had a similar experience.

I did have a SmartBoard last year that I used for a while. It was like the reject from one of the other schools, so it did not work well. I had to use old versions of the software. If it ever updated I had to have tech come back out and uninstall it and reinstall the other one. So it was a headache. If it is a tool that I am going to be able to use then I am all gung ho about it, but if it becomes something like wall art then I have no use for it.

Inconvenient issues and problematic access to technology are push-factors that curtail the use of technology in the classroom. If it does not work consistently, then teachers are not going to use it (Bingimlas, 2009). A change in district technological priorities has shifted the focus to new initiatives and now other resources, like an older model SmartBoard do not receive the same level of maintenance.

A school district decision is one battle, push-factor, Lauren is anticipating for the fall semester that may undermine her current emphasis on technology as a learning tool.

Students get to keep them [Chromebooks] over summer and that is not necessarily helping that cause. Because I mean unfortunately, even though they sign and their parents sign papers that say ‘okay, this is a school tool, and it is school property’ in their minds it’s my Chromebook and I can do whatever on it.

Lauren perceives this decision as a push-factor that will bring about tension at the start of the new school year. During the first six weeks of school teachers are working to establish a routine, solidify classroom behaviors, and enact procedures. Each of these management elements has within it has embedded tensions that push and pulls at the context until each is resolved.

Inadequate access to technology is only one push factor FCMN teachers face in the elementary classroom.

Knowledge gaps. Another factor contributing to a fluctuating context is the lack of knowledge in content, pedagogy, and technology. There may be some confidence in content from their undergraduate experience. However, the FCMN teacher soon learns they are naïve to the unexpected (Caudle & Moran, 2012). Elementary education majors, have a breadth of knowledge in academic content areas. Lauren says, “I felt confident leaving college, knowing all of the content, but actually applying it [laugh] is a totally different animal.” Sarah recalls, “I think a light bulb clicked and I was like ‘ah’ they never taught us this in undergrad.” It is not only content knowledge that is important, but also how to deliver that content at the appropriate level of development. The participants do acknowledge moments of failure and success as part of what made it possible to address gaps in their own knowledge and to rectify inferior practice. Sarah shares, “Really big challenge[s] helped me become a really good teacher afterward.” In theme one their stories reveal deficiencies in knowing the curriculum, planning for instruction and encountering the unexpected but later themes reveal maturation.

Child development. For each grade level, there are unique facets of child development to learn and consider. Sarah remarks, “If you don’t know what grade level you want, or you don’t see [examples], or have [direct] experience then [it is hard] ... that was tough, that was really hard, you know... because primary, and intermediate and middle school are different.” Kiefer’s recalls one of his first challenges, “My principal ... on the very third day of school [said] ‘You need to like use and think about what you are saying because you are saying words that they don’t know. You are basically talking above their head.’ So I did not realize I was doing that so now I have to think about how I am talking.” In that first week, Kiefer’s ineffectual

communication with students undermined his practice. Yet, his acceptance and application of feedback demonstrate how possessing the correct disposition, a teachable spirit, can help to stabilize the context and is discussed further in theme two.

Content. For elementary teachers, content knowledge includes literacy, mathematics, science, social studies, and child development. The four content areas each have core units of study that span seven grade levels. One potential trap for undergraduate students is they may envision themselves teaching in a specific grade level or content area and therefore are not prepared to teach that position. Kiefer explains, “So, my first couple [field placements] – it was fourth and fifth grade -- and my whole time in school [undergraduate], I thought that was where I was going to be. When I got hired as a first grade teacher, it was way younger than I thought ... so you know so that first year was very tough.” He tells of having to relearn beginning skills and content associated with emergent readers.

Payton describes another obstacle a FCMN teacher encounters, “Another big challenge was that I was not totally sure what I should be teaching.” Bella agrees, “I guess my challenge here is that there is not a curriculum map for me to look at ... when I was a paraprofessional, we did three week assessments, and we knew what standards were going to be on those assessments – they were already premade -- so you knew exactly what to teach.” These participants’ accounts each help describe the common experience of all the participants. For each one, the lack of knowledge in areas of content, pedagogy, or technology inhibits their pursuit of quality practice.

Elena in her fifth year is familiar with the content but is less comfortable with addressing the needs of all her students.

I have challenges finding something for those high end and high ability students. ... I have a background of [special education] and I feel like I have all of these bags of tricks, I can pull out. But then you get to those higher level students and ... I don't feel like that is where I challenge some.

Sarah recalls her prior experiences and identifies a significant gap in her knowledge.

My student teaching experience was in an IB [International Baccalaureate] school and I was in a middle school. So it was very project-based learning and that was what I was really familiar with. As horrible as this sounds everything in my undergrad did not prepare me for my first year of teaching. We were not taught the workstation model. ... Just this idea of workshop style was so big to me and did not even know what was going on.

Previous experiences with planning for instruction and misaligned expectations did not allow for these students to operate fully or effectually in their immediate context.

Lesson planning. Kiefer also talks about his struggles with planning as he transitioned from his student teaching experience to his new class setting.

I also did not know how to plan. You talk about how you have to plan but you like practice planning for an entire week ... especially if your student teaching person does not let you [and] planning in fourth and fifth grade looks far different than first of second. When I started, I was planning each day the night before. ... Every minute of every day had to be accounted for. So in order to have a good day, I have to walk in and be prepared with everything printed and everything ready when I walk in and that is a huge shift. ... Another first grade teacher ... was on me all year, 'You gotta, quit doing this or you are going to burn yourself out.'

Lauren too expresses what lacked in her preparation as a teacher.

There are just so many things you can never be taught in college and you just have to experience it. Or, you were taught about it in college, and you really face it, and you don't know how to handle it. So, it's all of those little things of what happens, like when a kid does not have lunch money, and what do you do? All of those little things that were never talked about; ... I do not think you could truly prepare anyone for the education field.

Each of these vignettes captures the essence of the lived experience as participants entered into their first classrooms. The knowledge gaps in both content and pedagogy were holes to fill so that improvement of instructional practice could begin to meet the expectations of their context. Overcoming multiple transitions, classroom tensions, and knowledge gaps, demonstrate a common experience among participants. It is interesting that none of the participants discuss the integration of technology as a priority. The responsibility of knowing content, planning instruction and navigating unpredictable events is daunting (Bingimlas, 2009; Clarke and Zagarell, 2012; Figg & Jamani, 2011) . The lived experience of these participants show that FCMN teacher must first acknowledge and address their gaps in knowledge. It is only after when technology can be used in a way that approaches transformational use to support learning.

Theme Two: Dispositional Attitude and Growth Experience Stabilizes QOP

The second theme to emerge from these data shows that stabilization of the context begins with teachers' dispositional attitudes and their interaction with growth experiences. Dispositional attitudes derive from an individual's core values and are an influential force that guides how the teacher approaches decision making in the classroom. Growth experiences are events that happen over a span of time that contribute to the teacher's volume of knowledge

(Fehey, 2010). This section will further explain the personal characteristics common to novice teachers as they seek to use daily growth experiences to stabilize their quality of practice.

Dispositional attitudes. Participants identified common dispositional attitudes important to the use of technology in the classroom. The dispositional attitudes include enjoyment of learning, willingness, and personal responsibility

Enjoyment of learning. As I spoke with each teacher, I noticed they all share an excitement for learning and soon it is a contagion within their bounded system. “I have an eagerness to learn, I love, love learning. I love meetings and conferences so maybe that is a tad strange but I like trying new things. ... I want my kids to get excited about something so I can teach them something new so they can be excited about it [too].” says Payton. It is a platform for sharing passions and excitement for new content. Bella says, “Ah, curiosity, if you stick to the same ole stuff that is no fun. You don’t want to make the kids bored so you have to be willing to try different things creatively.” Their collective voice speaks of an internal desire to learn and engage their growth mindset (Dweck, 2015) that fosters grit (Duckworth, 2016), and builds resilience. Sarah says, “You need to be adventurous and I think that is what I am. I am not afraid to try something new. If it fails it fails and that is okay.” Elena comments, “I think what I love about [it] ... is I love the challenge of trying to figure out what is that right move to make this group of students work.” As a group the participants shared their interest in learning more, curiosity about the possibilities to do more, and how opportunities to be creative or innovative were enjoyable ways to experiment with technology.

Willing spirit. One dispositional attitude to become apparent quickly was the concept of willingness. Kiefer noted, “It’s like anything else you just have to be willing to try.” Anna recalls, “When I was student teaching ... each classroom had a SmartBoard and that was super

intimidating to me. ... Just be open and willing to try new things especially because it can be intimidating at first.” Users accept a number of presumptions to help them walk forward into what is at first a muddled and messy process with an ambiguous outcome. Participants describe a willingness to try something new and yet expect to face failure when it comes. Lauren shares,

Just a willingness to be open ... I think that is a huge thing. If you are not willing, honestly [it] does not matter your age or skill level. ... [The] concept of being able to be teachable is a huge thing as a teacher or in any area ... [There is] just a willingness to be open and willingness to fail.

Grace added, “No fear of failure ... there is always new with technology and even if it is not new, they have updated it so it is still new. You can’t be afraid to just try stuff.”

Participants viewed effective teachers as using technology possesses a teachable spirit and embraces change as a shift from what was known to what is new. Payton also came to a similar conclusion.

I noticed the teachers who wanted to learn new things, I am able to teach them, and the ones who don’t really care to learn new things are harder to teach. So I think you have to have a willingness to learn. It is a huge thing to teach technology.

Elena agrees, “I think you just need to be willing to try. ... If you are closing yourself off completely, then you are not even giving your mind a chance to wrap around the idea and not even giving yourself a chance even to see if you could make it work.” Participants recognize that the unwillingness to engage the process of using new technologies, to overcome intimidating ambiguities, and to face the fear of failure limits the extent to which the quality of practice can improve.

Personal responsibility. The sub-theme personal responsibility is a dispositional attitude that emerges from these data sources. Participants discussed this disposition as a responsibility to use resources well, to continually develop their own skills, and to provide learning scenarios that promote future-forward thinking. With the significant cost associated with the purchase and upkeep of laptops, projectors, document cameras, and Wi-Fi infrastructure, teachers feel the pressure to use school district resources well (Kealy, 2010; Lloyd, 2012; Veenman, 1984). Lauren explains, “This year with going 1:1 we were not necessarily told we had to use it but it was kind of that underlying theme [that] parents are paying for it so you need to make sure you are utilizing it. ... Definitely pressure to use it.”

It is then the responsibility of the teacher to keep moving forward with their own capabilities to better increase the opportunities for their students. Sarah knows her students have not accessed all of the skills necessary for using technology as a means to learning but continues to think about how educational technology could infuse her students’ products in the future. Sarah noted, “So yeah we have not gotten to the point where we’re creating slideshows or videos, or doing that but my dream is to get to that.” Millennial teachers in this study voice their feeling of responsibility to shape the future learning of their students.

Participants recognize the phenomenon that illuminates a technological culture in which their students interact with it at play, at school, and virtually anywhere. These teachers demonstrate their propensity for future-forward thinking. Elena shared her motivation for including technology, “I always want to have technology in their hands, I understand that it does not always work but I want to find something... daily; I just feel that is the world we live in these days.” Sarah’s focus also gravitates beyond the present to the needs of the future and influences her motives for using technology.

But the reason, I think we need to do it is because it is 2017. Expectations are different; even [for] my 3rd graders, it is the way that they speak; their thoughts even shape them and part of [what shapes them] is technology. The majority of the jobs now, technology is going to be needed. For me, I think it is needed for how we are going to be for the years to come, for the future.

It is a task that is taken on very early in a child's school career and it is the teacher's responsibility to provide the best opportunities for students from the beginning. Elena shared,

Somewhere in their life, they will use technology, so the more I give them now I can shape them and help them learn. ... I can get them to have good experiences with technology then they might not be afraid to try a job that might be a little out of their comfort zone. Any job they have in the future is going to use some form of technology, whether that be a cash register, or ... their tablet, so I want them to know at least general functions. ... I want them to know 'I can do that' ... when they go for their first job.

It is significant that the kindergarten teacher, Elena, represents this view, even when her students will not encounter work place circumstances for several years.

Growth experience. Growth happens in increments so small that change seems minimal from day to day. Small increments of daily change join together across spans of time and marks progress that the observer can see, notice and celebrate. The collective voice of FCMN teacher told through their stories expose the daily experiences that stabilize the quality of practice in terms of skills, time investment, reflective analysis, purposeful instruction, and flexible modifications.

Technically skilled. Millennial teachers access up to three digital devices, daily. Laptops, smartphones and tablets are likely within reach of FCMN teachers. Each participant mentioned

the most used device was their smartphone. They use their phone to access news, entertainment, and social media. I asked Anna how she uses technology on a day basis and her sing-song response was, “social media.” She continued, “I don’t watch the news at home...articles on Facebook that is where I read them.” I asked Kiefer the same question with an immediate response, “I am a huge Pokémon Go guy.” Participants reported that communication was their most pervasive use of technology

Participants’ insight recognizes that mobile communication ramps up the perception of instant availability to others both personally and professionally. Lauren shared, “I have a smart phone, and unfortunately I probably check that more now that I am in the summer. I realize I am on it so much more because I have free time. My boyfriend and I communicate during the day ... or mom is asking me a question through text ... or face timing with the family.” Kiefer commented, “I use it [smart phone] to take pictures and tweet. I am connected to the Wi-Fi [at school] so that is how I keep connected with my wife during the day if she needs me.” Email continues to be a main source of communication, and access to electronic mail through the smartphone is now common. Anna added, “I probably respond more to [students’] parents on my phone than on my laptop ... like when I am at home they pop right up on my phone so I can respond then. I also tweet things that are going on in the room.” Kiefer and Anna’s administrator requires the use of a classroom Twitter account for the purpose of promoting school activities to the outside community. This level of access is common among participants.

When I asked the participants about their comfort level or skill level with technology their answer was one voice. They each viewed themselves as tech savvy, or as very comfortable using technology, but some offered a caveat. Functioning within their bounded system, the participants rank their abilities above most of their staff but none claim to be the top of the scale.

Lauren shares, “I am not necessarily a tech savvy person, and I consider myself more so than looking through the school. I can figure out on my own [stuff like] how to create a Google or something like that.” Grace shared, “I think coming from a techy generation ... where you start clicking buttons and you figure it out. ... Some generations [say] ... ‘I don’t want to mess it up’. But I think my generation knows there is always an undo button and that you go okay; just go back and fix it.” Elena, Kiefer, Grace, and Payton share in their interviews that colleagues identify them as having expertise and will seek them out for help. Elena explains, “I was the person people came to and others would say go ask Elena, she will fix it. ... I feel very comfortable in general.” Payton says, “I think some people are coming to me for things. So I felt like I figured out my role there.” Novice teachers have a technological sensibility. It is a quality that mixes approach, attitude, and action.

Their approach to technological skills derives from sensible assumptions joined with an amassed knowledge of functional skills over time. Lauren replied,

“With skill level, I think I am not basic but a little bit more, like an intermediate. But I also have enough sense where I can figure out a program, google something, try to figure out how the program works, or find a better website for my students.”

Technical mishaps or failures do not significantly faze the novice teacher. Their attitude is one of confidence that with time and troubleshooting, the manipulation of functions, they have the ability to navigate the problem and to figure out a solution through trial and error. Bella explains a situation that happened in preparation for online high stakes testing. “You know we problem solve and figure it out. It is nothing I have ever done on Apple computers before but ... I feel comfortable enough to figure it out.” She adjusted the settings and did not seem anxious about the limited time to solve the problem.

These foundational skills can include knowledge of the functionality of digital devices, various operating systems, web-based applications, and software. While it does eliminate some of the barriers that keep teachers from using technology in the classroom, this specific set of skills only provides novice teachers with a slight advantage over their older colleagues. It is important to note that these skills (Lux, Obery, Cornish, Grimberg, & Hartshorn, 2017) do not automatically transfer to the process of using technology as an instructional means to transformational learning due to the factors associated with a fluctuating context. Grace's explanation of transition to 1:1 mini iPads in her second grade classroom captures this idea.

How is this going to look? What is going to be better? So it was definitely a guinea pig year. I remember one of the first times I gave STAR on the iPad, it went awful. I mean the kids scored so low. So I deleted that and we went to the computer lab and it went so much better which is interesting. ... I needed that grace period; some things we are going to do on the computer and some things we are going to do on the iPad.

As novice teachers eliminate factors of instability from their context, they become able to combine newly acquired knowledge with well-timed professional development to infuse more sophisticated uses of technology.

Forethought and preparation. An experience of failure is rectified with the application of trial and error. At first the teacher may decide to postpone or delay the use of technology (Ertmer, et al.,1999). More often than not, a failure leads individuals to mitigate negative outcomes through asking questions, using forethought, engaging in preparation and relying on others. Sarah conveys, "You have to be willing to do some kind of background work. I think like technology can be messy, I don't think it ever works in your favor but the best thing to do is you should try it out before you have your kids try it." Grace shared a similar idea, "I want to

make sure things are researched based and it is not any ole app. ... So I think it is important as a teacher to play those apps yourself and make sure that is what you want your kids to be on ... to see if it matches up with your pedagogy or your common core... and go from there.” It is a process that does take an investment of time.

As a teacher in her first year, Bella says,

I am willing to tryout different websites and um you know try it even if it is not them [students] using technology, I am trying to find different worksheets, stuff, and websites. I know some of the fourth grade teachers shared with me some different practice [test-prep] websites. I assigned that as their [students] seatwork for the mornings of [the test].

In some cases the new teacher will rely on suggestions from others and trust their expertise due to limited time. Payton admits that it took time to reach her level of expertise. “Since being here for four years full time in 4th grade, I am incredibly comfortable with our 1:1 iPads ...the classroom computers and computer labs. ... I feel very comfortable but it has taken me a few years to get that way.” The time it takes to prepare the background work is an investment that contributes to a more stabilized quality of practice.

Established personal boundaries. Even with the knowledge that effective lessons require a significant time investment the novice teachers that have taught the longest were quick to share their lived experience of establishing boundaries (Anderson et al., 2017). Lauren gives examples of how time is spent outside of class time and what she sees as a worthy contribution.

I mean time is so precious ... there is a time when to step back, and relax, and get away from school ... that is huge with me. I help out with the Math Bowl team so that adds an extra hour and half to my day... I love it but at the same time, I have been with kids from

8:00 AM - 4:30 and I am ready to just leave school. So there is not much free time to try to find things [activities on the computer].

Grace agrees that she has to guard her time especially when it comes to helping colleagues with technological questions. She has learned with experience that she needs to make wise choices about how she spends her time.

So if you have one little question for me, then I will be more than welcome to answer it. But in this day and age you can just Google like how to convert a PDF to this [format] and you can have an answer like that [snaps fingers], but I think for some people it is just easier to go to someone and have them fix your problems. ... I am not the tech person so that is not my job. So I will be of assistance, but I kind of put up a little bit of a wall because I am not there to train people.

Anna, a second year teacher discusses how she manages email communications in her off hours. "I probably respond more to parents on my phone than on my laptop. ... Like when I am at home they pop right up on my phone so I can respond then." Lauren approaches it differently. Her priorities are more firmly established and function as foundation for her establishing boundaries. Lauren asserted,

The primary communication is email and I am always, unfortunately, checking that. I purposely have my school email not come up on my phone all the time. Just so there is some separation from that, but otherwise it is on a daily basis. My phone is with me where ever I go, which is a blessing and a curse.

Sarah in her fifth year of teaching responded, "I do think you have to be honest with yourself [about what] you are capable of; what you can and cannot do." The more experience the

novice teacher gains the more likely decisions are made as a result of dispositional attitudes, firmly held core values, and reflective analysis.

Reflective analysis. Reflective analysis is the ability to endure a growth experience and evaluate all facets of the circumstance (Smith, Geng, & Black, 2017). It is the process of evaluating the context, student performance, and teacher performance with the objective of using these data to decide the next best step for the learning needs of the students (Adler, 1991; Smith, Geng, & Black, 2017). Reflective analysis improves the quality of practice (Schon, 1984). The words of the participant reveal their approach to relinquishing control-fear, selecting purposeful activities, and teaching with flexibility.

Relinquishes control-fear. Grace and Lauren have both taught for at least four years. It was interesting to hear them talk about the adjustments each made to their perspectives on fear and control. Grace used the term “fear-control” as one of the early fears of using technology in the classroom.

A characteristic that might go with that is when we first got iPads; I was so worried about what is on every kid’s iPad. I can’t see all of those screens at the same time because their back is facing me. Are they really on what they are supposed to be on? That was a fear. That was a fear of mine at first, it was a control fear.

As I reviewed Lauren’s transcript, I realized she too had the same experience of control-fear.

I want to trust them but they are 12 year olds. ... I would rather be trying to prevent anything from happening, from the get go, than have them all go wild. ... Luckily they are young enough that everything is tracked. So, they are still kind of scared cause they get an email every time they go on to something [website] that is blocked.

A control-fear is defined as the fear of losing control over students' actions and behaviors while engaged in the use of technological resources. This control-fear is more likely to occur within the context of the 1:1 classroom. Grace and Lauren used specific steps to help them relinquishing their own control-fears. Grace shared how her practice stabilized and allowed for her fears to subside.

I think you have to teach management first before you can teach on the iPad. I don't think you can just throw iPads at them [students] and expect it to go smoothly right away. You have to take two weeks to talk about digital citizenship and what that looks like in your classroom, first. So you have to be somewhat organized with it. And not be afraid of failure and don't be afraid to let go of control. I let my control go, a little bit. [laughs]

Lauren made adjustments to her physical setting when students began using Chromebooks.

Classroom management changes when you have them. ... I think every teacher is controlling ... I want to make sure if they are on the Chrome Book, then they are doing what I ask them to do. ... My desk is at the back of the room, if I am sitting at my desk or walking around the room then I can see their computers at all times.

Lauren's experience over time taught her that in most cases it is better to use preventative measures than react to unwanted behaviors. Proximity and visual sightlines are adjustments to the classroom environment that added to the efforts of suppressing negative behaviors and ensuring a task-oriented environment. A slight adjustment to her behaviors gave students nonverbal expectations of appropriate use and allowed for a shift from reactive to proactive management. In addition to management, the FCMN teacher's ability to select purposeful activities increases the quality of practice.

Selects purposeful activities yet retains flexibility. As the participants, novice teachers, grow they recognize the need for streamlined activities that are purposeful. Early on in Sarah's practice, she reflected that she did not always accomplish that objective. Sarah says, "Sometimes you take on too much ... I have learned that I take on way too much and that does not help because your kids are all over the place because you are all over the place." Kiefer believes using forethought is a way to avoid those traps. "You have to be willing to think through what is useful. ... You can try anything ... but you have to be willing to think about it and what effects it might have before you try it the first time." Lauren shared her reflection of quality practice.

Not everything is going to be perfect and it may not work out, but it is the fact that you tried something, and you can say that worked great or wow that was horrible. I need to rethink it. ... I think as [a] teacher you always have that self-reflection in saying 'that worked well or how can I improve.'

Novice teachers no matter how well they are planned might also encounter circumstances that do not go as planned. In those situations changes in course require quick decisions that still have great potential to meet the lesson objective.

Flexibility is a skill that is developed over time and with experience. As teachers gain more content knowledge and pedagogical knowledge they are better equipped to shift instruction when hardware or other elements of the infrastructure fail.

Lauren recalls some of the challenges she has learned to overcome.

With the whole expense to 1:1 at the beginning of the year ...we had Wi-Fi issues to the point [that at] a certain time of the day the Internet would just go slow. If I am trying to be on the Internet plus other teachers, it ends up being one class [that] was always behind because of 'okay guys let's try plan B.

Yet even with the difficulties, she also had to figure out how to navigate changes in the lesson plan when the unexpected happened.

[If] for some reason the website is down [or] one of the websites we use regularly was randomly blocked. I have to be constantly thinking of that plan B not only in general plan B, but for technology a plan C and plan D.... and to figure out something else, but meanwhile it worked [fine] for every other class except for [this] one class.

Grace shows the desire to continue with the lesson with or without technology.

There have been lots of times where I have just had to try things whether it's in a small group or whole group and the server goes down or whatever the problem is. 'Oh we have had a technology glitch. No big deal; put your iPads away and let's just do this.' You have to be able to go with it.

Sarah's insight adds to the discussion about balancing forethought, purposeful choices, and flexibility with realistic expectations.

We are big on grit and perseverance at our school. But I do think sometimes you need to be realistic with yourself. If something does not work with your classroom and it was a miserable fail and you know...this program did not work, for me I am constant and say... maybe you can try next year.

The novice teachers in this study demonstrated the ability to adjust activities appropriately as they reflect on their previous experiences. Those choices provide alternative methods that maintain the quality of practice. Sometimes it is a quick shift in the assignment so that students can still pursue the same objective. But it can also mean stopping a lesson to regroup and reteach at a later time.

Theme Three: Professional Support Network (PSN) Develops QOP

Novice teachers build professional support networks and it is an important step toward success. This process starts during the undergraduate experience. A professional support network is a group of individuals who work together to support the needs of other teachers navigating the various contexts within the school environment. Professional support networks (PSN) begin as a student enters into their teacher education program. University advisors and professors are the first members of the support network teaching introductory and methods courses and working with student to develop a four-year plan. As students move through their program, the PSN includes university supervisors and cooperating teachers that serve as mentors. Members of their peer group round out the PSN.

Preservice professional development: Educational technology course. Participants shared the common experience of taking a stand-alone educational technology course during undergraduate program of study. The participants' voice echoed a shared understanding of problems associated with the stand-alone educational course. First, resources are often modeled in isolation and relied on students to make connections of practical applications on their own. Payton explained, "Technology for Elementary Teachers... basically taught us how to make a website; nothing too exciting." Kiefer also said, "It seemed like here is a cool website, and here is this cool thing." Anna characterized her experience as a list of items she learned to create. "I did take a technology course online, so we learned to do...Glogster, Prezi, TimeToast and ... I learned to do a webquest." Later in her interview, Anna divulged she currently only uses a modified version of a webquest for instruction.

Educational technology courses are often taken early in the four-year plan with pre-education students have limited pedagogical knowledge and this was true for this study's

participants. In addition pre-education students have few experiences in the classroom and so new ideas are applied to the imaginary. Kiefer recalls,

You get kind of excited about technology but it does not necessarily make an impact because it is so early; ... you really don't know what you are doing yet. (Students) should wait until [there is a] bit more understanding of curriculum and ... strategies; then learn about the technology, so then you could think about how ... the technology can help you do those things. I was not asked to think ... in a mindset of how would this (resource) look at a kindergarten level. I think I could have been more prepared on the technology front, if I had been shown something and then asked to talk about how to use [it], not just here is this and here is that.

Another problem is that what is currently considered technologically innovative can become irrelevant in just a few years. The limited shelf life of digital devices and platforms, along with viable resources and projects are problematic for teacher educators. Devices accessible in the college classroom are soon considered outdated or irrelevant once a teacher candidate enters the classroom as a novice teacher. Grace shared, "I had no idea that I would be teaching with iPads in college." Payton explained, "At the time all of this (tablet) technology wasn't ... really popular." Kiefer had a similar experience and said, "I really did not see how to use it." Lauren discussed the relevance of projects completed during her undergraduate technology course. "At the time it was perfect ... at the time it was technologically advanced but with technology changing I cannot think of one thing I have utilized from that class because it has been six years. ... Technology has changed so much [that] those projects are obsolete." Students wanted to see resources used authentically and not just as class demonstrations and given a chance to apply them to more than one circumstance.

Preservice professional development: Methods coursework. Participants' methods professors displayed their passion for the content and for pedagogy taught in the methods courses. Elena shared how her professions for literature inspired her practice now, "I'm a big children's literature fan ... so, I am obsessed with books ... different things to do with books ... and how you can embed different (activities). I feel like all of those things helped ... me to do even more." Bella remembers the central focus of instruction was on "how to integrate standards" into the planning. When it came to examples of how to use technology to support student learning, there were few. Anna describes an example of her professor demonstrating how to use a handheld whiteboard board in class. "She let me take it with me ... and that was really helpful." Kiefer noted sporadic use in his methods courses. "There really was not a big focus on it at least from my point of view." He goes on to explain that professors would reference technological resources that might "make this [specific process] way easier." Limited exposure to transformative technology used for their own personal learning confined their own quality of practice as teachers.

Participants were quick to defend their programs and seemed to understand the limitations of the college classroom. Lauren recalls a semester when her professor was on sabbatical. "With my methods class my professor, an adjunct ... everything was paper-pencil in a binder. ... Looking back there was not a lot (of technology)." Sarah admits that she did not receive instruction for how to integrate technology. But, it was Sarah's opinion that it would not have been beneficial to discuss inauthentic scenarios.

I want to give my professors the benefit of the doubt ... I think it was because my classmates and I were placed all across the city ... at (one) school they literally had a Mac room and a recording studio and then I would go to another school that had nothing

... that plays a role in how they (methods professors) teach. If three-fourths of your class really does not have it (technology) how are we going to sit and talk about it? You are living an imaginary teaching world.

Overall there were few instances when participants engaged in lessons that taught them directly how to integrated technology within a given content area to support student learning outcomes. However, participants describe course assignments that indirectly gave them the experience using technology to support their coursework and develop products for assessment. For some candidates, that limited experience was enough to spark the idea of using technology for their future instructional practice.

Preservice professional development: Using technology for learning. As students, participants did meet their requirements for coursework through assignments that used technology. Bella explained she had experience using technology because of the mechanism used for earning her degree, “I mean my degree (was) online.” Grace wrote in her reflective journal, “My student teaching portfolio, along with ... other major projects was made into webpages.” Some spoke of using Google Drive on their own for shared documents to facilitate group work or for completing assignments for general coursework.

Lauren remembers, “We created a doc to share but that was the ease of Google Docs and it was more student led and not so much teacher led.” Kiefer also used Google web-based applications to complete his undergraduate assignments. He adds, “I used Google so I had that preparation from just doing basic work... I already knew how to do everything from docs, to sheets, to slides.” Other professors did model the process of teaching their students how to construct a capstone project. E-folio elements were applied as requirements to other assignments

assigned in methods coursework. One participant did discuss in retrospect how this process was a complex process in pedagogical practice.

I liked how the professors had us do an e-unit... and it was via webpage ... but you know that got me thinking about how ... you create a project that can be technology based.

They could have easily just said you can print it all ... and put it into ... a binder. But ... it was much deeper than that. It was taking pictures [of artifacts] and then learning how to upload it to a computer, how to insert them; it was multiple steps.

FCMN teachers have had exposure to producing products using technology, but producing projects is not an explicit lesson on the process of teaching with technology.

Preservice professional development: Field placements. Field placements or clinical experiences were common among the participants but the circumstances among the placements varied. Some clinical settings were part of lab school associated with a university, while others included private religious schools, small rural schools, and large urban schools. Participants had significantly less to say about field placements than their student teaching placements.

Participants had limited memories of field placements and their experiences with technology were minimal.

The common experience is that, field placements did not significantly inform their practice in terms of how they can or choose to use technology in their current classrooms. Anna made an interesting assessment of her experience.

My placements were intermediate grades but I was placed in first grade one time. So seeing [the] calendar done on those flip page things on a SmartBoard was amazing and the kids being able to come up and drag. It was really cool. You can do all the problems

on the board and make a new page and come back to it the next day [because it is all saved], instead of someone accidentally erasing it. [Laughter]

Anna had all of her experiences at a lab school that had the ideal equipment, software, and access. Now in her second year, she looks back at those experiences and expresses her views, “Um, definitely unrealistic, because it is the only place where I have been where everyone has a SmartBoard. So I came out expecting those types of things and it is not everywhere.” All of the settings that were to follow never met the expectations in those field placements. Even when preservice teachers are given the best circumstances it not likely that their skill gained in one setting can be duplicated in another. The contexts whether sparse or ideal, do not provide the needed skills to replicate vibrant technological use in future contexts.

Preservice professional development: Student teaching. Participants had more to say how technology was used in their student teaching classroom. But the common experience among participants is that no one could predict what type of context would be present in their student teaching placement. Payton explains she had little interaction with technology. She mentioned, “[In] student teaching ... I had computer lab time but with a computer teacher. There was no technology in the classroom except the teacher laptop.” The other participants’ stories revealed that their use of technology during that experience was modeled after their cooperating teacher’s use of technology. Lauren’s student teaching context had additional devices and taught her technological skills for productivity.

When I student taught ... they [the school] had a Mobi where you could write on the [handheld device] screen and that was neat. I did not have a lot of technology training ... besides student teaching. And it was ... how to log in, do grades... (and) how to check

your email, the managerial aspect not so much other than using PowerPoint, or the Mobi, or the document camera ... the basic technology.

If most of the interaction with technology was with completing managerial tasks, then that was mimicked by the preservice teacher.

For most, the standard technological devices installed in the classroom are a teacher computer, a document camera, and projector. Kiefer remarked, "In student teaching she did use a document camera ... I saw how to utilize that really well." This configuration upholds traditional pedagogical choices of lecture, and direct instruction because the projector and document camera combination have almost identical purposes as the formally popular overhead projector. Anna and Kiefer depict their instruction with technology in their task-based rendering (Figure 2). From the image we see that Anna's drawing on the left is self-captioned with phrasing associated with direct instruction and guided-release instruction. Kiefer's on the right shows the teacher working from a laptop with a projected image while giving instruction.

Figure 2: Task-Based Rendering Depicting Traditional Instruction

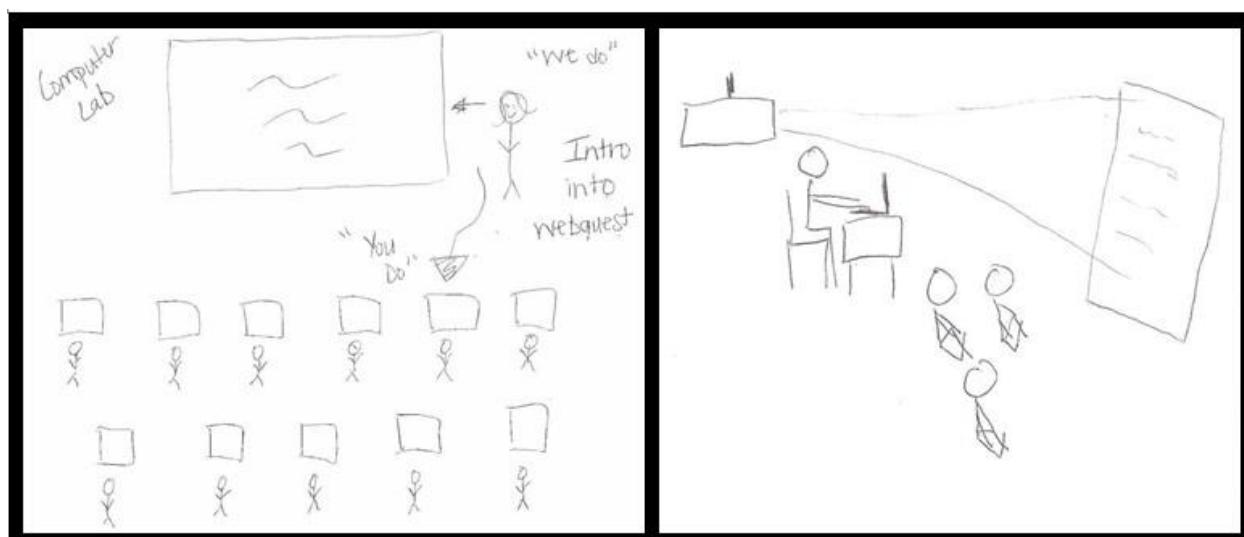


Figure 2. Traditional instruction methods depicted use current technology. Anna and Kiefer's task-based renderings show their technology use within their chosen setting. Both teachers are using technology to facilitate traditional teaching methods.

Bella's setting included the standard configuration along with an interactive white board and access to a computer lab and web-based applications. She explained a common lesson used during student teaching. "We would do computer time, and we [would] assign the lesson [from Education City]. Then after they did the lesson on the computer, then they ... got the activity sheet ... to do, and it was already review [content]." Education City is a web-based application that includes animated games and resources that allow students to practice skills that are aligned to standards content and individualized to the students' needs. The website uses progress monitoring to automatically assign activities for the purpose of remediating deficient skills. Bella practiced technological skills formulated from procedures already set in the context. In this example, Bella's only instructional decision is selecting the appropriate standard, but using a progress monitor web-based application the choice of how the lesson is presented and assessed was made for her.

Sarah's student teaching context introduced her to a rich environment. It modeled for her an interdisciplinary curriculum with a technological component included as part of each unit of study.

I have to give my institution credit that they placed me at an IB (International Baccalaureate) school which was awesome. ... I learned technology through gaining experience. Technology was huge. We were making videos. Every project had to have a technology component. We were recording things, we were making documentaries. So I was used to using technology in a very sophisticated way.

The influence of the context and how the cooperating teacher models the use of technology with instruction does seem to have some impact on inspiring what could be part of a FCMN teacher's current practice.

FCMN teacher professional development: First-year teachers. During the first year of teaching it is not uncommon for new teachers to seek out support. Induction programs vary from one district to another. Their purpose is to help new teachers address their questions and give them professional development specific to the needs of new teachers. Kiefer shared, “My very first year they had a class for new teachers, and I got sent up to a couple extra trainings throughout the year.” Only Kiefer participated in a district-sponsored induction program.

A PSN can include other members of the faculty and sometimes an entire grade level team is ready to provide support for the new teacher. Grace, Bella, and Sarah were supported by other teachers through team meetings, and informal discussions throughout the day. Grace shared how collaboration worked during her first year as a teacher and noted the effectiveness of their collaborative efforts.

(It) was a little bit of a different experience. There are four second grade teachers and...three of us were new...so while there was not a formal program Rose (pseudonym) took us under her wing. While I want to do my own thing, I also want to be a team. We came up with a new management plan like a whole team management plan so ...if I have one of her kids at recess. ... I can deal with it instead. Some of those bigger projects (we do) together so we can all be on the same page and all do well.

Bella as a first year teacher speaks highly of her grade level colleagues and appreciates their support.

I really feel comfortable going to them. You know, we talk out in the hall, well a lot of our collaboration is there ... talking at lunch, talking before school, after school [um]. I just feel a close connection; I love those ladies out there.

From the excerpts above we learn the usefulness of timely support on demand and how it benefits the novice teachers' quality of practice.

Another common practice is for new teachers to work with an assigned mentor teacher. One consideration for assigning a mentor is proximity. The mentor teacher most likely works in the same grade level or is located near the novice teacher's classroom. All participants mentioned a person who either was assigned as a mentor or a person who served as a mentor. Sarah and Payton's mentors were both experienced teachers and worked at the same grade level. Selecting the person with greatest proximity did not work to their benefit. Sarah divulges,

Technically, I was given a mentor but unfortunately, she was not very mentor-ee, so it did not feel like much...she was more on the competitive side which happens in teaching.

Some teachers are competitive, but I felt like my mentor was less a mentor and more like 'I will tell you this [only] but that's it'

Sarah shares that it was other first grade teachers on the team who were quick to encourage her progress and effectiveness even though she was experiencing difficulty in the first grade classroom. Payton also remembers having a rough start.

When I think back to my first year with 4th grade it was very difficult because I did not have any help per se [sic]. We have one other grade level teacher with me...she is an older teacher. She just said you will just kind of learn and pick up. It was really hard at first ... I kind of felt like I was on my own.

Assigning mentors does not guarantee appropriate professional development and support will occur. In those instances and also when full support is available FCMN teachers do still gravitate toward the creation of a self-directed PSN and professional development.

FCMN teacher professional development: Self-directed. It is the need for improved skills or knowledge that motivates new teachers to self-direct their development. They are seeking to know more so they can be more successful. New teachers understand the need for support. Kiefer expresses, “I was very fortunate, my mom taught first grade when I started. She has all kinds of friends. They were always emailing me stuff.” Kiefer does comment that it added to the number of resources or choices to make with instruction but “they had already been doing it so it [was] ...tried and tested... if I do this stuff it is right.” When a mentor is available and willing new teachers go to them with their questions, trust is built, and quality of practice improves. When a supportive team is available it is a source of development. Grace elaborates, “Every Tuesday we have a team meeting...so definitely that first year was professional development because it was Rose (pseudonym) helping us ... (with) questions, really anything that would come up. Tuesdays were definitely professional development days.”

Kiefer anticipates his grade level move from first to second grade and made strategic moves to develop his knowledge, so that as he made choices in instruction that would stabilize the context. When he moved grade levels he self-directed his development when he further expanded his PSN with a family friend who taught the same grade. “I was able to meet with her over the summer...she was able to talk me through some of the stuff to prepare me when I moved up.” Kiefer now is anticipating the implementation of the 1:1 program over the next few years. “I know that there has been talk about e-learning days...It’s about seeing how all of this (technology) could make it less work for us in the future... you have to be willing to try it with a little bit of forethought.” He shares that he recognizes some teachers have different experiences with various technological resources and that he and others will be able to benefit from what each other knows as the different initiatives unfold.

Lauren explains more about how she self-directs her own professional development. “So it is mostly me seeking out and trying to figure out professional development; sometimes it is easy for it to get pushed back and not be my first importance.” One way that new teachers gain information is through conferences. Payton says, “I am one of those people who like to go to conferences and implement it in weeks because I get so excited about it.” Conferences are also places that can help FCMN teachers build their PSN.

FCMN teachers may also have access to individuals who they trust to provide them with good advice, their professors. Elena comments about how her professors fit into her PSN.

I have been back to campus since I graduated and I can still go do a walk in and they will know exactly who I am and call me by name. ... I had some fabulous professors who I still communicate with today... [One offers an] anytime pass, when we can call them [to come into my classroom] ... and help out.

Professors’ availability for help begins at the class level during the undergraduate years. Open communication starts with a feeling of being known while attending and can open the sense of availability beyond campus and graduation. Though social media and other electronic mail it is now even easier to maintain professors as part of a novice teacher’s PSN.

In most settings, it is left to the teacher to decide their level of involvement when it comes to professional development. Ultimately, it is the realization of the need for improvement combined with the interest for new ideas that can inspire the development content, pedagogical and technological knowledge. Lauren elaborates, “I worked on my high-ability license, and I specifically sought that out.” As time passes, FCMN teachers’ skill set and quality of practice becomes more developed and evident as a result more opportunities for leadership are available.

FCMN teacher professional development: Reoccurring. Kiefer is part of a math grant that provides teachers with additional training. After two years of teaching, he was comfortable with teaching math but was “bored with it.” He explains, “I was ready to make a change and because I was trained the right way, I saw how it was going to be worth my time to do. I have seen the confidence built during math transfer over into reading. I have seen it.” Kiefer believes he has experienced a shift in his instructional practice that has benefited his students’ achievement. He is reaping the benefits of professional development and anticipates the benefits that come with future trainings associated to the districts 2:1 and 1:1 implementation plan. “I have been told in advance ... it’s not dropped on me the first day of school. I can plan over the summer for ways to utilize it (technology) most effectively.” Kiefer’s positive experience with professional development along with an increase of teacher knowledge and self-reflection supports his current changes in instructional practice and motivates him to embrace future professional development offerings.

Summer time gives teachers space to reflect on what they have already accomplished with instruction, what has been successful, and what other strategies might enhance further growth. Lauren describes such an instance, “So actually from the summer conference through the district ... we were supposed to think of a project we wanted to change or add technology [to].” The purpose was to help teachers prepare for their transition to a 1:1 learning environment. Lauren says, “My goal this year is to add technology”. She chose a project using statistics in which students created a survey, collected data, and presented results. Lauren was pleased with the process and student outcomes.

The kids really enjoyed it. I know the special education teacher really enjoyed it...because the [students] did not lose [data]. The results were automatic, and I could

also check [the shared document] every day. So, I could do an informal assessment ... and just kind of keep track of them.

Using an already created project added with the knowledge gained about Google Forms allowed Lauren to alter the project slightly to improve procedural elements, include additional informal assessments, and partner with resource teachers and parents to support student efforts. Lauren noticed that the project had not taken as long to complete and began to consider ways to extend and strengthen the project.

Payton's involvement in her school's professional learning teams shapes her instructional practice. Her professional learning team (PLT) is working to improve their understanding of technology integration, language arts, and writing. Regular meetings are part of the PLT development and provide time for members to share ideas and discuss implementation of ideas

This year they asked us to think of a goal to do for ourselves, based on that goal they put us in groups in our school. [Teams] meet once a month and we have different reasons we meet, like maybe we did readings of articles or research, or tried a new thing in the classroom. So, basically we are keeping each other accountable. [We then will] report out to our whole school.

Given the PLT focus, access to additional resources became available for each teacher on the team. Payton's class of fourth graders has functioned in a 1:1 environment all year. She and her teammates also had the opportunity to attend a state technology conference to help them build their knowledge and develop their ideas for instruction. Last fall at another conference, Payton was introduced to several iPad applications. She shares, "I found for example Kid Blog. It is where my kids can get on ... a safe online journal... and I incorporated it the next week in my class."

Payton's students have used the site throughout the school year. Her motivation for using Kid Blog is twofold. She explains that the digital venue provides motivation for writing. She adds that it is an activity that assists the writing process. Payton goes on to explain that students receive feedback through comments.

My students can log onto Kid Blog and they can journal ... and hit submit. I have to review it before anyone else in the class can see it. ... It gives kids feedback on their writing, so they can write for a purpose. When they know people are going to see it they are more excited to write. I have one student who writes but never adds punctuation to his writing. What I can do is add a private comment ... 'Can you tell me more about this; I want to hear more details; or how did you feel or what was that like? or Before [you] can publish this, I need you to fix your writing.'... Once he fixes it I can hit publish then all of the students can see it. The kids write back and answer it but the next time they write an entry they will then think about 'oh, I need add more good things in [detail] so people will not have to ask me in a comment.' The students become more intentional about it.

Payton's knowledge of the writing process along with her new knowledge of a specific tablet application allows her students to engage with an authentic publishing activity. It then gives the teacher a way to provide feedback and tailor instruction to the needs of the students. It also allows for students an opportunity to engage with each other. Payton states unapologetically, "I am one of those people who like to go to conferences and implement it in weeks because I get so excited about it." Payton's ongoing professional development experience is a testament to the importance of providing teachers with new technological knowledge and access to technological resources so that instructional practice has the optimum setting to meet its fullest potential.

Theme Four: Relative Decision Making Enriches Quality of Practice

Throughout the interview process participants shared different websites, programs and devices used to support their curriculum and classroom instruction. Looking at the entirety of the text, the depth and rich detail of participants' stories allowed for the heart of their approaches to surface and reveal the lived experiences. Three subthemes or factors emerged from the text that speaks to the life-world of FCMN teachers as they make decisions relative to their context. What I noticed was a spectrum among the participants that seemed to distinguish three factors of decision-making that were included or not included in the participants' self-identified examples of instruction with technology. These subthemes or factors are benefit, value, and awareness.

Each factor is represented as a continuum (Figure 3) that has descriptive terms on the bookends to communicate what is absent or evident in the participants' examples of instruction.

The factors include:

1. FCMN teachers make task decisions for the purpose of benefit. The decisions are classified on a continuum between teacher-benefit or student-benefit factors.
2. FCMN teachers balance the value of a task on the desired outcome. Decisions are classified on a continuum between value-added or value-diminished factors relative to their context, and content, pedagogical, technological knowledge.
3. FCMN teachers acquire an acute sense of awareness with experience progressing from low to high in the classroom of factors contributing relative decision-making.

Figure 3: Relative Decision Making Sliding Continuum

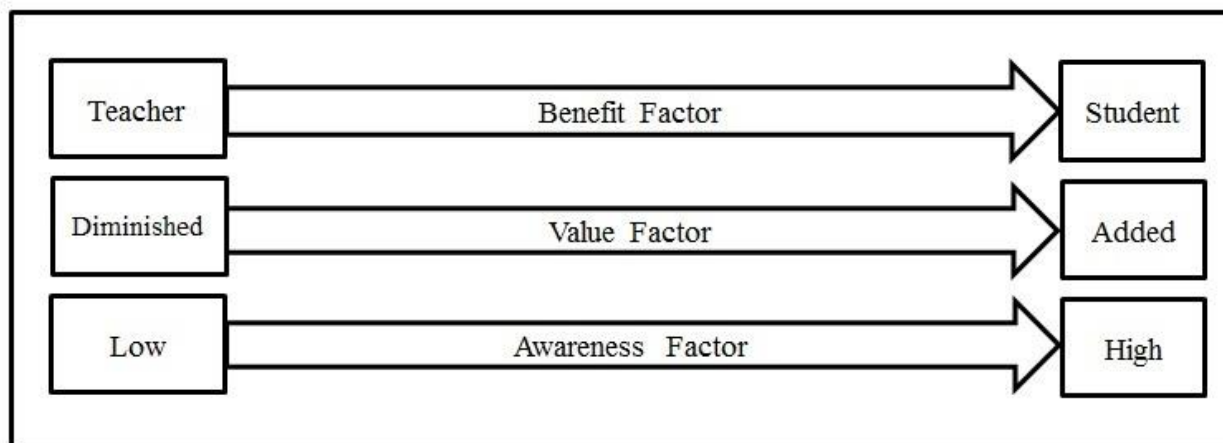


Figure 3. Relative Decision Making Continuum consists of three factors; benefit, value, and awareness. The evaluator can use the spectrum as a mechanism for formative assessment of lesson plan elements, activities, or units of study.

Relative decision making (RDM) happens when a teacher makes decisions in relation to other characteristics within an unstable or stabilized context that may include the teacher's knowledge in a variety of areas (i.e. student characteristics, content knowledge, access to resources, or instructional planning).

The essence of this theme recognizes these three factors as evidence that describes FCMN teachers' levels of content, pedagogical and technological knowledge to support their instruction and quality of practice. Each participant discussed his or her use of technology to support instruction and within each description each of the factors along the continuum were identified. The following examples include evidence of the three factors in varying combinations and give further explanation. The vignettes included give the clearest representation of the subthemes.

Community project neighborhoods: Student-benefit, value-added, high-awareness.

Sarah's words give us a glimpse into her expertise in content, pedagogy and technology now toward the end of her fifth year.

When I came in social studies there was nothing so I had to create units myself. We do not have a social studies book so I basically made my, ... oh I always feel bad for my first 3rd grade class cause I do so much better as a teacher now ... they were my guinea pigs with each unit so now it gets better and better every year.

She understands that the right information is important the completing the project, but she also keeps in mind her students' skill level.

As part of her third grade curriculum, she teaches social studies. The school district has created curriculum maps with pacing guides for each quarter. The teachers have autonomy in lesson planning and assessment. Her students do not use social studies textbooks, so she is creating curriculum for students she knows is developmentally appropriate for third grade.

We learned about community and the neighborhoods in [our city]. The question was 'What makes a good neighborhood?' You know it gets a little bit controversial because [our city] is very segregated. ... People may disagree with me but I think it is appropriate to talk about these kinds of things. Oh, so when we had these discussions. One of the things that we talked about we learned about city neighborhoods and how neighborhoods change over time.

Learning about the community is part of the third grade curriculum. Sarah decided early on that the traditional summative test did not meet the needs of her students and did not produce the end-goal. She instead decided to create a project-based assessment each quarter.

We focused on one neighborhood ... and how that has changed. We had great conversations learning about what makes a good neighborhood, what is an immigrant, and why do immigrants come here? You know we had those conversations. [Students] had to research and create brochure on that neighborhood in groups. So they made brochures on the neighborhood. And I provide them with graphic organizers. At this point, kids can't sit and research on their own, figure out what they need, and what they need to do to get good information. You have to give them the right questions for them to get the answers that they are looking for.

She exposes students to specific and unexpected technological application and shows her understanding of web-based sites and applications to expose students to resources beyond the basic web search. "I taught them how to use YELP. ... They used Google Earth and described the neighborhood to me [and used] Google Earth to see how it looks. So that is an example of a project that we did." Sarah used relative decision making with high awareness of needed materials, pedagogical approach, selection of assessment, and developmentally appropriate work process. (Figure 4)

I have now realized. Yes, I want my kids to make videos and do all of these awesome things. [On their own] some of my kids make YouTube videos. You know I know they can do it. But I don't have the right means and there are a lot of things that are required of us. So I am confident enough to say [to my students] that I am going to grow your research skills. I am going to make sure that third grade taught you to be a good researcher and how to find great sources. And to me that is okay.

This quote is significant because it shows how she considers both value-added and value-diminished results as part of her RDM. She has reconciled that some technological projects such

as making videos or completing more sophisticated projects are not appropriate for her context.

So instead, narrows the focus to a skill that is to the student's benefit. Beginning research skills are transferable to other projects along with foundational to more advanced research skill.

Figure 4: Task-Based Rendering Depicting Technology and Project-Based Learning

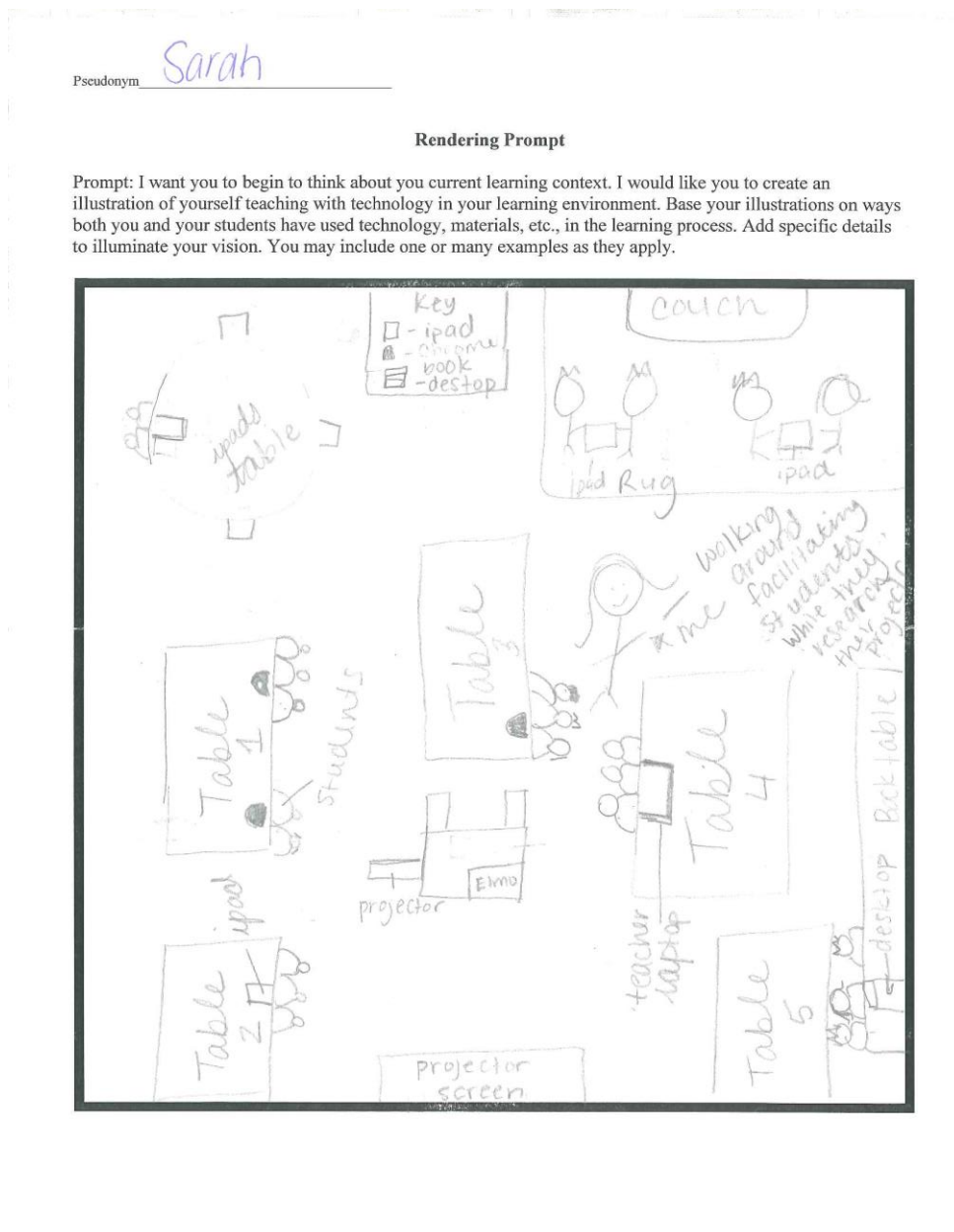


Figure 4. Sarah (pseudonym) created this task-based rendering to depict the use of technology in her classroom. Project-based learning strategies were used to help students learn research skill and how to use unique web applications as part of the process.

Error analysis: Student-teacher benefit, value-diminished, high-awareness. Lauren, a sixth grade teacher, is responsible for teaching math for the entire grade level. She is confident about her expertise in math content and pedagogy. Lauren values the importance of error analysis as a strategy to help student better understand math concepts. She then uses formative assessment data to individualize instruction through conferences with individuals, small groups, or as a whole class about ways to improve their method.

Due to an absence of physical storage space for students' belongings, Lauren decided to not issue math textbooks. Instead she uploaded math resources to Google Classroom and had students access their textbook online through their Chromebooks. Students were familiar with their 1:1 device from the previous year. (Figure 5) One of Lauren's observations was that since students were recording their work digitally they were less likely to record their entire work product. She observed,

It more so hinders or ... just causes more work, looking up online and then doing all of these steps sometimes. Unfortunately with math, I don't know where they lost it. Is it an error in copying down? Is it an error in them not understanding this certain piece? Is it something else? Unfortunately [it] puts more variables into me [figuring] where ... you are struggling with something. I think ... that working out with pencil and paper is better than trying to find something. I think that technology should enhance learning.

The use of technology in this instance diminished the value of the error analysis instructional strategy. Lauren showed high awareness as she reflected on the lack luster performance of her students, evaluated what elements in the context had changed, and made an instructional decision based on relationship between factors. She decided that it was more effective if students used paper and pencil materials. She readily admits, "I don't use technology like as much just because

most of the time it is just a substitution of a worksheet online.” She is comfortable with her decision and knows that her choices are a student-benefit and a teacher benefit.

Figure 5: Task-Based Rendering Depicting the 1:1 Classroom

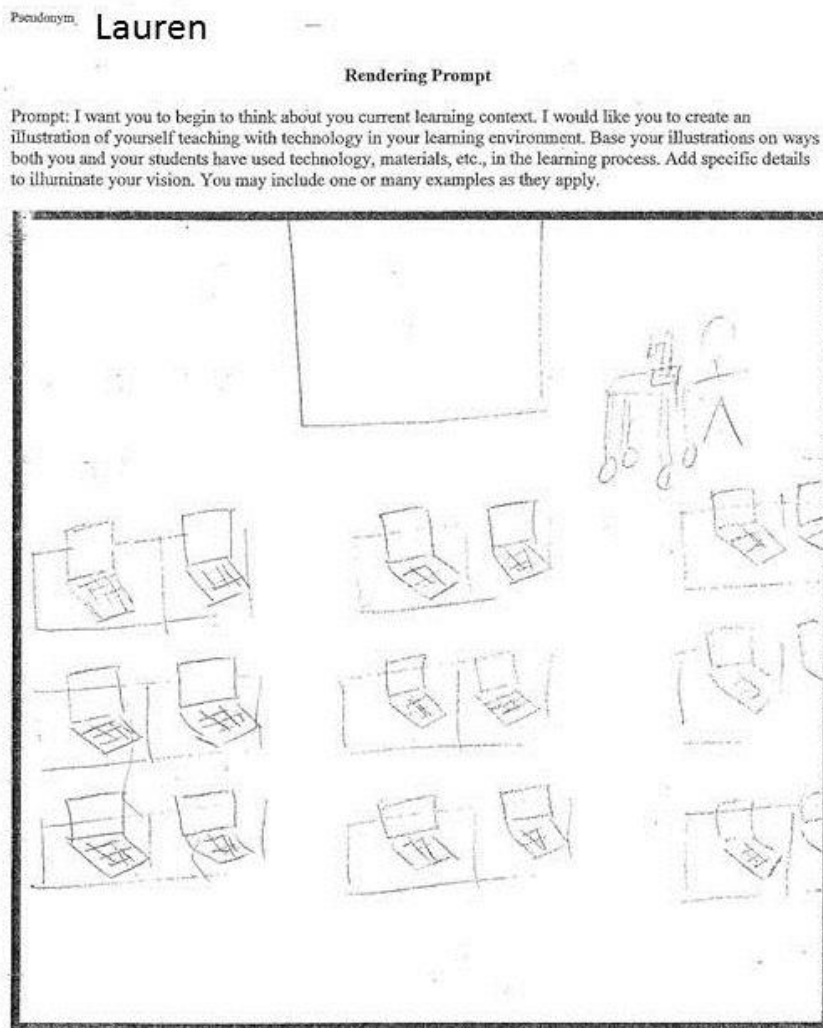


Figure 5. Lauren (pseudonym) discovered that error analysis in mathematics less effectual in the 1:1 classroom. She made a value diminished instructional choice to defer back to her original practice and use technology for other types of instruction.

Statistics project: Teacher-benefit, added-value, developing awareness. Lauren does not ignore technology completely. She uses technology to enhance students’ learning experience.

Each year she has students complete a statistics project. “So actually from the summer conference through the district we were trying to think of ... a project we wanted to change or add technology. That was my goal this year to add technology and that was the project that I chose.

Students created survey questions and added them to a Google Form to collect data, manage data efficiently and then analyze data with the addition of charts and graphs. She looked for ways to make it meaningful. The value added results are included below.

We did a project where they actually created a Google Form. This was the first year that I did that, we had to talk about statistical questions, so they had to create their own and surveyed 50 people. So they really enjoyed that because again at this age they are so technologically-minded and always wanting to be on their Chromebooks. If you can find a way to effectively use a Chrome Book to get them interactive with that, it is really a major thing. ... But after wards ... the English teacher was making them do projects and [the students] could do whatever they wanted and she told me that a couple of kids did Google forms. They knew how to do it from my class even though they only did it once.

Lauren discovered that the use of this application allowed for better facilitation of troublesome logistics common to the past versions of the project, which is a nice teacher-benefit.

The results were automatic. I could also check, so I would say just pull up your form and ask so how many do you have? So I could also do an informal assessment ... and just kind of a keep track of them. I know the special education teacher really enjoyed it just because again they did not have to lose it and it was right there. ... And she could not use it but she could also even though she is not in my class room that period she could also

keep track of her kids. Because then they shared [the Google Document] with her also.

So it was me, her and the student that could see it, anytime.

Students were able to complete elements of the task more quickly. “Normally ... after they got all of their responses, [the students] would create a graph like a bar graph ... on different website, but with Google form it automatically creates that chart. And so they were able to see right away a visual of how many people [answered] and a visual of ... the number and the percentage.” Lauren RDM and heightened awareness of potential help her to consider how she might extend the project in the future.

But from that instead of spending the time on our graph or pie chart, we were able to go further with and go okay let’s find the mean, median mode or something. I was able to do more extensions with it because it saved time. I was able to go further into the activity than what I would do normally.”... From that, do more with ... different questions ... school wide.

Lauren exemplifies how more experienced FCMN teachers possess high awareness through reflection and previous and new teacher knowledge to inform her instructional design for future projects. Students will continue to benefit from this project in the future as Lauren makes slight adjustments to the overall unit.

Web-Based Instruction Programs: teacher-benefit, value-diminished, low-awareness. Bella is using relative decision making with two main influences directing her choices, experience and environment. In her previous experiences as preservice teacher she used Education City.

We would do computer time and we assign the lesson. And then after they did the lesson on the computer then they went back and got the activity sheet and they were able to do the sheet. And it was already review anyway.

With limited experience and resources, she used her previous experience with web-based instruction programs that are used to support targeted instruction and reinforce learning. The web-based instruction packages content and pedagogy together in online modules and games for lessons. The primary decision made by the teacher is what to assign to students. Bella indicated some of her early struggles are with content.

I guess my challenge here is that [umh] that there is not a curriculum map for me to look at. ... When I was a paraprofessional we did three week assessments. And we knew what standards were going to be on those assessments [because] they were already premade you knew exactly what to teach. You know like if were adding two digit numbers, we had already talked about adding two digit numbers, I assigned it as something to do independently, and then they got the worksheet and then turned the worksheet in. So it just reinforced those skills.

Bella uses her previous experiences and her current knowledge gaps as she makes decisions relative to her needs as a teacher. She is also making decisions relative the climate of the school.

The STAKE (pseudonym) is the state high stakes standardized testing program.

I have really only been using it [Education City] right now to focus on review for STAKE, so it has things [students] have already had. Stuff, I think is going to be on STAKE. Some of the 4th grade teachers shared with me some different practice STAKE websites. I assigned that as their seatwork for the mornings of STAKE.

For a teacher with knowledge gaps in content and pedagogy web-based instruction packages are attractive and as a teacher-benefit compensate the knowledge gaps for the novice teacher. In this circumstance, there is a value-diminished factor because the Bella shared she is not using the progress monitoring data that is collected to assess student performance and make the next instructional decision. Bella's low awareness of all program features along with knowledge gaps compromise Bella's quality of practice.

Relative decision-making is a process that complements the TPACK framework. Choices made out of RDM use the context relative to teacher knowledge to make instructional decisions. Participants' approach to instruction was described in rich, thick stories from reflective journals and interviews. Three overarching factors emerged that help to categorize the FCMN teachers' choices. The three factors are benefit, value, and awareness. Assessing teacher choices on a continuum of three factors may give additional insight FCMN teachers about the quality of their practice.

Research Question Responses

The research questions were answered through the four themes that appeared in the study. The four themes were (a) fluctuating contexts undermine the quality of practice, (b) time and experience stabilize the quality of practice, (c) professional support network develops the quality of practice, (d) relative decision making enriches the quality of practice.

1. How do first-career novice teachers from the Midwestern United States describe their level of content knowledge, pedagogical knowledge and technological knowledge (TPACK) to support their teaching practices?

Research question one examined how novice teachers from the Midwestern United States describe their level of content, pedagogical, and technological knowledge (TPACK) to support

their teaching practices. This question was answered throughout portions of all four themes. In theme one, participants' words exposed the common phenomenon of a fluctuating context in the classrooms of novice teachers. FCMN teachers recognize the need to first counter the fluctuating context. Participants worked on how to weather transitions, eliminate tensions, and address knowledge gaps. It is interesting to note that none of the participants discussed the integration of technology as a top challenge needing attention during their first years of teaching.

A teacher's equilibrium of familiarity is altered with the stress and demands of transitions. The unknown, both inside and outside of the classroom, is a factor that can undermine quality of practice. Short-term teaching positions, unintended grade level assignments; self-imposed transfers or grade-level shifts are transitions that contribute to the disorientation of the FCMN teacher. Continuity of context helps the teacher to stay in balance and navigate the demands of the classroom.

The lived experiences of these participants show that FCMN teachers should acknowledge and address their knowledge gaps. FCMN teachers' have significant gaps in content, pedagogical, and technological knowledge along with a lack of experiences with planning for instruction. In addition, misaligned expectations did not allow for these students to operate fully or effectually in their context immediately.

The classroom environment, communal and physical, harbors several tensions that shift between push and pull factors. A push-factor is an event or addition to the environment that destabilizes the context. A pull-factor is an event or addition to the environment that stabilizes the context. The byproduct of stabilizing these forces steadies the classroom's environmental classroom management structures. If these fluctuating tensions, are not addressed the context will negatively impact quality of practice.

Theme two uncovered that the dispositional attitudes and growth experiences further stabilized participants' teaching practice. This section will further explain how FCMN teachers described their personal characteristics common to their practice. Technical mishaps or failures do not significantly faze the novice teacher. Their attitude is one of confidence that with time and troubleshooting, the manipulation of functions, they have the ability to navigate the problem and to figure out a solution through trial and error. These episodes perpetuate growth experiences that increase teacher knowledge and stabilize their teaching practice in the context. Technical skills, preparation, and reflective analysis are all areas for growth. Their basis skills do aid troubleshooting and promote a *figure it out* mentality but do not necessarily give FCMN teachers an advantage over others. It is important to remember that these skills were developed in a different context and do not automatically transfer to the needs and demands of transformational learning.

Some of the most significant failures can be our biggest teachers. Sarah says, "My really big challenge helped me become a really good teacher afterward." Using reflective analysis is an important process for all teachers. Reflective analysis evaluates the context, student performance, and teacher performance with the objective of using observation and reflection to decide the next best step for the learning needs of the students. The process most often produces ideas that can help facilitate a more thoughtful lesson.

More often than not, a failure leads individuals to mitigate negative outcomes by asking questions, using forethought, engaging in more detailed preparation and seeking out advice from others. Other times it is reflecting on intrapersonal reactions to a given experience. Grace and Lauren discussed control-fear as part of their early practice. A control-fear is defined as the fear of losing control over students' actions and behaviors while engaged in the use of technological

resources. The realization of this fear prompted both FCMN teachers to react with an action plan. For Grace she started with strategies to improve her pedagogy to keep students interested and focused on the lesson. Lauren reflected on the behaviors in her 1:1 Chromebook classroom and decided that for her to relinquish control she would set up the physical space in a way set her expectations through nonverbal mean, proximity and visual sight lines for all members of the setting.

Theme three indicated that gathering a group of supporters, from the professional cadre helped to further develop FCMN teachers' knowledge. Almost immediately the FCMN teacher recognizes their need for more knowledge. Kiefer, for example, had access to a previously created PSN with members at the first grade level and from another schools. It did not take long for Kiefer to accept help from this group help support his knowledge level.

The process of developing the FCMN teachers' knowledge of TPACK through professional support networks begins during the undergraduate years and spans into the first five years of teaching. The preservice experience built knowledge of content, pedagogy, and technology through coursework, and field placements, but only in varying degrees. Participants described the point in time they realized their undergraduate experience had not prepared them fully for the classroom. Sarah says, "As horrible as this sounds, everything in my undergrad did not prepare me for my first year of teaching." It is not until FCMN teacher enter the classroom that the unexpected curriculum can begin. It requires authentic experience for the lessons to occur.

The participants spoke about how colleagues guided their practice in the new setting through informal interaction in the hallway or afterschool. Knowledge was gained through discourse with colleagues during informal conversations over lunch and in the hallway. These

interactions provided on-the-spot development in their time of need. Formal team meetings also bolstered their knowledge. Other times in the hours after school in the midst of the struggle timely and cautionary advice provided the necessary advice to keep moving forward.

Reoccurring professional development (RPD) is knowledge development that happens during the course of several weeks, months, or years. Reoccurring PD can be district sponsored for the purpose of educating teachers about new program initiatives and other times RPD occurs during grade level or faculty meetings. The FCMN teachers in this study with four or five years of experience had attended conferences, or participated in additional coursework with two having earned additional certifications and degrees. These actions speak to in core values of commitment to learning and a drive for developing the quality of their practice.

Finally in theme four, the FCMN teacher's level of knowledge enriched relative decision making with the increase of experience. Teachers' accuracy or awareness grew; their posture shifted from a teacher-benefit stance to a student-benefit stance, and their instruction used technology on the basis of value-added or value-diminished factors.

2. How do participants describe their approach to instructional decision making based on their base on their technological knowledge?

Research question two, explored the participants' approach to instructional decision-making based on their technological knowledge. This question was answered in all four themes. FCMN teachers are first concerned with establishing a stable classroom environment. Theme one revealed that a fluctuating context can undermines the quality of practice if urgent needs are not addressed first. The responsibility of knowing content, planning instruction and navigating unpredictable events is daunting. Alleviating the effects of transitions, tensions, and gaps in teacher knowledge take priority over integrating technology.

In the beginning, FCMN teachers are not able to make good decisions quickly because they do not have the necessary knowledge to navigate circumstances proficiently. Access to needed resources is one barrier that is persistent and seldom expected among FCMN teachers. This push-factor is problematic and inconvenient when attempting to utilize technology. Push-factors that curtail the use of technology in the classroom are the inconsistent function of technology, access to technology in the optimum setting, redirecting lessons when technology does not work. If technology does not work consistently, then teachers are not going to use it.

Significant gaps in content and pedagogy are the first areas to address so that improvement of instructional practice can help to stabilize the context. It is only after these knowledge gaps are addressed that technology knowledge comes to the forefront. Content and pedagogical knowledge is then used in combination with technological knowledge.

As the context stabilizes, theme two, uncovered that FCMN teachers' enjoyment for learning coupled with their willingness to navigate new experiences helped to improve their teaching practice. Dispositional attitudes derive from an individual's core values and are an influential force that guides how the teacher approaches decision making in the classroom. A mindset on future-forward thinking, allows for novice teachers to embrace the goal and recognize the surrounding culture. It is a task that starts in kindergarten and is presented over multiple opportunities so that the students can build skills for their current work and prepare for the work force.

Once the pushes and pulls involving procedures, behavior plans, and class schedules become routine, the teacher can carve out more time to *figure it out*, adjust approaches after learning from failure, to pursue the use of technology for instruction instead of function. The desire to learn and the preparation for learning sometimes come weeks in advance for the FCMN

teacher. Sarah and Grace, both at the end of their novice years, stress that investing time to do “background work” is a required when using technology with students. Time investment and preparation are practices that will continue to reinforce the FCMN teacher’s core values.

Lauren and Grace both addressed the issue of fear-control explicitly. But looking back at the rich text of documents participants’ self-reported actions that confirm the response was common phenomenon. Elena, in her fifth year of teaching understands the need for additional plans and flexibility. But her approach to this reality has only developed through the passage of time and experience. Participants are comfortable with their technical skill level, but still needed ongoing support when using technology to facilitate the learning process. In total, it takes an intrapersonal force along with meaningful growth experiences to help FCMN teacher build their technological knowledge so that they are better suited to approach their instructional design with proficiency and quality.

Theme three addresses the creation of a professional support network and the development of teacher knowledge that happens as a result. The increased knowledge impacts FCMN teachers’ quality of practice, specifically their approach to instruction. From the participants’ perspectives their united voice echoed the most significant gain in technological knowledge came from self-directed creation of a PSN and timely reoccurring professional development. The context is closely linked to the use of technology. Since undergraduate field placements are vastly different from one setting to another, the FCMN teacher uses technology as the classroom teacher used technology. The knowledge gained is predicated on that specific setting. When the FCMN is introduced to a new setting their new technological knowledge begins to build again. There is not guarantee that their previous knowledge will transfer. In some

cases, the ideal situation during field placement can limit the FCMN teachers ability to integrate technology because it is impossible to replicate the exact environment.

Just as with research question one, theme four exposed the FCMN teacher's knowledge level as it has been enriched due to experience over time and thus more proficient relative decision-making. Teachers' accuracy or awareness grew; their posture shifted from a teacher-benefit stance to a student-benefit stance, and their use of technology to instruct was dependent on value-added or value-diminished factors. FCMN teachers with strong knowledge of content and pedagogy along with established core values were more inclined and qualified to infuse new understanding of educational technology into practices that were already in use as established strategies.

3. How if at all, do perceptions as preservice teachers now influence their perceptions as novice teachers in their current classroom setting?

Research question three sought to learn the impact undergraduate studies had on participants' current teaching practice, if at all. The first part of theme three addresses the professional support network in place for undergraduate preservice teachers. Educational technology courses in isolation, modeled methods in course work, inconsistent field placements, and student teaching experiences had varying degrees of influence. When the participants were asked directly, *how did your undergraduate experience shape your perception of teaching with technology, if at all*, they indicated that their undergraduate studies had little to no influence on their practice of technology integration. However, the analysis of rich data uncovered examples of current teaching practices that were influenced by their educational philosophy. Given their theoretical understandings, FCMN teachers who used theoretical understanding as underpinnings to inform their pedagogy used effective instructional strategies such as project-based learning,

interest-based or voice and choice learning centers and flexible grouping to promote differentiation. FCMN teachers with knowledge of content, pedagogy and internalized core values were more inclined and qualified to infuse those understandings into their instruction and then seek out ways to use of technology to support other instructional strategies.

Summary

This chapter described the lived experiences of first-career millennial novice teachers and their approach to technology integration as it relates to their context and knowledge of content, pedagogy, and technology. Participants included eight elementary teachers from various grade levels, years of experience, and settings across the Midwestern United States. The analysis of transcribed interviews, reflective journals, task-based rendering, were used to identify participants' experiences. Four themes along with related sub-themes emerged from data analysis and were discussed. The themes and sub-themes were used to answer the research questions. Participants' descriptions indicated that the acquisition of skills and knowledge over time increases the quality of instructional technology infused as a means to transformational learning.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this hermeneutic phenomenological study was to describe the attitudes and understandings of FCMN teachers and their approach technology integration as it relates to accumulated teacher knowledge within the context of the elementary classroom. This chapter includes a summary of the findings, a discussion of theoretical and empirical literature as it relates to the findings, the implications of the study, an examination of delimitations and limitations, and recommendations for future research.

Summary of Findings

The four themes that emerged from this study are (a) fluctuating contexts undermine quality of practice, (b) dispositional attitudes and growth experiences stabilize quality of practice, (c) professional support networks develop quality of practice, and (d) relative decision making enriches quality of practice. The following section provides a summary of each theme as it relates to the research questions.

1. How do first-career novice teachers from the Midwestern United States describe their level of content knowledge, pedagogical knowledge and technological knowledge (TPACK) to support their teaching practices in the elementary classroom?

FCMN teachers' life-world is a fluctuating context. In this type of setting the quality of practice is undermined. This study describes the instability of three present conditions that emerged from these data – transitions, knowledge gaps, (Bingimlas, 2009; Caudle & Moran, 2012; Clarke & Zagarell, 2012; Figg & Jamani, 2011), and tensions (Kagan, 1992; Lloyd, 2012; Shoval et al., 2010). FCMN teachers' experience transitioning from college to career contributes to the instability of their setting. Erratic hiring circumstances, change in teaching positions,

misaligned expectations, and accepting their new realities are transitions participants shared. Participants' accounts describe a common experience. For each one, the lack of knowledge in areas of content, pedagogy, or technology limited their pursuit of quality practice. For example, not understanding the content for a given grade level, or the practice of effective lesson planning had a substantial impact to the unsteadiness of the context. It increased the amount of preparation needed daily which can contribute to a systemic habit of last minute preparation that promotes additional tensions such as lack of sleep, anxiety, and burnout. In the FCMN teachers' classrooms tensions will arise during the process of developing complex structures that facilitate classroom management and establish the classroom environment (Lloyd, 2012; Shoval et al., 2010). Push and pull factors will oscillate back and forth as a FCMN teacher works to stabilize these factors. A pull-factor is an event adds to the stability of the context while push factors destabilize.

Theme two uncovered that the dispositional attitudes and growth experiences further stabilized participant's teaching practice. FCMN teachers revealed their level of teacher knowledge in words and descriptions of pedagogical practice that supports content. Their approach to quality practice includes willingness to navigate new challenges, select purposeful activities, teach with flexibility, relinquish control-fears, apply reflective analysis, and equip students. Daily experiences add to the FCMN teacher's sum of knowledge and as a result of these gains the teacher is more likely it is to sustain quality practice in the classroom setting. This finding supports the work of Fehey (2010).

As a teacher experiences, failure and then applies the process of trial and error it brought about the acquisition of more knowledge. With a gain in content knowledge and pedagogical knowledge, and he or she is better equipped to shift instruction in a technological setting when

hardware or other elements of the infrastructure fail. While technical skill does eliminate some of the barriers that keep teachers from using technology, this specific set of skills only provides novice teachers with a slight advantage over their older colleagues. The FCMN teacher's approach evolves over time, as sensible assumptions about technology join with a stabilized context and the sum total of a teacher's knowledge. Raby's (2006) study found that teachers work through a progression of learning to integrate technology. It is first applied personally to daily life, then to professional productivity, next pedagogically in instruction, and finally for project development as students use it in the learning process. Given the findings of this study along with Raby (2006), FCMN teachers at the start of their career would benefit from a mindset from administrators that their technical skills are valuable but are expected to develop to transformational over the progression of several years, not immediately.

In theme three, the first career novice teacher describes their level of teach knowledge best through their engagement of professional development. It is their words giving insight into their lived-experiences as a novice teachers seeking to develop their own quality of practice. At times the professional development was mandated, but more often I heard them talk of self-directed selection.

Participants gravitated toward areas of need and interest. Need-based selections were informal and impromptu. In those instances the professional support network is most crucial. It is on-the-spot development that combines the FCMN teacher's instinct with the wise-tempered insight of experience. Interest-based selections were planned and presented in a formal venue. FCMN are invested in improving their practice. Their motives to improve are evident through their actions and highlight the core values of willingness to try, the enjoyment learning bring, and an obligation to prepare career ready professionals.

In theme four, FCMN teachers' reflections improved because of the increase of teacher knowledge and experience over time. The FCMN teachers in this study demonstrate the phenomenon of how decision-making changes over time relative to the context, and their knowledge of content, pedagogy, and technology. As a result, their posture shifted from a teacher-benefit stance to a student-benefit stance, and their planning approach used value-added or value-diminished factors to determine the best instructional practice.

2. How do participants describe their approach to instructional decision making based on their base on their technological knowledge in the elementary classroom?

The participants speak from their experiences. Their stories tell of instances where steps to establish pull factors helped to lessen the impact of a fluctuating context. Significant gaps in content and pedagogy are the first areas of teacher knowledge to address, so that improvement of instructional practice can help to stabilize the context. It is only after these knowledge gaps are addressed that FCMN teacher seek to use technology in a way that approaches transformational learning.

Participants shared three common dispositional attitudes from their perceptions. The characteristics teachers need to possess in order to use technology with quality are the love of learning, willingness to learn, and a sense of personal obligation to preparing students for the future. Along with possessing constructive dispositions, the FCMN teacher should embrace daily opportunities as exercises in growth. Participants in this study discussed the growth experiences that served them well as novice teachers.

FCMN teachers were confident in their technical skills and were not afraid to troubleshoot or figure out solutions to challenges. This quality is essential to those wanting to use technology well. Next, they understood that a time investment behind the scenes was necessary

for quality teaching to take place. Through purposeful planning, analyzing performance, and effective troubleshooting, FCMN teachers cultivate a positive and setting for the use of technology as a transformational agent to continually develop their own skills, and to provide learning scenarios that promote future-forward thinking.

In theme three, participants describe their approach to instructional decision making as a result of their technological knowledge. According to participants, their ability to increase their knowledge of technology was through authentic situations, their professional support network and reoccurring professional development (Anderson et al., 2017). The context is paramount when it comes to addressing the process of how to integrating technology well. The building of technological knowledge begins a new chapter once FCMN teacher enter their classroom. It is interesting to note that the common voice of participants was that to navigate their new context well they needed to have timely and reoccurring professional development.

In theme four, participants describe their approach to instructional decision-making relative to their technological knowledge. FCMN teacher's accrued level of knowledge promoted effective relative decision-making and improved the quality of practice

FCMN teachers with strong knowledge of content and pedagogy along with established core values were more inclined and qualified to infuse technological knowledge into instructional practices already in use. Quality of practice is enriched when teachers use RDM during the instructional planning process. The key decisions teachers make about units of study and lesson plans derive from self-questioning. The questions include: (a) What do I want students to know? (b) What do I need to do to help students meet the objective? (c) What do students need to do to meet the objective? (d) How will I know if the students were successful? However, as I listened to participants describe their instruction, it became clear their capacity to

use technology to create a transformative learning experiences with the same proficiency was not the same.

The FCMN teachers' lived experience showed that greater knowledge of content and pedagogy increased confidence and then allowed for a fertile environment to next grow their technological knowledge. Teachers' accuracy or awareness grew; their posture shifted from a teacher-benefit stance to a student-benefit stance, and their use of technology to instruct was dependent on value-added or value-diminished factors.

3. How if at all, do perceptions as preservice teachers now influence their perceptions as novice teachers in their current classroom setting?

FCMN teachers' perceptions were that their preservice studies did little to prepare them to use technology and is supported in the literature (Tondeur et al., 2016). However, looking at the entirety of these data showed that the undergraduate studies did shape their practice. An analysis of rich data uncovered examples of current teaching practices that were influenced by their educational philosophy. The time invested learning content and research-based pedagogy helped to enrich the teachers' knowledge and left them primed and ready to further evaluate their new context and then approach learning about technology with positive motives. FCMN teachers with knowledge of content, pedagogy and internalized core values were more inclined and qualified to infuse those understandings into their instruction and then seek out ways to use of technology to support other instructional strategies.

Discussion

This section discusses the findings of this study in relation to the empirical and theoretical literature already presented in the literature review (see Chapter 2). The themes presented support previous finding in the literature and extend the literature as it relates to the

classroom context and instructional design as FCMN teachers acquire content, pedagogical, and technological knowledge with experience.

Empirical Literature

The results of this study reinforce the empirical literature. Millennials do possess a comfort level with using technology, but their skill-based expertise is insufficient without proficient content and pedagogical knowledge. Teacher preparation programs continue to offer opportunities for preservice teachers' exposure to educational technology, but these experiences are lacking and do not significantly impact the future practice of preservice teachers. The literature is inundated with studies addressing many of the barriers that keep novice teachers from using technology in the classroom. This study extends the literature and addresses specific areas FCMN teachers need to navigate through before transformational use of technology is possible.

Millennials. The millennial generation has lived a life with technology inundating every aspect of their lives. The context of school and education did not share the same level of permeation. (Robinson, 2010). Teacher educators and administrators should not assume the millennial generation possesses superior technological prowess or that the digital native ever existed (Bennett & Maton, 2010; Lai & Hong, 2014). Participants indicated a strong comfort level using technology for communication and entertainment. FCMN teachers were confident in their technical skills and were not afraid to troubleshoot or figure out solutions to technical challenges.

While these technical skills eliminate some of the barriers that FCMN teachers face, it only provides a slight advantage over their older colleagues. FCMN teachers' deficiencies in content, pedagogy, and instructional technology limit their expertise. However, novice teachers

do understand that investing time prior to the lesson was a necessary step before using new technologies with students.

Teacher preparation programs. Participants' perception was that their ability to increase their knowledge of technology was through authentic situations, their professional support network, and reoccurring professional development once they were full-time teachers. Teacher preparation programs continue their efforts to address perceived deficits of their teacher candidates before entering their first classroom (Caudle, 2012; Ertmer, 2005; Figg & Jaipal, 2011; Katic, 2008; Kay, 2006; Koh & Frick, 2009; Polly, Mims, Shepherd, & Inan, 2010). FCMN teachers' perceptions were that their undergraduate studies did not adequately prepare them to teach with technology.

An analysis of rich data, uncovered that the use of research-based pedagogy in their current practice was directly aligned to their held philosophical beliefs. The participants who more quickly stabilized the classroom context, and seamlessly developed pedagogically sound instruction along with content expertise were better prepared to approach the use of technology to support learning. This finding is consistent with Wetzel, Foulger, and Williams (2008) finding that intentional efforts are necessary to help pre-professionals determine and recognize the strategic thinking required to use technology in a transformational manner.

Novice Teachers. Teachers have come up against various barriers that limit effectual technology integration consistently (Bugenhagen & Barbuto, 2012; Haberman, 2011; Kealy, 2010; Lloyd, 2012; LeMaistre & Pare, 2010; Pellegrino et al., 2007; Sang, Valcke, Braak, & Tondeur, 2010; Tynjälä, & Heikkinen, 2011). This study confirms that the same type of barriers remain for millennials, but participants reveal that transitions, knowledge gaps, and tensions do add instability to their context. The literature already addresses the development of classroom

management structures as contributing to the ineffectual use of technology. Participants discussed the navigation of the unpredictable hiring process, reconciling misaligned expectations and accepting their new reality.

Ertmer et al. (2012) found that teachers who integrate technology well possess requisite dispositions; this study reveals the perspective shared by participants as to what qualities they felt were important to integrating technology well. These dispositions includes willingness to navigate new challenges, select purposeful activities, teach with flexibility, relinquish control-fears, apply reflective analysis, and equip students with skills needed for the future. The participants also thought teachers should embrace daily opportunities for growth. They added that the process of learning from failure was important to the acquisition of more knowledge through the application of trial and error.

Kolb (2017) explains that teachers using transformative practices support learning first and technology second. This understanding from the literature supports the phenomenon exposed in this study. Decision-making changes over time relative to the context, and the possession of content, pedagogical, and technological knowledge. FCMN teachers with sufficient knowledge of content and pedagogy along with established core values were more inclined and qualified to infuse technological knowledge into instructional practices already in use. Teachers' accuracy or awareness grew; their posture shifted from a teacher-benefit stance to a student-benefit stance, and their use of technology to instruct was dependent on value-added or value-diminished factors.

Theoretical Literature

Constructive-development theory (Kegan, 1994) and Mishra and Koehler's TPACK model supported this study. The findings of this study fortified the footings of both theories.

Kegan's (1994) constructive developmental theory describes the ability to construct new ideas based on experiences as an adult. Out of the seminal work came orientations to describe the progress of interaction, factors and influences on individuals as they encounter their reality (Kegan, 1994). The four orientations common in adulthood are: the instrumental, socialized, self-authoring, and inter-individual (Drago-Severson, 2004).

As young adults entering the teaching profession, the participants had an influx of means to construct new ideas. Participants' reflective journals, task-based renderings and interviews gave insight into their progression within their own context. Their responses described their reality and gave evidence that suggested the development of order aligned with the four orientations common in adulthood.

Drago-Severson (2011, 2008, 2007, and 2004) suggests that a person's way of knowing shapes perspective of self, approach to works as a teacher, and formation of professional identity. The fluctuation context is a prime influence on first-year teachers' way of knowing. Participants describe how knowledge gaps, transitions, and tensions influenced their approach to teaching. FCMN teachers with four or five years of experience had since already allowed their way of knowing to shape their perspective of self, approach to teaching, and professional identity. As a result, their teaching practice included the stabilization of context, self-authorization of constructive dispositions and growth experiences, the inclusion of professional support networks, and effectual reflection of practice.

Mishra and Koehler (2006) propose that the TPACK framework functions as a scaffold for assessing teacher perceptions, knowledge, and practice. The model (Mishra & Koehler, 2006) represents the teacher's knowledge in its entirety; each domain represents all a teacher knows about technology, pedagogy and content (Figure 1). The model in its current form leaves room

for assumptions. The participants' words share a common story of gaps in their teacher knowledge, yet the depiction of the TPACK framework does not address variations in knowledge capacity. This study captured a "way of knowing" for FCMN teachers and uncovers nuanced picture teacher knowledge for the novice teacher.

Koehler and Mishra (2006) explain that each classrooms and schools present teachers with unique setting that included opportunities and challenges for activating their knowledge The outermost element of the model is a dashed line surrounding the entire model to represent the concept of context (Koehler & Mishra, 2006). The findings of this study confirmed, Mishra and Koehler's (2008) supposition that with each context has a unique set of needs. They go on to say, the demands of those needs may make it ineffectual to use technology to support learning outcomes, but in an alternative setting it could promote technology as a transformational instructional practice (Mishra, Koehler, 2008).

Implications

The purpose of this section is to review the implications of this study and provide recommendations for teacher educators, administrators, and novice teachers.

Theoretical Implications

Results of this study have theoretical implications for those studying novice teachers as young adults, educational technology, and transformations teaching practices. Kegan's (1994) constructive development theory provides a progression of maturation that can help temper the expectations that teacher educators, and administrators have for novice teachers; especially for novice teachers themselves. Mishra and Koehler's (2006) TPACK model is a framework that represents a teacher' technological, pedagogical, and content knowledge in a given context and therefore provides a smudged lens for which to view the teacher knowledge of young adult

novice teachers. Future researchers studying novice teachers should consider altering the lens slightly to account for the gaps in knowledge that novice teachers experience.

Small circles or gaps in knowledge added to each domain represent the phenomenon of FCMN teacher's knowledge. The most pressing priorities for teachers is correcting for deficiencies in each knowledge domain and navigating a fluctuating context. When the TPACK model is presented in a more nuanced depiction of teacher knowledge it is easier to see that for teachers to construct lessons meeting the requirements of in the TPCK region should not be expected until enough gaps are mitigated.

Novice teachers were more apt to give their initial and primary attention to one domain, content. Given the public school context and its culture of standards-based learning and high-stakes testing, it is not surprising that content would take priority (Lim & Khine, 2006; Morphew, 2012). The focus on content alters the relationship between knowledge domains and the context. With content taking priority, the other domains of pedagogy and technology are lessened, and therefore eliminate the TPCK region. However, the teacher does make decisions about technology but instead choices are influenced from the perspective of how choices support the teaching of content. The same could also be true for pedagogy. The decisions generated in this altered state will have a magnetic effect on the orbit of the setting. As the novice teacher increases in content and pedagogical knowledge the ability to create lessons approaching TPCK becomes possible.

Empirical Implications

The body of literature revealed insufficient guidance for how to transition teacher candidates into practicing professionals that use technology well. There is sufficient cause to relook at the topic of transitioning from one classroom setting to another. In a recent mixed-

method study, Ottenbreit-Leftwich, Ertmer, and Tondeur (2015), conducted a large-scale investigation surveying teacher educators and classroom teachers to find out if what was taught in educational technology courses aligned with how technology is used in the classroom. The teacher use did not align with what was taught in the university setting. The findings of this study add to the body of literature specific to novice teachers. The findings of this study address the FCMN teachers' approach to instruction as it develops over time and relative to the context. The findings also address the conditions for quality of practice through relative decision-making. The conditions are (a) stabilization of context, (b) possession of constructive dispositions, (c) encirclement of professional support network, (d) appreciation of growth experiences, and (e) reflection of practice.

Practical Implications

Recommendations for teacher educators. Participants said the main technological instruction given to them was in one educational technology course. Overall, the common experience of participants was that it was ineffectual. First, the placement of the course was early in their four years of study and at that stage few had previous classroom experiences to connect the new learning. Next, in most cases content and assignments that were current at the time of the class were outdated before entering their first classroom as a teacher. Finally, innovations in technology continue to develop long after finishing the course and therefore current technologies were not presented in the coursework yet hold a prominent presence in their school setting. This section provides recommendations for teacher educators and how technology might be better included across all four years of study.

First, in multiple education courses, teacher educators should introduce and reintroduce technological standards for teachers, theoretical frameworks and research-based strategies. Some

of the current strategies addressing technology in the classroom are ISTE Standards for Educators (ISTE, 2017), TPACK (Mishra & Koehler, 2006), 3Es (Kolb, 2017), SAMR (Puentedura, 2014). These topics should not be isolated to the educational technology course. Repeated exposure and varied applications of the frameworks to content and pedagogy should strengthen preservice teachers' approach to reflective analysis (Adler, 1991; Smith, Geng, & Black, 2017) and develop quality of practice (Schon, 1984).

Next, in methods courses teacher educators should avoid the temptation to “show and tell” a resource alone. Teacher educators should demonstrate how to use the resource in a specific lesson to engage the students, enhance the content, or extend the lesson beyond the classroom walls (Wetzel, Foulger, and Williams, 2008). After the demonstration lesson, students should engage in a discussion using any or all of the following questions: (a) Was the purpose of the technological resource to engage the learners, enhance the content, or extend the lesson, (b) how did the resource support the objective, (c) how did the resource help the learner understand the content further, (d) did the resource in combination with the pedagogical strategy have a value-added or value-diminished result, (e) how might the resource be used differently with different content, instructional strategies or grade levels, (f) and when might it not be appropriate to use the resource.

Third, preservice teachers do not always know what technology is available in their schools. Teacher educators should add assignments to methods courses or field placement experiences that require students to meet with and interview either the media specialist or instructional technology specialists to find out what technological resources (hardware, infrastructure, web-based applications, online assessments, etc.) are available in their school

setting. The information gathered for this assignment will benefit the teacher educator as what to expect from future students who are placed in the same context.

Finally, it is a challenge to predict the technological resources in field placements, therefore requiring students to include transformational instructional practice using technology in what are their first practice lesson plans is not practical. Students should strive to include technology in their lesson if possible, but what might be more effectual is to have students reflect at the end of a planned lesson. Students should be asked to examine the limitations of technology in their field placement and speculate if there was more available and if so what they would include. Students should also regularly scrutinize how the inclusion of technology further engages, enhances or extend the learning (Kolb, 2017).

Recommendation for administrators. Administrators can give significant assistance to FCMN teachers in building their professional support network. Instead of assigning an individual mentor, assembling a team of master teachers would provide a depth and breadth of expertise from clinical faculty across grade levels and content areas. FCMN teachers would have access to the entire team to increase the likelihood that the FCMN teacher would gravitate toward one or two individuals that complement their personality and educational philosophy.

The administrator should not forget to include other community stakeholders such as itinerant teachers, instructional technology specialists, or individuals from school partnerships like professors from a local university. Physical education and fine arts teachers have invaluable knowledge, ingenious methods for classroom management, and insight into family units within the learning community that would greatly benefit the FCMN teacher. Instructional technology specialists' job responsibilities should include meeting with all new teachers at least monthly for consultation. During the course of the novice teaching years, the technology specialist and the

FCMN teacher might develop specific stages of progression that address areas of content, pedagogy, and different forms of technology. Individuals from local partnerships in the community are another source of expertise to consider.

Recommendations for Novice Teachers. New teachers should establish healthy personal and professional boundaries. Communication through technology can ramp up the perception of instant availability to members of the school community. For example, use thoughtful consideration about how to send and receive electronic mail, via smartphone or laptop, or text messages.

New teachers are familiar with using use technology as a function of personal productivity but now will need to shift to using it for professional productivity. FCMN teachers should give themselves permission to ease into the use of technology for instruction. Novice teachers should find ways to use technology to meet managerial responsibilities and then find ways to use instructional technology that support knowledge gaps in content.

Self-directed professional grows though accessing experts in the field. Collaborate with the instructional technology specialist to set goals for building content knowledge. Regular meetings over the first years of teaching will develop skills and enrich the quality of practice. Finally, attend state or local technology conferences to build content, pedagogical, and technological knowledge.

Delimitations and Limitations

The participant criteria were the first measures taken to define the bounds of this study. Professionals within the educational field were contacted and asked to recommend possible participants and then snowball sampling was used to identify additional participants. Individuals participating in this study were born after 1982 and members of the millennial generation. They

are first-career, general education teachers with five or fewer years of experience in the elementary classroom. Each participant works in a school context with access to technology. The purposeful sample met maximum variation among grade levels, environmental developments, years of experience and gender. All participants hold an active state teaching license.

Delimitations of this study include the following: First, I chose to consider novice teachers with five or fewer years of practice instead of the more common definition that limits a novice to three years. Second, at the time of the study the majority of novice teachers were made up of the millennial generation. I also was curious to see if popular media's assumptions of this generation would resonate in their collective voice and show evidence in the practice of FCMN teachers. Third, I chose to use Ertmer et al. (1999) findings that it takes longer for teachers to become skilled users of technology as a basis for my decision. Finally, I limited the setting to the elementary level only given that the special education resource room and secondary level classrooms differ in structure, purpose, and context.

Limitations of this study include the following: First, individuals recommending potential participants may have only asked others who were already individuals passionate about finding ways to integrate technology. Of those individuals invited to participate, some may have declined due to their lack of interest in technology and thought there was not much for them to contribute. Second, overwhelmed and overscheduled would describe FCMN teachers. These circumstances made it difficult for them to agree to participate; some participants asked to withdraw and did not complete all parts of the data collection. Third, all participants had varying degrees of exposure and access. Not all experienced the same induction and reoccurring professional development. While all teachers had access to technology, the variations among the different settings were substantial. It is difficult to find like settings among different school

districts within a region. Finally, this study would be difficult to replicate given that millennial teachers will be aging out of the FCMN classification.

Recommendations for Future Research

One recommendation for future research would be to use a different generation as a characteristic for participants and replicate the study. For example, the members of Generation Z were born after 1995, entered school in 2000, and have always had access to the worldwide web throughout their educational experience. At the start of their undergraduate studies, mobile devices, smartphones and tablets, were increasing in popularity. The participant group could be altered to include secondary level novice teachers.

A slight variation of the first recommendation would be to replicate the study with second-career teachers and look more closely to see how adult development and the constructive-development theory impact the perceptions of technology integration. Since the participants might represent more than one generation, the use of a multiple case study may better address the phenomenon for each case while also providing a crosscutting inquiry with multiple cases (Gustafsson, 2017).

Another possible phenomenological inquiry would be to study novice teachers who shared or share a common context. Participants would be novice teachers at the elementary level and look more closely at the development of a professional support network in a specific context. Either the participants could all have attended the same undergraduate institution, or teach at the elementary level in the same school district. A school district that provided the same professional development and access to technology for all schools within the district would be ideal.

A final recommendation would be to conduct a longitudinal study following novice teachers from their first year to the end of their fifth year. A study like this one would need to

include multiple interviews, reflective journals over time, observations, and lesson plan document analysis. The study over a long span of time would help to further understand any of the following questions:

1. How novice teachers gain content, pedagogical, and technological knowledge?
2. How does increased knowledge impact the infusion of technology for transformational learning?
3. How does value-added or value-diminished relative decision-making impact the quality of practice?

Summary

This chapter reviewed the thematic findings of this study in relation to the theoretical and empirical literature along with answer the research questions. Quality of practice is a cross-cutting theme that intersects through the classroom context and teacher knowledge to better serve our understanding transformational instructional practice. The themes from this study include fluctuating contexts undermine the quality of practice, dispositional attitudes and growth experiences stabilize the quality of practice, professional support network develops the quality of practice and relative decision-making enriches quality of practice.

The most significant finding of this study is that FCMN teachers should expect to grow into their ability to infuse technology into their lessons over time. It takes time to develop transformational instructional practice. Relative decision making (RDM) is a reflections process that can help teachers better understand the quality of their own practice as it progresses toward transformational instructional practice. RDM happens when a teacher makes decisions in relation to other characteristics within a stabilized context that include student characteristics, teacher knowledge, access to resources, and instructional planning. RDM improves with maturation and

movement through constructive development orientations. The novice teacher develops in their ability to make instruction decisions if the following conditions are continually developed and refined: (a) stabilization of context, (b) possession of constructive dispositions, (c) encirclement of professional support network, (d) appreciation of growth experiences, and (e) reflection of practice.

These findings are important for teacher educators and school administrators as they seek to support FCMN teachers in their abilities to use technology for transformational instructional practice. It is the hope of the researcher that these findings will ease the weight the novice teacher carries as they enter their first classroom. This study addresses delimitations and limitations for future researchers and gives recommendations for continued research.

REFERENCES

- Abbitt, J. T. (2011). Measuring technological pedagogical content knowledge in preservice teacher education: A review of current methods and instruments. *Journal of Research on Technology in Education, 43*(4), 281-300.
- Adler, S. (1991). The reflective practitioner and the curriculum of teacher education. *Journal of Education for teaching, 17*(2), 139-150.
- Alsop, R. (2008). *The trophy kids go to work. How the millennial generation is shaking up the workplace.* San Francisco, CA: Jossey-Bass.
- Anderson, H. J., Baur, J. E., Griffith, J. A., & Buckley, M. R. (2017). What works for you may not work for (Gen) Me: Limitations of present leadership theories for the new generation. *The Leadership Quarterly, 28*(1), 245-260.
- Angeli, C., & Valanides, N. (2009). Epistemological and methodological issues for the conceptualization, development, and assessment of ICT–TPCK: Advances in technological pedagogical content knowledge (TPCK). *Computers & Education, 52*(1), 154-168.
- Angus, D. L. (2001). Professionalism and the public good: A brief history of teacher certification. Retrieved June, 17, 2012 from Educational Resources Information Center.
- Arnett, J. (2004). *Emerging adulthood: The winding road from the late teens through the twenties.* New York, NY: Oxford University Press.
- Arnett, J. (2006). Emerging adulthood: Understanding the new way of coming of age. In J. Arnett & J. Tanner (Eds.); *Emerging adults in America: Coming of age in the 21st century* (pp.3-19). <http://dx.doi.org/10.1037/11381-001>.

- Ary, D., Jacobs, L., Razavieh, A., & Sorenson, C. (2006). *Introductions to research in education (7th ed.)*. Belmont, CA: Thompson & Wadsworth.
- Ayers, J. B. (1983). Consistency of teacher behavior across time. *Education, 103*(4), 375.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215. doi: 10.1037/0033-295X.84.2.191
- Baran, E., Chuang, H., & Thompson, A. (2011). TPACK: An emerging research and development tool for teacher educators. *Turkish Online Journal of Educational Technology-TOJET, 10*(4), 370-377.
- Bennett, S., & Maton, K. (2010). Beyond the “digital natives” debate: Towards a more nuanced understanding of students’ technology experiences. *Journal of Computer Assisted Learning, 26*(5), 321–331. doi:10.1111/j.1365-2729.2010.00360.x
- Bennett, S., Maton, K., & Kervin, L. (2008). The ‘digital natives’ debate: A critical review of the evidence. *British Journal Of Educational Technology, 39*(5), 775-786.
- Bertrand, C., & Bourdeau, L. (2010). Research interviews by Skype: A new data collection method. In *Academic Conferences Proceedings of the 9th European Conference of Research Methodology for Business and Management Studies* (pp. 70-79).
- Bingimlas, K. A. (2009). Barriers to the successful integration of ICT in teaching and learning environments: A review of the literature. *Eurasia Journal of Mathematics, Science & Technology Education, 5*(3), 235-245.
- Bloomberg, L. D., & Volpe, M. (2012). *Completing your qualitative dissertation: A road map from beginning to end*. Thousand Oaks, CA: Sage Publications.
- Bogdan, R., & Biklen, S. (2007). *Qualitative research for education: An introduction to theories and methods (5th ed.)*. Boston: Allyn and Bacon.

- Brush, T., & Saye, J. (2009). Strategies for preparing preservice social studies teachers to effectively integrate technology: Models and practices. *Contemporary Issues in Technology and Teacher Education*, 9(1), 46-59.
- Bugenhagen, M., & Barbuto, J. (2012). Testing the developmental nature of work motivation using Kegan's constructive-developmental theory. *Journal of Leadership & Organizational Studies*, 19(1), 35–45. doi:10.1177/1548051811404896
- Bulfin, S., Parr, G., & Bellis, N. (2013). Stepping back from TPACK [Web log post]. Retrieved from <http://newmediaresearch.educ.monash.edu.au/lnmrg/blog/stepping-back-tpack>
- CAEP. (2010-2014). History. Retrieved from <http://caepnet.org/about/history>.
- Caudle, L. A., & Moran, M. J. (2012). Changes in understandings of three teachers' beliefs and practice across time: Moving from teacher preparation to in-service teaching. *Journal of Early Childhood Teacher Education*, 33(1), 38-53.
- Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2013). A Review of Technological Pedagogical Content Knowledge. *Educational Technology & Society*, 16(2), 31-51.
- Chopra, A. (2013) The curse of the helicopter parents: How over-parenting has affected millennials. *EliteDaily*. Retrieved November 30, 2013, from <http://elitedaily.com/life/parenting-gone-wrong/>
- Clarke, G., & Zagarell, J. (2012). Technology in the classroom: Teachers and technology: A technological divide: Nancy Maldonado, Editor. *Childhood Education*, 88(2), 136-139.
- Clausen, J. M. (2007). Beginning teachers' technology Use: first-year teacher development and the institutional context's affect on new teachers' instructional technology use with students. *Journal of Research on Technology in Education*, 39(3), 245–261.

- Collie, R. J., Shapka, J. D., & Perry, N. E. (2012, July 16). School climate and social–emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology*. Advance online publication. doi:10.1037/a0029356
- Cox, B. S., & Graham, C. R. (2009). Using an elaborated model of the TPACK framework to analyze and depict teacher knowledge. *TechTrends*, 53(5), 60–69.
- Creswell, J.W. (2007). *Qualitative inquiry and Research design: Choosing among five approaches*. Thousand Oaks, CA: Sage Publications.
- Crotty, M. (1998). *The foundations of social research: Meaning and perspective in the research process*. Thousand Oaks, CA: Sage Publications.
- Cuban, L. (2001). *Oversold and underused: Computers in the classroom*. Cambridge, MA: Harvard University Press.
- Cuban, L. (2006). Commentary: The laptop revolution has no clothes. *Education Week*, p.29.
- Darling-Hammond, L., Wei, R. C., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional learning in the learning profession. *Washington, DC: National Staff Development Council*.
- Deakin, H., & Wakefield, K. (2013). Skype interviewing: Reflections of two PhD researchers. *Qualitative Research*. doi: 10.1177/1468794113488126
- Denzin, K. & Lincoln, Y. (Eds.). (2005). *The Sage handbook of qualitative research*. Thousand Oaks, CA: Sage Publications.
- Donnellan, M. B., & Trzesniewski, K. H. (2009). How should we study generational ‘changes’—or should we? A critical examination of the evidence for ‘generation me. *Social and Personality Psychology Compass*, 3(5), 775-784.

- Dowling, M. (2007). From Husserl to van Manen. A review of different phenomenological approaches. *International Journal of Nursing Studies*, 44(1), 131-142.
doi:10.1016/j.ijnurstu.2005.11.026
- Drago-Severson, E. (2004). *Becoming adult learners: Principles and practices for effective development*. New York, NY: Teachers College Press.
- Drago-severson, E. (2007). Helping teachers learn: Principals as professional development leaders. *Teachers College Record*, 109(1), 70–125.
- Drago-Severson, E. (2008). Four practices serve as pillars for adult learning. *Journal of Staff Development*, 29(4), 60–63.
- Drago-Severson, E. (2011). How adults learn: Forms the foundation of the learning designs standard. *Journal of Staff Development*, 32(5), 10–13.
- Drago-Severson, E., & Blum-DeStefano, J. (2016). *Tell me so I can hear you: A developmental approach to feedback for educators*. Cambridge, MA: Harvard Education Press.
- Duckworth, A. (2016). *Grit: The power of passion and perseverance*. New York, NY: Simon and Schuster.
- Duncan, A. (2013). Why We Need High-Speed Schools. *Scientific American*, 309(2), 69-71.
doi:10.1038/scientificamerican0813-69
- Duran, M., Fossum, P. R., & Luera, G. R. (2006). Technology and pedagogical renewal: Conceptualizing technology integration into teacher preparation. *Computers in the Schools*, 23(3-4), 31-54.
- Dweck, C. (2015). Carol Dweck revisits the 'growth mindset'. *Education Week*, 35(5), 20-24.
- Elmore, T. (2010). *Generation iY: Our last chance to save their future*. Norcross, GA: Poet Gardener Publishing.

- Ertmer, P. A. (2005). Teacher pedagogical beliefs: The final frontier in our quest for technology integration? *Educational Technology Research and Development*, 53(4), 25-39.
- Ertmer, P., Addison, P., Lane, M., Ross, E., & Woods, D. (1999). Examining teachers' beliefs about the role of technology in the elementary classroom. *Journal of Research on Computing in Education*, 32(1/2), 54-72.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255-284.
- Ertmer, P. A., Ottenbreit-Leftwich, A., Sadik, O., Sendurur, E., & Sendurur, P. (2012). Teacher beliefs and technology integration practices: A critical relationship. *Computers & Education*, 59(2), 423-435.
- Fahey, K. (2013). Principals who think like teachers. *Educational Leadership*, 70(7), 66-68.
- Figg, C., & Jaipal, K. (2011). Exploring teacher knowledge and actions supporting technology-enhanced teaching in elementary schools: Two approaches by preservice teachers. *Australasian journal of educational technology*, 27(7), 1227-1246.
- Fives, H., Hamman, D., & Olivarez, A. (2007). Does burnout begin with student teaching? Analyzing efficacy, burnout and support during the student-teaching semester. *Teaching and Teacher Education*, 23(6), 916-934.
- Friedman, A., & Kajder, S. (2006). Perceptions of Beginning Teacher Education Students Regarding Educational Technology, 22(4), 147-151.
- Gasser, U., & Palfrey, J. (2008). Born digital-connecting with a global generation of digital natives. New York, NY: Perseus Publishing.

- Gess-Newsome, J. (2002). Pedagogical content knowledge: An introduction and orientation. In J. Gess-Newsome & N. Lederman (Eds.) *PCK and science education* (pp.3-17). New York, NY: Kluwer.
- Gibson, R. (2010) Generation Y Characteristics [Web log] Retrieved from <http://www.generationy.com/characteristics/>.
- Glazerman, S., Isenberg, E., Dolfen, S., Bleeker, M., Johnson, A., Grider, M., & Jacobus, M. (2010). *Impacts of comprehensive teacher induction: Final results from a randomized controlled study* (No. 6811). Mathematica Policy Research.
- Goktas, Y., Yildirim, S., & Yildirim, Z. (2009). Main barriers and possible enablers of ICTs integration into preservice teacher education programs. *Educational Technology & Society*, 12 (1), 193–204.
- Graham, C. R. (2011). Theoretical considerations for understanding technological pedagogical content knowledge (TPACK). *Computers & Education*, 57(3), 1953-1960.
- Gronseth, S., Brush, T., Ottenbreit-Leftwich, A., Strycker, J., Abaci, S., Easterling, W., Roman, T. (2010). Equipping the next generation of teachers: Technology preparation and practice. *Journal of Digital Learning in Teacher Education*, 27(1), 30–36.
- Grossman, P. (2005). Research on pedagogical approaches in teacher education. In M. Cochran-Smith & K. Zeichner (Eds.), *Review on pedagogical approaches in teacher education*. Washington, D.C.: American Education Research Association.
- Groth, L. A., Dunlap, K. L., & Kidd, J. K. (2007). Becoming technologically literate through technology integration in PK-12 preservice literacy courses: Three case studies. *Reading Research and Instruction*, 46(4), 363–386. doi:10.1080/19388070709558476

- Grunwald and Associates. (2010). Educators, technology and 21st century skills: Dispelling five myths. Retrieved from Walden University, Richard W. Riley College of Education website: from Retrieved from <http://www.waldenu.edu/~media/Files/WAL/report-summary-dispelling-five-myths.pdf>
- Grusec, J. (1992). Social learning theory and developmental psychology: The legacies of Robert Sears and Albert Bandura. *Developmental Psychology*, 28(5), 776-786.
doi:10.1037/0012-164.28.5.776.
- Gurung, B. (2013). Emerging pedagogics in changing contexts: Pedagogics in networked knowledge society. *Journal of Global Literacies, Technologies, and Emerging Pedagogies*.1(2),105-124. Retrieved from <http://joglep.com/index.php/archives/issue-1-volume-2/>.
- Haberman, M. (2012). The myth of the 'fully qualified' bright young teacher. *American Behavioral Scientist*, 56(7), 926-940.
- Hamilton, S. & Hamilton, M. (2006). School, work, and emerging adulthood. In J. Arnett & J. Tanner (Eds.), *Emerging adults in America: Coming of age in the 21st century*. (p.257-277). Washington, DC: American Psychological Association. doi: 10.1037/11381-011
- Haney, W., Russell, M., & Bebell, D. (2004). Drawing on education: Using drawings to document schooling and support change. *Harvard Educational Review*. 74(3), 241-271.
- Hanna, P. (2012). Using internet technologies (such as Skype) as a research medium: a research note. *Qualitative Research*, 12(2), 239-242.
- Hatch, J. A. (2002). *Doing qualitative research in educational settings*. Albany: State University of New York Press.

- Haugland, S. (2000) Early childhood classrooms in the 21st century: Using computers to maximize learning. *Young Children*, 55(1), 12-18.
- Henriksson, C. (2012). Hermeneutic phenomenology and pedagogical practice. In N. Friesen, C. Henriksson, & T. Saevi (Eds.); *Hermeneutic phenomenology in education: Method and practice*, (119-137). Rotterdam, NL: Sense Publishers.
- Henriksson, C. & Friesen, N. (2012). Introduction. In N. Friesen, C. Henriksson, & T. Saevi (Eds.); *Hermeneutic phenomenology in education: Method and practice*, (1-14). Rotterdam, NL: Sense Publishers.
- Hershatter, A., & Epstein, M. (2010). Millennials and the world of work: An organization and management perspective. *Journal of Business and Psychology*, 25(2), 211-223.
- Helsing, D., Howell, A., Kegan, R., & Lahey, L. (2008). Putting the 'development' in professional development : Understanding and overturning educational leaders' immunities to change. *Harvard Educational Review*, 78(3), 437-57.
- Hixon, E., & So, H. (2009). Technology's role in field experience for preservice teacher training. *Educational Technology & Society*, 12(4), 294-304.
- Hogan, T., Rabinowitz, M., & Craven III, J. A. (2003). Representation in teaching: Inferences from research of expert and novice teachers. *Educational Psychologist*, 38(4), 235-247.
- Howe, N., & Strauss, W. (2000). *Millennials rising: The next great generation*. New York, NY: Vintage Books.
- Ingersoll, R. M. (2003). The teacher shortage: Myth or reality? *Educational Horizons*, 81(3), 146-152.
- ISTE. (2008). *The ISTE Standards*. Retrieved January 10, 2012 from <http://www.iste.org/standards>.

- ISTE. (2017). *ISTE Standards for Educators*. Retrieved July 1, 2017 from <https://www.iste.org/standards/standards/for-educators>.
- Jamil, F. M., Downer, J. T., & Pianta, R. C. (2012). Association of preservice teachers' performance, personality, and beliefs with teacher self-efficacy at program completion. *Teacher Education Quarterly*, 39(4), 119-138.
- Janesick, V., (2004). *Stretching exercises for qualitative researchers*. Thousand Oaks, CA, CA: SAGE Publications.
- Janghorban, R., Roudsari, R., & Taghipour, A. (2014). Skype interviewing: The new generation of online synchronous interview in qualitative research. *International Journal of Qualitative Studies on Health and Well-being*. Advance online publication. doi: 10.3402/qhw.v9.24152
- Kagan, D. M. (1992). Professional growth among preservice and beginning teachers. *Review of Educational Research*, 62(2), 129-169.
- Kafle, N. (2011). Hermeneutic phenomenological research method simplified. *Bodhi: An Interdisciplinary Journal*, 5(1), 181-200.
- Kardos, S. M., Johnson, S. M., Peske, H. G., Kauffman, D., & Liu, E. (2001). Counting on colleagues: New teachers encounter the professional cultures of their schools. *Educational Administration Quarterly*, 37(2), 250-290.
- Katic, E. (2008). Preservice teachers' conceptions about computers: an ongoing search for transformative appropriations of modern technologies. *Teachers and Teaching*, 14(2), 157–179. doi:10.1080/13540600801983344

- Kay, R. H. (2006). Evaluating strategies used to incorporate technology into preservice education : A review of the literature. *Journal of Research on Technology in Education*, 38(4), 384–408.
- Kay, R. H. (2007). A formative analysis of how preservice teachers learn to use technology. *Journal of Computer Assisted Learning*, 23(5), 366–383. doi:10.1111/j.1365-2729.2007.00222.x
- Kealy, M. V. (2010). A leadership focus on teacher effectiveness: Support for novice teachers. *Journal of Special Education Leadership*, 23(1), 52–54.
- Kegan, R. (1982). *The evolving self: Problem and process in human development*. Cambridge, MA: Harvard University Press.
- Kegan, R. (1994). *In over our heads: The mental demands of modern life*. Cambridge, MA: Harvard University Press.
- Keigher, A. (2010). *Teacher attrition and mobility: Results from the 2008-09 teacher follow-up survey* (NCES 2010-353). U.S. Department of Education. Washington, D.C. : National Center for Education Statistics. Retrieved November 11, 2011 from <http://nces.ed.gov/pubsearch>.
- Keeler, C. G. (2008). When curriculum and technology meet technology integration in methods courses. *Journal of Computing in Teacher Education*, 25(1), 23–30.
- Keren-Kolb, E. (2013). Engage, enhance, extend learning. *Learning and Leading with Technology*, 40(7), 20-27.
- Keren-Kolb, E. (2010). Stimulating preservice teachers' beliefs about benefits of everyday technology in their teaching (Doctoral dissertation, University of Michigan). Available from ProQuest Dissertations and Theses database. (UMI No. 3385390)

- Kirby, A. (2009). *Digimodernism: How new technologies dismantle the postmodern and reconfigure our culture*. London, GBR: Continuum International Publishing.
- Kim, K. (2008). Factors influencing integration of technology in the classroom. *Southeastern Teacher Education Journal*, 1(1), 35-47.
- Kim, K., Jain, S., Westhoff, G., & Rezabek, L. (2008). A quantitative exploration of preservice teachers' intent to use computer-based technology. *Journal of Instructional Psychology*, 35(3), 275–288.
- Kirkwood, A. & Price, L. (2014). Technology-enhanced learning and teaching in higher education: What is 'enhanced' and how do we know? A critical literature review. *Learning, Media, and Technology*, 39 (1) pp. 6-36.
- Klassen, R. M., Perry, N. E., & Frenzel, A. C. (2012). Teachers' relatedness with students: An underemphasized component of teachers' basic psychological needs. *Journal of Educational Psychology*, 104(1), 160–165.
- Koehler, M.J., & Mishra, P. (2008). Introducing TPACK. AACTE Committee on Innovation and Technology (Ed.), *The handbook of technological pedagogical content knowledge (tpck) for educators* (pp. 3-29). Mahwah, NJ: Lawrence Erlbaum Associates.
- Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge ? *Contemporary Issues in Technology and Teacher Education*, 9(1), 60–70.
- Koehler, M. J., Mishra, P., & Yahya, K. (2007). Tracing the development of teacher knowledge in a design seminar: Integrating content, pedagogy and technology. *Computers & Education*, 49(3), 740–762. doi:10.1016/j.compedu.2005.11.012

- Koh, J. H. L., & Frick, T. W. (2009). Instructor and student classroom interactions during technology skills instruction for facilitating preservice teachers' computer self-efficacy. *Journal of Educational Computing Research, 40*(2), 211–228. doi:10.2190/EC.40.2.d
- Kolb, L. (2017). *Learning first, technology second: The educator's guide to designing authentic lessons*. Arlington: International Society for Technology in Education.
- Kopcha, T. J., Ottenbreit-Leftwich, A., Jung, J., & Baser, D. (2014). Examining the TPACK framework through the convergent and discriminant validity of two measures. *Computers & Education, 78*, 87-96.
- Kvale, S., & Brinkmann, S. (2009). *Interviews: Learning the craft of qualitative research interviewing*. Thousand Oaks, CA: Sage Publications.
- Lai, K. W., & Hong, K. S. (2014). Technology use and learning characteristics of students in higher education: Do generational differences exist? *British Journal of Educational Technology, 45*(1), 1-15.
- Laird, M. D., Harvey, P., & Lancaster, J. B. (2015). Accountability, entitlement, tenure, and satisfaction in Generation Y. *Journal of Managerial Psychology, 30*, 87–100.
- Laverty, S. M. (2003). Hermeneutic phenomenology and phenomenology: A comparison of historical and methodological considerations. *International Journal of Qualitative Methods, 2*(3), 21-35.
- Le Maistre, C., & Pare, A. (2010). Whatever it takes: How beginning teachers learn to survive. *Teaching and Teacher Education, 26*(3), 559-564.
- Lei, J. (2009). Digital Natives as Preservice Teachers: What Technology Preparation Is Needed? *Journal of Computing in Teacher Education, 25*(3), 87–97.

- Lim, C. P., & Khine, M. (2006). Managing teachers' barriers to ICT integration in Singapore schools. *Journal of Technology and Teacher Education*, 14(1), 97-125.
- Lincoln, Y. & Guba, E. (1985). *Naturalistic Inquiry*. Beverly Hills, CA: Sage Publications.
- Lloyd, M. E. R. (2012). Leaving the profession: The context behind one quality teacher's professional burn out. *Teacher Education Quarterly*, 39(4), 139-162.
- Lux, N., Obery, A., Cornish, J., Grimberg, B.I., & Hartshorn, A. (2017). Reflecting on the challenges of informal contexts: Early field experiences with technology in teacher education. *Contemporary Issues in Technology and Teacher Education*, 17(2), 250-267.
- Association for the Advancement of Computing in Education (AACE). Retrieved August 20, 2017 from <https://www.learntechlib.org/p/173652/>.
- Magrini, J. (2012). Phenomenology for educators: Max van Manen and "human science" Research. Retrieved May 1, 2017 from <http://dc.cod.edu/philosophypub32>.
- Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education*, 56(2), 429-440.
- Masten, A., Obradovic, J. & Burt, K. (2006). Resilience in Emerging Adulthood: Developmental perspectives on continuity and transformation. In J. Arnett & J. Tanner (Eds.) *Emerging adults in America: Coming of age in the 21st century*. (pp.3-19). doi: [10.1037/11381-007](https://doi.org/10.1037/11381-007).
- Mastroia, S. & Willits, S. (2013). Millennials: What do we really know? Advances in accounting education. In D. Feldmann, & T. Rupert (Eds.) *Advances in Accounting Education: Teaching and Curriculum Innovations (Advances in Accounting Education, Volume 14)*, (pp. 45-72).
- Matchar, E. (2012) How those spoiled millennials will make the workplace better for everyone. *Washington Post*, Retrieved November 30, 2013, from <http://articles>.

washingtonpost.com/2012-0816/opinions/35490487_1_boomerang-kids-modern-workplace-privileged-kids.

- McVee, M. B., Bailey, N. M., & Shanahan, L. E. (2008). Teachers and teacher educators learning from new literacies and new technologies. *Teaching Education, 19*(3), 197–210. doi:10.1080/10476210802250216
- Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco: Jossey-Bass higher and Adult Education Series.
- Mirel, J. (2011). Bridging the ‘widest street in the world’: Reflections on the history of teacher education. *American Educator, 35*(2), 6-12.
- Mishra, P., & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teachers College Record, 108*(6), 1017–1054. doi:10.1111/j.1467-9620.2006.00684.x
- Moore-Johnson, S. (2000). Teaching next generation. Education Week, June 7.
- Morphew, V. N. (2012). *A constructivist approach to the national educational technology standards for teachers*. Washington D.C: International Society for Technology in Education.
- Moustakas, C. (1994). *Phenomenological research methods*. Thousand Oaks, CA, CA: Sage.
- Murphy, K., Richards, J., Lewis, C., & Carman, E. (2005). Strengthening educational technology in K-8 urban schools and teacher education: A practitioner-faculty collaborative process. *Journal of Technology and Teacher Education, 13*(1), 125-139.
- National commission on excellence in education. (1983). *A nation at risk: The imperative for educational reform*. Retrieved from [http://www.ed.gov/pubs/NatAtRisk/ title.html](http://www.ed.gov/pubs/NatAtRisk/title.html)

- Niess, M. L. (2005). Preparing teachers to teach science and mathematics with technology: Developing a technology pedagogical content knowledge. *Teaching and Teacher Education, 21*(5), 509–523. doi:10.1016/j.tate.2005.03.006
- Niess, M. L. (2011). Investigating TPACK: Knowledge growth in teaching with technology. *Journal of Educational Computing Research, 44*(3), 299-317.
- Niess, M. L. (2013). Central component descriptors for levels of technological pedagogical content knowledge. *Journal of Educational Computing Research, 48*(2), 173-198.
- Oh, E., & Reeves, T. C. (2014). Generational differences and the integration of technology in learning, instruction, and performance. In J.Spector, M.Merrill, J.Elen, & M. Bishop (Eds.), *Handbook of research on educational communications and technology* (pp. 819-828). New York, NY: Springer.
- Ortlipp, M. (2008). Keeping and using reflective journals in the qualitative research process. *The Qualitative Report, 13*(4), 695-705.
- Ottenbreit-Leftwich, A. T., Ertmer, P. A., & Tondeur, J. (2015). 7.2 Interpretation of research on technology integration in teacher education in the USA: Preparation and current practices. In *International handbook of interpretation in educational research* (pp. 1239-1262). Netherlands: Springer.
- Palfrey, J. G., & Gasser, U. (2013). *Born digital: Understanding the first generation of digital natives*. New York, NY: Basic Books.
- Pârlea-Buzatu, D. (2010). The interaction between psychosocial and career development. *Contemporary Readings in Law and Social Justice, 2*(2), 285-290.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods*, 3rd ed., Thousand Oaks, CA: Sage Publications.

- Pellegrino, J., Goldman, S., Bertenthal, M., & Lawless, K. (2007). Teacher education and technology: Initial results from the “What works and why” project. *Information and communication technologies: Considerations of current practice for teachers and teacher educators* (pp. 52–86).
- Pogodzinski, B. (2012). Socialization of novice teachers. *Journal of School Leadership*, 22(5) (pp. 252-275).
- Polly, D., Mims, C., Shepherd, C. E., & Inan, F. (2010). Evidence of impact: Transforming teacher education with preparing tomorrow’s teachers to teach with technology (PT3) grants. *Teaching and Teacher Education*, 26(4), 863–870. doi:10.1016/j.tate.2009.10.024
- Prensky, M. (2001). Digital Natives, Digital Immigrants Part 1. (R. K. Belew & M. D. Vose, Eds.) *On the Horizon*, 9(5), 1–6. doi:10.1108/10748120110424816
- Prensky, M. 2009. H. sapiens digital: From digital immigrants and digital natives to digital wisdom. *Innovate* 5 (3). Retrieved June 15, 2014 from <http://www.wisdompage.com/Prensky01.html>
- Raby, C. (2006). A dynamic model: process in becoming an exemplary technology integrator. In C. Crawford et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2006* (pp. 1745-1749). Chesapeake, VA: AACE.
- Reinwald, C. (2012) Helicopter parents land the interview. USA Today. Retrieved November 30, 2013, from <http://www.usatodayeducate.com/staging/index.php/pulse/helicopter-parents-land-the-interview>.
- Robinson, K. (2006, February). Ken Robinson says schools kill creativity (Video File). http://www.ted.com/talks/ken_robinson-says_schools_kill_creativity.html.

Robinson, K. (2010, February). Sir Ken Robinson: Bring on the learning revolution (Video file).

Retrieved from http://www.ted.com/talks/sir_ken_robinson-bring_on_the_revolution.html

Rosenberg, M. (2017). Push-pull factors. The Thought Co. Retrieved from

<https://www.thoughtco.com/push-pull-factors-1434837>

Sanburn, J. (2013) Millennials: The next greatest generation? *TIME*. Retrieved November 30,

2013, from <http://nation.time.com/2013/05/09/millennials-the-next-greatest-generation/>

Sang, G., Valcke, M., Braak, J. V., & Tondeur, J. (2010). Student teachers' thinking processes

and ICT integration: Predictors of prospective teaching behaviors with educational technology. *Computers & Education*, 54(1), 103–112.

doi:10.1016/j.compedu.2009.07.010

Schmidt, D. A., Baran, E., Thompson, A. D., Mishra, P., Koehler, M. J., & Shin, T. S. (2009).

Technological pedagogical content knowledge (TPACK): The development and validation of an assessment instrument for preservice teachers. *Journal of Research on Technology in Education*, 42(2).

Scholnik, J. (2013). Five things you should never say to your professor. USA Today. Retrieved

November 30, 2013, from [http://www.usatodayeducate.com/](http://www.usatodayeducate.com/staging/index.php/campuslife/5-things-you-should-never-say-to-your-professor)

[staging/index.php/campuslife/5-things-you-should-never-say-to-your-professor](http://www.usatodayeducate.com/staging/index.php/campuslife/5-things-you-should-never-say-to-your-professor).

Schon, D. A. (1984). *The reflective practitioner: How professionals think in action* (Vol. 5126).

United States: Basic books.

Schwandt, T. (1997). *Qualitative Inquiry: A dictionary of terms*. Thousand Oaks, CA, CA:

SAGE Publications.

- Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences*. New York, NY: Teachers College Press.
- Selwyn, N. (2009). The digital native - myth and reality. *Aslib Proceedings*, 61(4), 364.
doi:10.1108/00012530910973776
- Silverman, D. (2001). *Interpreting qualitative data: Methods for analyzing talk, text, and interaction*. Thousand Oaks, CA: Sage Publications.
- Shoffner, M. (2009). Personal attitudes and technology: Implications for preservice teacher reflective practice. *Teacher Education Quarterly*, (Spring) 143-161.
- Shoval, E., Erlich, I., & Feijgin, N. (2010). Mapping and interpreting novice physical education teachers' self-perceptions of strengths and difficulties. *Physical Education and Sport Pedagogy*, 15(1), 85–101.
- Shulman, L. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher*, 15(2), 4–14.
- Shulman, L. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review*, 57(1), 1-22.
- Shulman, L. (1994). Those who understand: Knowledge growth in teaching. In B. Moon & S. Mayes (Eds.), *Teaching and learning in the secondary school*, (pp.125-133). London: Routledge.
- Smeaton, P. S., & Waters, F. H. (2013). What happens when first year teachers close their classroom doors? An investigation into the instructional practices of beginning teachers. *American Secondary Education*, 41(2) 71-93.
- Smith, P. (2017). Teachers as reflective practitioners. In G.Geng, P.Smith, & P. Black (Eds.), *The Challenge of teaching*. (pp. 25-32). Singapore: Springer.

- So, H. J., Choi, H., Lim, W. Y., & Xiong, Y. (2012). Little experience with ICT: Are they really the net generation student-teachers? *Computers & Education*, 59(4), 1234-1245.
- Stallions, M., Murrill, L., & Earp, L. (2012). Don't quit now!: Crisis, reflection, growth, and renewal for early career teachers. *Kappa Delta Pi Record*, 48(3), 123-128.
- Smith, S. D., & Galbraith, Q. (2012). Motivating millennials: Improving practices in recruiting, retaining, and motivating younger library staff. *The Journal of Academic Librarianship*, 38(3), 135-144.
- Stake, R. E. (2010). *Qualitative research: Studying how things work*. New York, NY: Guilford Press.
- Starkey, L. (2008). Proceedings from ACEC 2008: *Evaluating learning in classroom activities using digital technologies*. Canberra, Australia.
- Starkey, L. (2010a). Supporting the digitally-able beginning teacher. *Teaching and Teacher Education*, 26(7), 1429-1438.
- Starkey, L. (2010b). Teachers' pedagogical reasoning and action in the digital age. *Teachers & Teaching*, 16(2), 233-244. doi:10.1080/13540600903478433
- Stein, J. (2013) Millennials: The me me me generation. *TIME*, Retrieved November 30, 2013, from <http://content.time.com/time/magazine/article/0,9171,2143001,00.html>.
- Swain, C. (2006). Preservice teachers self-assessment using technology: Determining what is worthwhile and looking for changes in daily teaching and learning practices. *Journal of Technology and Teacher Education*, 14 (1) p. 29-59.

- Tanner, J., & Arnett, J. (2011). Presenting 'emerging adulthood': What makes it developmentally distinctive? In J. Jensen, M. Kloep, L. Hendry, & J. Tanner (Eds.), *In Debating Emerging Adulthood: Stage or Process?* (pp. 13-30). New York, NY: Oxford University Press.
- Tanner, J. (2009). Understanding emerging adults. *Yellowbrick Journal of Emerging Adulthood*, *1*(1), 4-5.
- Taylor, P., & Keeter, S. (2010). Millennials. confident. connected. open to change. *Washington, DC: Pew Internet and American Life Project*. Retrieved November, 3, 2010.
- Tapscott, D. (2008). *Grown up digital: How the net generation is changing your world*. New York, NY: McGraw-Hill.
- Thomas, D., & Brown, J. S. (2011). *A new culture of learning: Cultivating the imagination for a world of constant change*. Lexington, KY: CreateSpace.
- Tondeur, J., van Braak, J., Sang, G., Voogt, J., Fisser, P., & Ottenbreit-Leftwich, A. T. (2012). Preparing preservice teachers to integrate technology in education: A synthesis of qualitative evidence. *Computers & Education*, *59*, 134-144.
- Tondeur, J., van Braak, J., Siddiq, F., & Scherer, R. (2016). Time for a new approach to prepare future teachers for educational technology use: Its meaning and measurement. *Computers & Education*, *94*, 134-150.
- Trochim, W. M. (2006). Qualitative measures. *Research Measures Knowledge Base*, 361-9433.
- Treuren, G., & Anderson, K. (2010). The employment expectations of different age cohorts: is Generation Y really that different? *Australian Journal of Career Development*, *19*(2), 49-61.
- Twenge, J. M. (2010). *The Narcissism Epidemic: Living in the Age of Entitlement*. New York, NY: Atria Books.

- Tynjälä, P., & Heikkinen, A. P. H. L. (2011). Beginning teachers' transition from preservice education to working life. *Zeitschrift für Erziehungswissenschaft, 14*(1), 11-33.
- Tynjälä, P., Slotte, V., Nieminen, J., Lonka, K., & Olkinuora, E. (2006). From university to workinglife: Graduates' workplace skills in practice. In P. Tynjälä, J. Välimaa, & G. Boulton-Lewis (Eds.), *Higher education and working life: Collaborations, confrontations and challenges* (pp. 73–88). Amsterdam, NL: Elsevier.
- Urban, W. J., & Wagoner, J. L. (2003). *American education: A history*. Boston: McGraw Hill.
- United States Department of Labor, Bureau of Labor Statistics. (2012). *Occupations with the most job growth, 2012 and projected 2022*. Retrieved from http://www.bls.gov/emp/ep_table_104.htm.
- van Manen, M. (1990). *Researching lived experience: Human science for an action sensitive pedagogy*. Ontario, Canada: The Althouse Press.
- van Manen, M. (2014). *Phenomenology of practice: Meaning-giving methods in phenomenological research and writing*. Walnut Creek, CA: Left Coast Press.
- Veen, W., & Vrakking, B. (2006). *Homo zappiens growing up in a digital age*. London: Continuum International Publishing Group Ltd.
- Veenman, S. (1984). Perceived problems of beginning teachers. *Review of Educational Research, 54*(2), 143–178.
- Vockley, M., & Lang, J. (2011). Deepening connections: Teachers increasingly rely on media and technology. *Washington, DC: PBS. Bethesda, MD: Grunwald Associates, LLC*.
- Voogt, J., Fisser, P., Pareja Roblin, N., Tondeur, J., & van Braak, J. (2012). Technological pedagogical content knowledge—a review of the literature. *Journal of Computer Assisted Learning, 29*(2), 109-121.

- Voogt, J., & McKenney, S. (2017). TPACK in teacher education: are we preparing teachers to use technology for early literacy? *Technology, pedagogy and education*, 26(1), 69-83.
- Wang, Y. M. (2002). When technology meets beliefs- preservice teachers' perception of the teacher's role in the classroom with computers. *Journal of Research on Technology in Education*, 35(1), 150-161.
- Warren, D. (1985). Learning from experience: History and teacher education. *Educational Researcher*, 14(10), 5-12.
- Weston, M.E. & Bain, A. (2010). The End of Techno-Critique: The Naked Truth about 1:1 Laptop Initiatives and Educational Change. *Journal of Technology, Learning, and Assessment*, 9(6). Retrieved June 12, 2014 from <http://www.jtla.org>.
- Wetzel, K., Foulger, T. S., & Williams, M. K. (2008). The evolution of the required educational technology course. *Journal of Computing in Teacher Education*, 25(2), 67-72.
- White, D. S., & Le Cornu, A. (2011). Visitors and Residents: A new typology for online engagement. *First Monday*, 16(9).
- Wyss, C., Kocher, M., & Baer, M. (2017). The dilemma of dealing with persistent teaching traditions: findings of a video study. *Journal of Education for Teaching*, 43(2), 191-205.
- Yost, D. S. (2006). Reflection and self-efficacy: enhancing the retention of qualified teachers from a teacher education perspective. *Teacher Education Quarterly*, 33(4), 59-76.
- Zumwalt, K., & Craig, E. (2005). Teachers' characteristics: Research on the demographic profile. *Studying teacher education: The report of the AERA panel on research and teacher education*, 111-156.

APPENDIX A: IRB APPROVAL LETTER**LIBERTY UNIVERSITY.**
INSTITUTIONAL REVIEW BOARD

April 12, 2015

Karla Ontiveros Karr

IRB Approval 2076.041215: From Field Placement to First Classroom: A Phenomenological Study of Millennial Novice Teachers' Use of Technology

Dear Karla,

We are pleased to inform you that your above study has been approved by the Liberty 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.

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

Sincerely,

Fernando Garzon, Psy.D.
Professor, IRB Chair
Counseling

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APPENDIX B: INFORMED CONSENT FORM

The Liberty University Institutional
Review Board has approved
this document for use from
4/12/15 to 8/31/17
Protocol #2076.041215

CONSENT FORM

From Field Placement to First Classroom: A Phenomenological study of Millennial Novice
Teachers' Use of Technology
Karla O. Karr
Liberty University
School of Education

You are invited to be in the research study From Field Placement to First Classroom: A Phenomenology study of Millennial, Novice Teachers' Use of Technology. You were selected as a possible participant because you are a general education teacher in the elementary classroom with five or less years of experience, qualify as a member of the millennial generation, and have access to technology in your setting. I ask that you read the content below and make inquiries before agreeing to be in the study.

This study is being conducted by Karla Karr a doctoral candidate at Liberty University enrolled in the doctoral program for the School of Education.

Background Information:

The purpose of this study is to describe the attitudes and understandings of millennial, first-career novice teachers when using technology in their elementary classroom as it relates to teacher knowledge in the areas of content, instructional practice, and technological skills. The study hopes to answer the following questions which were developed from the related literature and which frame the investigation.

1. How do millennial first-career novice teachers describe their level of content knowledge, technological knowledge, and pedagogical knowledge (TPACK) to support their teaching practices?
2. How do participants describe their approach to instructional decision-making based on their technological knowledge?
3. How, if at all, do perceptions as preservice teachers now influence their perceptions as novice teachers in their current classroom settings?

Procedures:

If you agree to be in this study, I would ask you to do the following things: As a volunteer, you would complete one phone orientation to explain the procedures of the study, an informational survey to confirm that you meet the criteria of the study, four reflective journal prompts, one drawing, and one audio-recorded or one recorded, Skype interview lasting sixty to ninety minutes. The entire length of time required for participation is between three and four hours.

Risks and Benefits of being in the Study:

The study presents minimal risks to participants, no more than the participant would encounter in everyday life. As a participant you may feel self-consciousness about your their performance as a novice teacher, my role as the primary researcher does not come from a place of judgment or evaluation. My purpose is to listen to your personal experience.

The Liberty University Institutional
Review Board has approved
this document for use from
4/12/15 to 8/31/17
Protocol #2076.041215

This study is beneficial to society in the following ways:

This project is a positive contribution to the literature for this topic. It seeks to provide a deeper understanding and clarity to the phenomenon of millennial novice teachers as they seek to integrate technology. This deeper understanding could help to better inform teacher educators and professional developers as they seek to support future teachers and novice teachers in the classroom.

The benefits to participation are:

There are no direct benefits. The reflective journals and interview process allow the participant to reflect about their use of technology and their instructional practice. This opportunity to reflect about their practice may bring about further understanding about their practice or inspire them to adjust their future instruction is an indirect benefit.

Compensation: Participant will not be compensated for participation in this study.

Confidentiality:

The document collected during this study will be kept private. In the event I publish the findings in a conference paper, presentation, or article, I will not include any identifying information that would compromise the identity of the participants. To protect participants' privacy and confidentiality, the researcher will use pseudonyms for site and participant identification. The researcher will have sole access to the records, which will be stored securely on a password-protected computer and recording device. The stored data will be protected for the duration of three years. Data will be collected via collected documents and interviews. All documents and research will be kept in a locked file cabinet and on the principal investigator's computer with a secure passcode. Only the principal investigator and the dissertation committee will have access to the raw data. All forms of data collected during the study will be stored in a locked file drawer for three years after completion of the study. At the completion of the three years, all documents will be shredded and destroyed.

Voluntary Nature of the Study:

Participation in this study is voluntary and a decision to participate or not will not affect your current or future relations with Liberty University. If you decide to participate, you are free to defer answering any question and withdraw from the study at any time without negative consequences.

How to Withdraw from the Study: As a participant, you may withdraw from the study at any time. If you choose to withdraw please contact the researcher by phone or email. The contact information is listed below. Any data collected will be destroyed immediately by shredding printed documents and erasing digital documents and recordings from the storage on all electronic devices used during the study.

Contacts and Questions:

The researcher conducting this study is Karla O. Karr. You may ask any questions you have now. If during the procedure you have questions, please contact me at _____ or via email at kkarr@liberty.edu. You may also contact my advisor, Dr. Fred Milacci, at _____ or via email at _____@liberty.edu.

The Liberty University Institutional
Review Board has approved
this document for use from
4/12/15 to 8/31/17
Protocol #2076.041215

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

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS IRB APPROVAL INFORMATION WITH CURRENT DATES HAS BEEN ADDED TO THIS DOCUMENT.)

The researcher has my permission to audio-record, and /or video-record me as part of my participation in this study.

Signature: _____ Date: _____

Signature of Investigator: _____ Date: _____

APPENDIX C: REFLECTIVE JOURNAL PROMPTS

Prompt #1: Please write about an experience related to using technology to teach. (Include the following elements: description of events, feelings/perceptions associated with the teaching event, and an analysis of student outcomes.)

Prompt #2: Please write about your lesson planning process. What are factors in decision making when planning instruction? How do you consider the use of technology within a lesson, if at all?

Prompt #3: What personal characteristics do you possess that either help or hinder your ability to integrate technology?

Prompt #4: How did your undergraduate experience, if at all, influence your perceptions about teaching with technology in your current classroom?

Self Reflection Journal: Prompt 1

* Required

Name *
Type your first and last name.

Participant Number *
Participant number is located on your orientation documents.

Prompt 1: Please write about an experience related to using technology to teach. (Include the following elements: a description of events, feelings/perceptions associated with the teaching event, and an analysis of personal perceptions as they relates to student outcomes. *

Never submit passwords through Google Forms.

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APPENDIX D: INTERVIEW GUIDE

Study Title: *From Field Placement To First Classroom: A Phenomenological Study Of*

Millennial Novice Teachers' Use Of Technology

Karla Karr, Principal Investigator

Liberty University

Icebreaker: How long have you been teaching and what prompted you to become a teacher?

Describe any personal experiences you have had as a novice teacher.

Prompts:

- Classroom Humor
- Celebrations
- Improvements

1. What are some of the challenges you have faced as a novice teacher?

Prompts:

- Classroom Setting
- Personal Development
- Philosophical Differences

2. What does a typical day in your classroom look like?

Prompts:

- Lesson Planning/Preparation
- Students
- Schedule

3. How does your experiences with induction and professional development as a novice teacher fit into your day, week, and/or grading period?

Prompts:

- Induction Meetings (district wide)
- Novice Teacher/Mentor Partnership (school setting)
- Faculty Professional Development

4. What is your first impression of yourself when thinking about how you use technology?

Prompt:

- Skill Level
- Comfort Level

5. How do you use technology on a daily basis?

Prompts:

- Preparation
- Instruction

- Assessment
 - Personal Use
6. How else have you used technology in your classroom?
Prompts:
 - What are the various tools in your context?
 - Describe the interaction.
 - Do the activities take place in more than one location?
 7. How do your skill level and /or comfort level impact your use technology in the classroom?
 8. I would like you to discuss your drawing (task-based rendering). Describe what teaching with technology looks like in the learning context.
 9. Describe for me the events of a lesson you designed to integrate technology specifically.
Prompts:
 - What inspired the idea?
 - What did your lesson planning include?
 - What about your context helps or hinders this process?
 10. How do the content objectives and /or pedagogical choices influence the use of technology?
Prompts:
 - Content selection
 - Pedagogical choices
 11. What personal characteristics does a teacher need to possess in order to teach with technology?
 12. What kind of experiences did you have with technology as a preservice teacher?
Prompts:
 - Methods Courses
 - Field Placements
 - Student Teaching
 13. How did your undergraduate experience shape your perception of teaching with technology, if at all?
 14. How does it influence your instructional design process, if at all, as a practicing teacher?

APPENDIX E: HIGHLIGHTING SIGNIFICANT TEXT

Participant #4 Grace
Reflective Journal

Grade Level	Second Grade
How would you characterize your school?	Rural
What types of technology do you have access to at your school?	Computer Lab, Tablet Cart, 1:1 Computing, Projector, Teacher Computer

1 **Prompt #1: Please write about an experience related to using technology to**
 2 **teach. (Include the following elements: description of events,**
 3 **feelings/perceptions associated with the teaching event, and an analysis of**
 4 **student outcomes.)**

5 I could write about failed technology lessons, or successful ones! You will read in
 6 the second prompt about some of the ways I use (mini) iPads in my classroom.

7 One experience I had with technology was when I had my students doing
 8 Synonym Rolls (get it?!). We were working on identifying synonyms and
 9 antonyms. Students picked five words (i.e.: good, bad, start, stop, fun, said) and
 10 wrote that word in the middle of each cinnamon roll (so all students had different
 11 rolls from each other even!). Once they picked their five words and wrote them
 12 down, I then had them download a dictionary/thesaurus app. They used the app to
 13 find 4 synonyms for each word. They then wrote the synonyms on the edge of the
 14 roll (wish I had a picture to show!). It was such a great teaching moment because
 15 they were using their cognitive and psychomotor skills to create the synonym
 16 rolls. They were doing it on their own (for the most part--I walked around, fixed,
 17 and monitored as necessary) and using technology as well! Not only did the
 18 students enjoy the project, but I did as well. I have now done to project for 3 years
 19 because I enjoy the kinesthetic and technology application of the project.

20

Comment [KK1]: Content

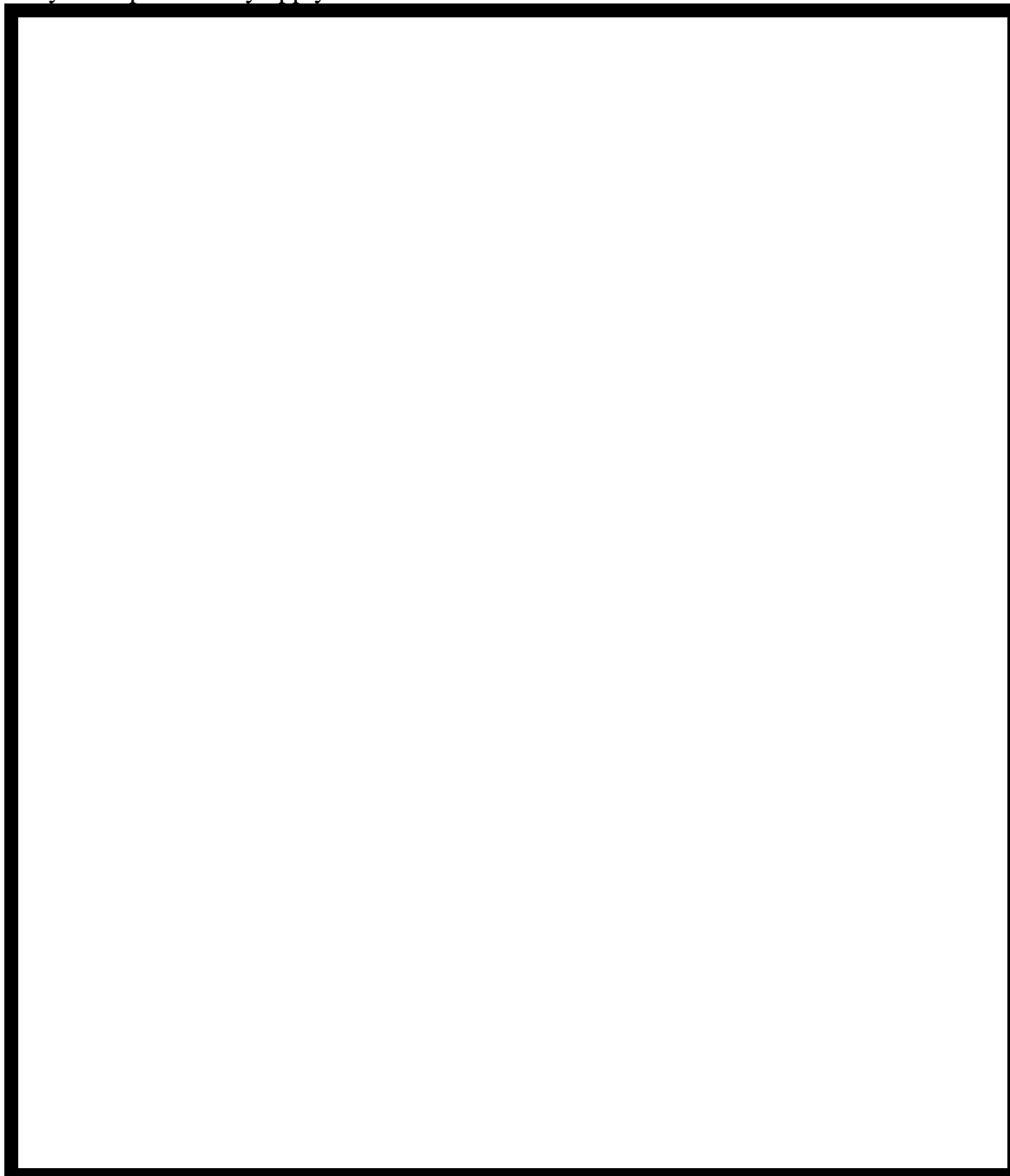
Comment [KK2]: Use of mobile application.

Comment [KK3]: Enjoyment

Comment [KK4]: Kinesthetic and technological application.

APPENDIX F: TASK-BASED RENDERING

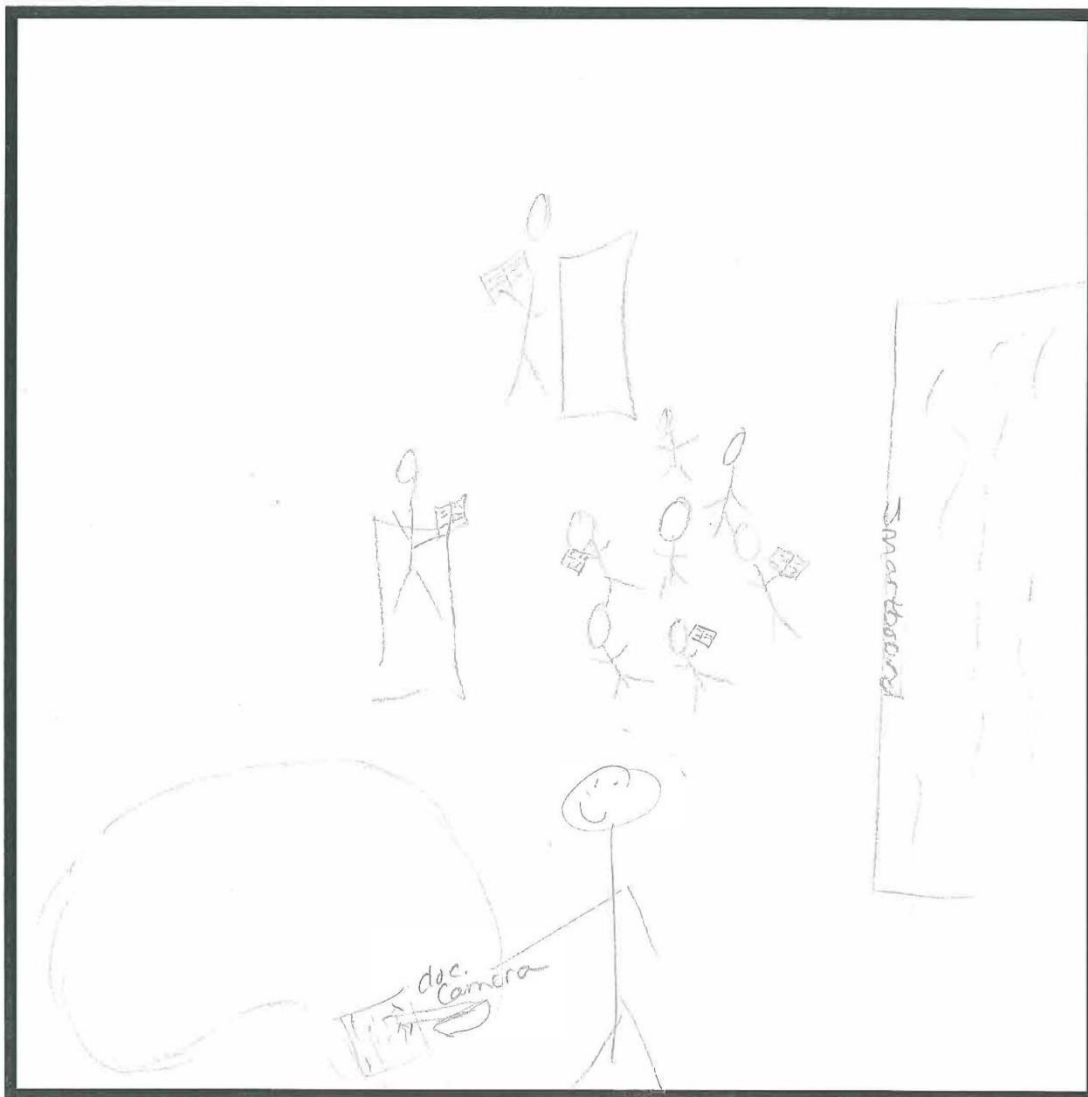
Prompt: I want you to begin to think about your current learning context. I would like you to create an illustration of yourself teaching with technology in your learning environment. Base your illustrations on ways both you and your students have used technology, materials, etc., in the learning process. Add specific details to illuminate your vision. You may include one or many examples as they apply.



Pseudonym Bella

Rendering Prompt

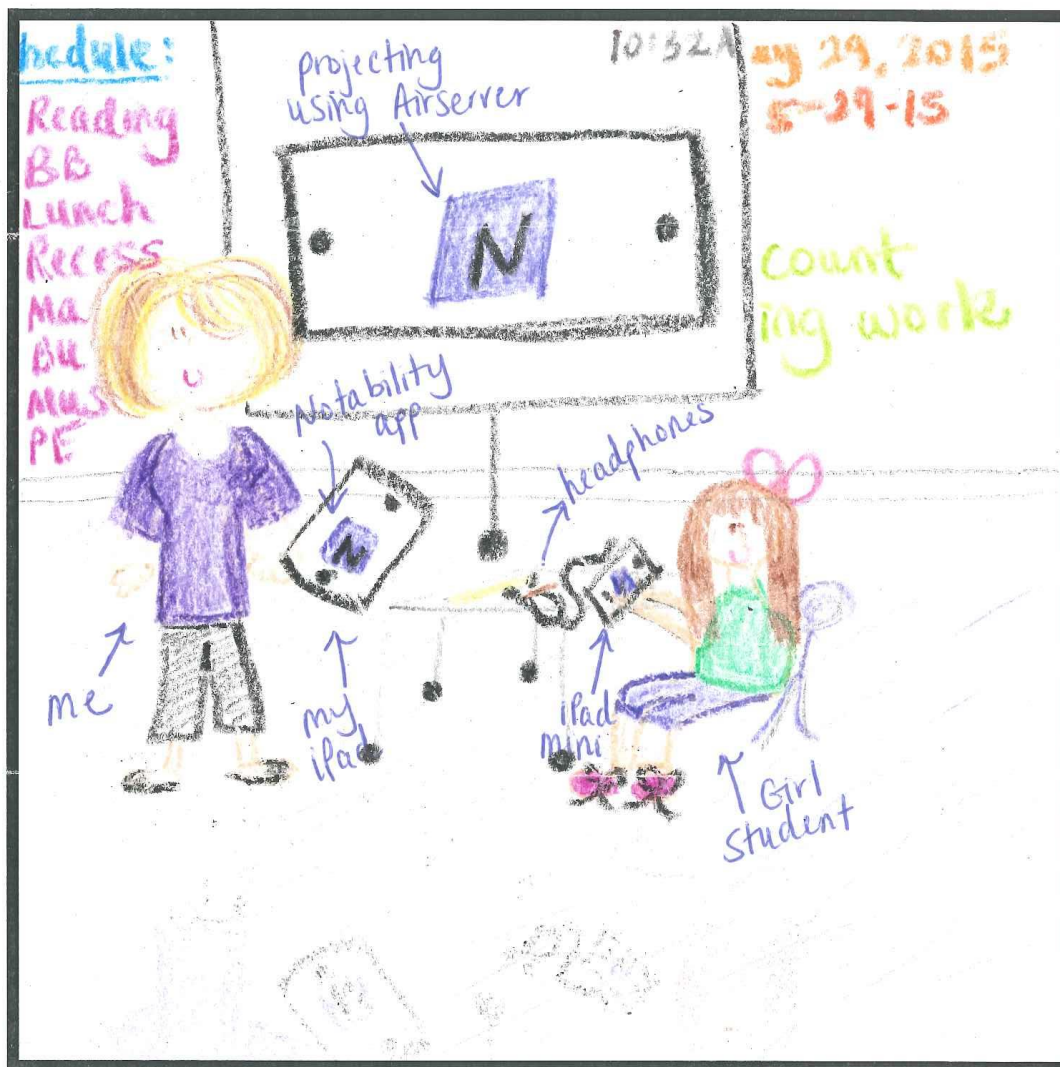
Prompt: I want you to begin to think about your current learning context. I would like you to create an illustration of yourself teaching with technology in your learning environment. Base your illustrations on ways both you and your students have used technology, materials, etc., in the learning process. Add specific details to illuminate your vision. You may include one or many examples as they apply.



Pseudonym Grace

Rendering Prompt

Prompt: I want you to begin to think about your current learning context. I would like you to create an illustration of yourself teaching with technology in your learning environment. Base your illustrations on ways both you and your students have used technology, materials, etc., in the learning process. Add specific details to illuminate your vision. You may include one or many examples as they apply.



*This is a drawing (don't laugh ☺) of myself teaching using 1:1 (iPad minis), and a student mirroring what I am doing on the projector screen.

APPENDIX G: TASK-BASED ANALYSIS MATRIX

Task-Based Rendering Prompt Data Collection Chart

	Teacher Position	Student Position	Devices Recorded	Method of Use	Other
P1- Anna 1.5 years	Front of the Room; computer lab	Computer stations are in rows and students are sitting looking forward toward the projector.	Projected image on screen; computer stations.	Teacher is teaching to the entire group using direct instruction method.	Participant Labels: “We do” and “You do”. Intro into webquest.
Interview Response	<p>So I am at the front after it is pulled down. And I have done like a split screen so I have had my computer screen up in front so I am walking them through the steps. So these are the instructions and this is how you are going to do it. Cause I did this, posted this webquest to Google Classrooms um so we are going through and once you get into Google Classrooms here is what you click, here are your instructions, remember if you are not done you do not submit you exit out and it will save. I usually have shown what is expected and then they get on their computers and they complete it individually.</p> <p>Provided Follow Up Question about Google Classrooms</p>				
P2- Bella < 1.0 years	Front of the room using document camera	Some students are sitting at tables while most are sitting on the floor. Students are holding their books.	SmartBoard, projector, document camera.	Traditional, Direct Instruction	
Interview Response	<p>I am definitely going to need to explain this (Is drawing task rendering). Okay one way I use technology is and this is my Smartboard, I should just label it and this is my document camera. So one way I use technology is we do a lot of comprehension questions and a lot of my students especially my IEP students struggle with that more than anything. Um so I like to do that as a class. Cause it also opens up a good time for discussion, so I like to use my document camera and I sit here with it and write the answers and talk about it because it is displayed up there. I have the kids come up to the center of the circle you know the room. Some of them like to sit at their seat. If they are close enough to see. And we will talk about that as we right up there. So it is really good for a reading lesson.</p> <p>Provided Follow Up Question about how else do you use the document camera?</p>				
P3- Elena 5.0 years	Shows teacher working in two possible positions. Teacher at IWB; teacher at kidney table	Students are in three locations. Sitting on carpet, looking a board with teacher directing; Teacher leading a guided reading group; students sitting and working at	Interactive White Board, Teacher iPad, Technology Center (desktop computers)	Using IWB for direct instruction. Using resources on iPad during a lesson with flexible small group; tech	

		technology center.		center	
Interview Response	So I have a couple of different ways. So we do some whole group um with we have a Smart, interactive white board. It is not necessarily a SMART board, brand names and all that, I have had some trouble with it not working sometimes so plans have changed. We try to use it and I try to do it with I will either have something up there they can manipulate or move or I will have some kind of a game that we take turns playing them. They have to practice sitting and they have to be really quiet so they can come up and use the board. Those kind of things. Um again I said I use it for showing videos and those kind of things to help as some of my visual kids, music based kids who like those things. Then again I have my five computers for centers so it is kind of that and then I will use iPad with my small group up here (points to the kidney shaped table). I can't really trust them with one iPad and five people. That would be a bit of a sketchy situation.				
P4- Grace 4.0 years	Front of the room but is drawn to show close proximity to student and looks as if teacher could be positions more centrally in the room; teacher classroom	One student represented; sitting at a student desk.	Screen, Projector, Teacher iPad, Headphones, Student Mini iPad, Notability App	Teacher shows Notability app in use to instruct in front of the class. Student is using her mini iPad and looking at the same app.	Participant Caption: This is a drawing of me teaching using 1:1 iPad minis and a student mirroring what I am doing on the projector screen.
Interview Response	That I try and use um try and use technology with my students.so like she is on notability, I'm on Notability and I am projecting it on to the projector through air server. I, I, there are times that I go along with them and use technology with them and then there are times when they use technology by themselves. When they use it by themselves it depends on the setting. Added 2 Follow Questions. If it is for a center then they are probably doing the same thing. Um, because it probably based on a skill that I want them to do. So um. if they are doing by themselves it is very individualized and they know. I try and communicate with them about hey "okay, you know you still need to work on your addition" and so when I say, I try and I think it makes them feel oh she is just doing this for me. Oh, a lot of times when they use by themselves it is individualized um and to help them with whatever skill they need by themselves, just like a practice.				
P5- Kiefer 2.5 years	Teacher's Classroom; Teacher is sitting at a desk using a	Students are sitting on the floor watching the screen.	Projector, Teacher laptop, and screen.	Direct Instruction: Modeling	

	computer that is projecting onto a screen.				
Interview Response	Okay so my picture is basically the kids sitting around either, well right now they are sitting on the floor in my picture. But, they also might be at their desks working on something while I have something on the screen, with me on the computer presenting it. The other day I was on my document camera but that is hard to draw on one little desk. And they could be working on their own worksheets while we work on it together, that sort of thing. So it is very “me” lead at this point and that is why I want to move from this to when it is in their hands. There working and now I am talking to them about what they are doing but I want to see them work more on an individual level.				
P6- Lauren 4.0 years	Teachers’ Classroom; Teaching from the front of the room. Using a cart and document camera	Students are not drawn but inferred with open laptops on desks. Desks are positioned as pairs and in rows.	Document camera, screen, projector, 1:1 laptops.	Direct Instruction— Traditional instruction.	
Interview Response	This picture kind of shows a glimpse of my room, but more so the utilizing of the document camera. And the screen um even though we may not be using the Chrome book, every desk has a Chrome book because every student is 1:1. Um again it may not be utilized every day, and it may be something that sits in their desk depending on the lesson but sometimes it is may use every day for 5 minutes or 20 minutes. But it definitely a big part of their lives come to find out cause it is the first time they get to take them home every night and it is their big responsibility to charge them every night. Um so this is the first thing they have ever had with them. We have and carts we could utilize whenever and computer labs and what not. But this is their personal thing they get to pick the background they get to pick their Google thing, they get so it is a big personal thing and they get to keep it. Prompted questions about the 1:1 resource.				
P7- Payton 5.0 years	Shown in several locations in the classroom; Students and teacher using iPad with a green screen, Using the iPad mirrored with projector to display during instruction.	Students recording presentation in front of the green screen. Students working individually on iPad App –Kid Blog; Students working on iPads at a learning center, students sitting and watching lesson using the eBeam IWB conducted by the teacher.	eBeam 1:1 iPad Green Screen Kid Blog App Apple TV device Projector	Project Based Learning, Learning Centers, Direct Instruction Writing Workshop via blogging prompts	

Interview Response	<p>Sure, just let me get to look at it.[looks to find task-rendering] I have it right here. So my first thing, I already talked about the green screen videos so I will skip that. The other thing I would talk about is Kid Blog.I can quickly mention that again. Basically its um a safe um online journaling thing for my class, my students can log onto Kid Blog and they can journal about something for the day and hit submit. Then I have to review it before anyone else in the class can see it in the classroom. Once I hit okay all of my other students in the classroom can read it and comment on it. So it gives kids feedback on their writing so they can write for a purpose. When they know people are going to see it they are more excited to write. Again, my kids beg to to do Kid Blog all the time. We don't always have time to do it, but they enjoy it. It is something fun. Prompted more in-depth discussion on Kid Blog</p>				
P8- Sarah 5.0 years	<p>Teacher's classroom. Captioned by participant (self) Walking around facilitating students while they research their project.</p>	<p>Student are positioned around the room at various tables, some students are working on the rug. Students are sharing iPads while some work on a desktop computer.</p>	<p>Projector, Document camera, projector screen, iPads, desktop computer</p>	<p>Project Based Learning; students are working with a partner or small group researching their topic.</p>	
Interview Response	<p>And their job was to research a neighborhood. I gave them each a neighborhood. They picked one from the hat from a little bag. It was a surprise. They had to research and create a brochure on that neighborhood in groups. So they made brochures on the neighborhood. And I provide them with graphic organizers. At this point kids can't sit and research on their own and figure out what they need and what they need to do to get good information. You have to give them the right questions for them to get the answers that they are looking for They did. It was a guided sheet that had questions like: When was your neighborhood established? Who were the first immigrants that lived there? I taught them how to use YELP. What are some popular restaurants that you can find? They used Google Earth. Describe the neighborhood to me. Use Google Earth to see how it looks. So that is an example of a project that we did.</p>				

APPENDIX H: TRANSCRIPT SAMPLES

File Name: Participant #8 Sarah
Audio length: 00:36:08
Date Transcribed: 3/17/17
Skype Interview via mobile tablet

236 I: Alright so, they filled out a guide sheet? R: They did. It was a guided sheet that had questions
237 like: When was your neighborhood established? Who were the first immigrants that lived there? I
238 taught them how to use YELP. What are some popular restaurants that you can find? They used
239 Google Earth. Describe the neighborhood to me. Use Google Earth to see how it looks. So that is
240 an example of a project that we did.

Demonstrates
Unique Approach
of App.

241 I: I think that is great. That answers one of the other questions. Um talk about a specific lesson
242 that used technology? So you answered that one. [R: Perfect] Let me look over my questions
243 here.[pause] Um. You talked about your skill level and that did not really hold you back. And let's
244 see. You talked a little bit about this in writing, what do you think are the personal characteristics
245 a teacher needs in order to use or try using technology?

246 R: Well you definitely have to have patience. And you need to be adventurous and I think that is
247 what I am. I am not afraid to try something new. If it fails it fails and that is okay. I probably won't
248 do it again. Um because I think we are big on grit and perseverance at our school. But I do think
249 sometimes you need to be realistic with yourself. If something does not work with your classroom
250 and it was a miserable fail and you know you are like this program did not work. For me I am
251 constant and say that I am not going to try that again this year. Maybe you can try next year. So I
252 do think that you have to be honest with yourself, you are capable of what you can and cannot
253 do. And you have to be willing to do some kind of background work. I think like technology can be
254 messy, I don't think it ever works in your favor but the best thing to do is you should try it out
255 before you have your kids try it.

Patience
Adventurous
Welcome failure
grit → growth
mindset
Realistic
delay
postpone
honest

256 I: I like your statement that it is messy and you have to do your background work. It is a process. I
257 would completely agree with that.

Messy Forethought & work Reflection

258 R: And some of the time you just take on too much, that is what I have learned that I take on way
259 too much and that does not help because your kids are all over the place because you are all
260 over the place. So I have now realized. Yes, I want my kids to make videos and do all of these
261 awesome things and some of my kids make YouTube videos. You know I know they can do it.
262 But I don't have the right means and there are a lot of things that are required of us. So I am
263 confident enough to say that I am going to grow your research skills. I am going to make sure that
264 third grade taught you to be a good researcher and how to find great sources. And to me that is
265 okay. (I: yes).

Willingness
to do
background
work
Try
before
Students
try.

Substance / Process / Tech as tool

266 I: What kind of experiences did you have with technology as a preservice teacher? You talked a
267 little bit about what you were able to do in student teaching. Did you have any practicums or
268 internships before student teaching, or field placements? And what was your experience with
269 technology?

Great Reasoning Reflection for decision making.

File Name: Participant #8 Sarah
 Audio length: 00:36:08
 Date Transcribed: 3/17/17
 Skype Interview via mobile tablet

244 One of the things I got rid of were tests. Cause we are wasting too much time for this test
 245 studying for it so I said let's do a project.

Comment [KK58]: Value Added Decision

246 So now every single quarter we do a project based of a unit we had studied. (okay). And that
 247 incorporates technology, more research based technology.

Comment [KK59]: Instruction: FOCUS on Research

Add Technology to support the objective of becoming a good researcher.

248

249 So yeah we have not gotten to the point where we're creating slideshows or videos, or doing that
 250 but my dream is to get to that.

Comment [KK60]: Aspiring to a Goal or Future Project

251 I: So right now with your resources and what is doable technology plays the role of research? (R:
 252 yes). I would love to hear about one of your social studies projects that you had your students do.

253 R: Sure. Um so let me think. Well the one we most recently did.

Comment [KK61]: INSTRUCTION
 Content
 Pedagogy
 Technology as Appropriate
 ELEMENTS of TPACK LESSON

254 We learned about community and the neighborhoods in _____.

255 The question was What makes a good neighborhood? You know it gets a little bit controversial
 256 because _____ is very segregated and I think 3rd grade.

257 People may disagree with me but I think it is appropriate to talk about these kind of things. Oh, so
 258 when we had these discussions. One of the things that we talked about we learned about
 259 _____ neighborhoods and how neighborhoods change over time.

260 But the topic of immigration was really big. Cause many times especially in _____ these
 261 neighborhoods were based off of immigrants. The stores that we see, businesses, even you can
 262 really tell how this neighborhood is shaped by the people who live there. So that is what we
 263 learned about.

264 We focused on one neighborhood called _____ and how that has changed. It is very dominant
 265 Mexican American community in the city here. So we learned about that and we had great
 266 conversations learning about what makes a good neighborhood, what is an immigrant, and why
 267 do immigrants come here? You know we had those conversations.

268 And their job was to research a neighborhood. I gave them each a neighborhood. They picked
 269 one from the hat from a little bag. It was a surprise. They had to research and create a brochure
 270 on that neighborhood in groups. So they made brochures on the neighborhood. And I provide
 271 them with graphic organizers.

APPENDIX I: EXCERPT OF MEMO AND JOURNAL

Memo: Descriptive

Title: Elena Approach vs. Kiefer's Approach

Transcript: Elena/ Line 400; Kiefer/ Line 326

Date: March 18, 2017

Elena has many ways to 'carry on' with an effective lesson plan even if the technology fails. She has enough experience to know that if, what she plans to do does 'crash and burn' that all is not lost. She has a backup plan ready even if it is not written down. She possesses the confidence in her ability to use instructional time well even if it is not what she intended. She has a good grasp on the content along with the right resources at her fingertips. She also has practice reacting quickly to any situation. This circumstance with Elena makes contrast it with Kiefer's experience.

I think about Kiefer's struggle as a new primary teacher. He struggled to relearn the content, to plan ahead, to have control over the classroom, or understand the age of his students. As he told his story I could just see he was in survival mode. He admits he did not plan to be in first grade so therefore did not have the content knowledge he needed so he had to relearn it. He did not have a student teaching placement that let him experience having full control of everything. Because of that experience he had a difficult time with planning and even managing the everyday responsibilities in the classroom. Now that it is two and half years later he is confident as a teacher and reading add more technology to his lessons. It is interesting that he makes a point to say that anything he does add to his classroom needs to be meaningful and have purpose. "I don't want it to do it if it is a waste of time."

Thinks to think about...

Elena had an additional two year of experience than Kiefer. Also Elena went to a university that had a clear educational philosophy and all methods courses focused back to those core values. Time and experience make the difference.

APPENDIX J: THEME AND SUB-THEME LIST

Theme I: Fluctuating Context Undermines Quality of Practice

- Sub-Theme I.1--Transitions
- Sub-Theme I.2--Tensions
 - Pull Factors
 - Push Factors
- Sub-Theme I.3--Knowledge Gaps
 - Child Development
 - Content
 - Lesson Planning

Theme II: Dispositional Attitude a& Growth Experience Stabilizes Quality of Practice

- Sub-Theme II.1-- Dispositional Attitudes
 - Enjoyment of Learning
 - Willing Spirit
 - Personal Responsibility
- Sub-Theme II.2-- Growth Experiences
 - Technically Skilled
 - Forethought and Preparation
 - Establish Personal Boundaries
- Sub-Theme II.3-- Reflective Analysis
 - Relinquishes Control-Fear
 - Selects Purposeful Activities yet Retains Flexibility

Theme III: Professional Support Network (PSN) develops quality of Practice

- Sub-Theme III.1--Preservice Professional Development
 - Educational technology course
 - Methods coursework
 - Using technology for learning
 - Field placements
 - Student teaching
- Sub-Theme III.2--FCMN Teacher Professional development
 - Induction
 - Self-Directed
 - Reoccurring

Theme IV: Relative Decision Making Enriches Quality of Practice

- Sub-Theme IV.1—Factors
 - Teacher Benefit vs. Student Benefit
 - Value Diminished vs. Value Added
 - Low Awareness vs. High Awareness

APPENDIX K: EXCERPT OF AUDIT TRAIL

Date	Task	Notes
February 15- March 1, 2017	<ul style="list-style-type: none"> • Sent 15 more emails looking for possible participants. • Follow up with participants that contacted me with interest to participate in the study. 	<ul style="list-style-type: none"> • I contacted former students in a variety of locations. I heard back from 10 individuals. • Sent out consent form information and communicated the steps of the study.
March 3, 2017	<ul style="list-style-type: none"> • Interviewed Bella • Listened to Bella's Interview 	<ul style="list-style-type: none"> • Onsite 3:00PM
March 4, 2017	<ul style="list-style-type: none"> • Started Transcribing Bella's Interview 	<ul style="list-style-type: none"> • Thank Goodness for Spring Break
March 5, 2017	<ul style="list-style-type: none"> • Transcription--Bella 	<ul style="list-style-type: none"> • With little experience, I am not sure I got what I needed with this interview.
March 6, 2017	<ul style="list-style-type: none"> • Interviewed Elena • Listened to Elena's Interview • Finished Transcription--Bella 	<ul style="list-style-type: none"> • Onsite 3:00PM • Longer- It will take me longer to transcribe than Bella's.
March 7, 2017	<ul style="list-style-type: none"> • Sent Member Check – Bella • Journal/Memo -Bella 	
March 8, 2017	<ul style="list-style-type: none"> • Started Transcription- Elena 	
March 9, 2017	<ul style="list-style-type: none"> • Interviewed Anna • Interviewed Kiefer • Listened to Anna & Kiefer's Interview 	<ul style="list-style-type: none"> • Onsite 9:30 AM –Used a back-up recording device. • Onsite 12: 30 PM
March 10, 2017	<ul style="list-style-type: none"> • Transcription- Elena 	<ul style="list-style-type: none"> • That one took a long time. I am going to have to shift to one interview per weekend. Spend time during the week rereading transcripts.
March 11, 2017	<ul style="list-style-type: none"> • Transcription- Elena 	
March 12, 2017	<ul style="list-style-type: none"> • Transcription- Elena • Sent Member Check to Elena 	