A Little Birdy Told Me: Educators’ Experiences with Twitter as a Professional Learning Network

Valerie King

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A Little Birdy Told Me: Educators’ Experiences with Twitter as a Professional Learning Network

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Kennesaw State University

September 30, 2017

A Dissertation Presented in Partial Fulfillment of the Requirements for the Degree of Doctor of Education in the

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Dedication

“She believed she could, so she did.”

— R.S. Grey, Scoring Wilder

While this is the easiest part of my dissertation to write, it is certainly the most difficult emotionally. How do you put into stark text a thank you for the love, the support and the encouragement you have received from family and friends to complete a body of work such as this? First, my precious family, Robbie, Chloe and Rory. Robbie, you have always paved the way for me to follow my gypsy soul and do what sometimes seems challenging or downright irrational. You have always been my cut man, and this project proved the same. Thank you for letting me pursue this passion. We did it! Chloe and Rory, I was probably less present and more irritable during this process. You were always there whether it was a cup of tea, a back rub or a funny comment. You all picked up the slack while I was working away and never once complained. I hope you have learned the value of education in watching me. Now you all have your wife and momma back! My precious mother and father. So many times in this journey when I wanted to quit, I remember 1989 when I left Georgia Southern and said, “Don’t worry, I will go back to school one day.” It was then this dream was lodged into my heart. You have supported me emotionally, financially and spiritually. Thank you for always believing in me and never giving up on me, even when I wanted to! My friends, Monica, Cindy, Kendra and Dawn. You probably don’t know how often just your presence carried me. If it was a text or a, “you can do this” at just the right time, I am thankful. You all inspire me as an educator but as a human being, more importantly. I could easily list a dozen other names of people that ensured I was moving forward, even just a little bit. To my work colleagues, my “Littles,” my administrators—and my very own Twitter professional learning
network. I am proud to stand shoulder to shoulder among you. This body of work is dedicated to all of you.
Abstract

This study reveals educators’ experiences with using Twitter as a professional learning network. The context of this study is framed by the notion of ubiquitous learning woven into the underpinnings of social learning theory, adult learning theory and connectivism. Current traditional professional learning does not adequately address the needs of today’s educators. There is growing evidence to suggest that teachers are more isolated and lacking the collaboration necessary to encourage and sustain best practices in the classroom. This research investigates the topics of traditional professional learning, online learning and social networks to lead to a keen understanding of the nuances and pitfalls of teacher learning and how Twitter can remedy some of the drawbacks of traditional professional learning. Chapter one provides an introduction inclusive of the researcher’s personal connection to the research topic, the research problem, the research questions and highlights the purpose of the research and the significance to the field. In addition, the organization of the study and a review of relevant terms is noted. Chapter two of this study conforms the review of the literature for this research including the theoretical framework and the topical strands that support the research. In chapter three the researcher discusses the detailed methodology ascribed to for the study. Through a narrative that captures educators’ voices, chapter four details the findings of this research. Chapter five are the conclusion, limitations and implications for further research in this context.

Keywords: adult learning theory, collaboration, educator isolation, educator self-efficacy, professional learning, professional learning network, social learning theory, social networking, Twitter, ubiquitous learning
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Chapter One

Introduction

The ever changing face of education perpetuates the need for educators to evolve. Much of this evolution must be derived from professional learning experiences. In fact, Darling-Hammond (2003) purports “In all schools, regardless of school wealth, student demographics, or staffing patterns, the most important resource for continuing improvement is the knowledge and skill of the school’s best prepared and most committed teachers” (p.3). Yet, while researchers find that upwards of 90 percent of teachers participate in professional development, a large majority of those same teachers share that the experiences are totally useless (Darling-Hammond et al, 2009). This stark data would suggest that education as an autonomous profession further begs that educators must find their own niche when it comes to professional learning. Although there is not a panacea for improving all educator professional development, over the last decade, the groundswell of social media is a popular growing solution. Educators now have the opportunity to voluntarily participate within a single professional learning network or multiple professional learning networks that are accessible on demand, personalized and gratis. The marriage of social media, professional development and professional learning networks are expunging the “one-size-fits-all, sit-and-get professional development” (Killion, 2011, p.4) context and replacing it with a vibrant, individualized and purposeful framework. This dissertation outlines the researcher’s personal connection to the research topic and research problem, identifies the research questions and highlights the purpose of the research and the significance to the field. Furthermore, this dissertation frames the local context of the study and illustrates and explains the conceptual framework used to support the research. In addition, the organization of the study and a review of relevant terms will be noted. Subsequent chapters of this dissertation will conform the review of the literature for this research, the detailed methodology ascribed to for the
study, share the findings of the study and discuss the conclusions, limitations and implications for further research in this context.

**Personal Connection with the Research Topic**

I am an educator. Self-directedness, as a tenet of adult learning theory, has been paramount to shaping my professional learning and pedagogy. Whether it is reading trade books to blogs to seeking out relevant conferences, symposiums and workshops, I have continually sought out my own learning. However, this is not the case for many educators who simply crave the camaraderie of other educators sharing their stories and their knowledge in a collaborative fashion. In fact, a recent MetLife Survey of the American Teacher (2012) reveals that teachers with less time to work with colleagues are less satisfied than teachers who have the luxury of collaborative time.

I have been that educator who has sat in a stark environment as a recipient of professional learning that has no relevancy whatsoever to my true role in my classroom. I have been that educator who listened to enthusiastic presenters who have never stepped inside a classroom, share their wares, for lack of a better term, on a stage to other captive educators who do not question the content. I have also been that teacher who has been a part of a team who, sadly, thwarts the passion, innovation and creativity that I personally possess. Reflecting on professional learning for educators, how many times is the phrase, “delivering professional learning” suggested? The semantics alone imply a passive sit and get context. It has been these experiences coupled with my personal interest in the phenomena that is social media that has nudged me to focus on the value of Twitter as a professional learning network for educators as my research topic.

Maxwell (2008) discusses three types of goals associated with a qualitative study. He proffers that researchers are stimulated by personal, practical and intellectual goals. It is a
marriage of these three goals that drive my interest in this research. I am motivated to engage in this research after witnessing the shaping of my own professional and practical learning through using Twitter on a regular basis. Participating in weekly Twitter chats, establishing a strong online professional learning network through Twitter and engaging in professional discourse have revealed an exciting context for educators to become a part of a passionate and collaborative collegial group. It is the intellectual nature of discerning why there is such a growing allure to this that motivates me. Admittedly, my interest in studying this topic may influence my thoughts about the topic and will be discussed within the limitations section of the study. For example, my involvement with Twitter as an educational learning platform has been quite positive. Similarly, my involvement has made me begin to look for loopholes and what could potentially be negative effects of using Twitter. Lastly, the interaction I have had with educators all over the world who use Twitter has shed light on defining the educational character of the people that will be involved in my study. In short, I have become inculcated with the belief that connected educators are different and the platform many are using, Twitter, is powerful.

Problem Statement

Now more than ever, schools need to hire, nurture and maintain a strong cadre of teachers. The nation as a whole employs approximately 3.1 million teachers. The trend of teacher attrition, as noted by Ingersol & Perda (2010), is staggering. Upwards of 50 percent of teachers are leaving the profession within the first five years. Similarly, the National Commission on Teaching and America's Future (2007) proffers stark numbers, estimating that one-third of all new teachers leave after three years, and 46 percent are gone within five years. The implications of these numbers are vast.

The National Center for Education Statistics (2015) details key aspects of teacher attrition. Educators are frustrated with the churning out of new standards, new curricula being
glossed over and continually higher standards expected, void of little if any training and support. Teachers are frustrated by overcrowded classrooms, the stress of meeting demanding standardized testing, and pedagogical expectations of differentiation and inclusion (Hargreaves, 2003). DuFour, Guidice, Magee, Martin, & Zivkovic (2002) even suggest that educators do not have the inspirational camaraderie of a supportive community. Coupled with this is the notion that educational organizations spend less than a half a percent of the budget, on average, for professional learning opportunities (Darling-Hammond, 2013). These data would suggest that educators, therefore, need other educators in a context where time is almost suspended, the training and support are differentiated and the cost is zero.

Professional learning for educators is a mandate, it is part of the culture of schools. Vitala (2016) suggests, “The traditional, top-down, mandated professional development events fail to allow teachers to direct their own learning and sufficiently satisfy the needs of educators as learners” (p. 14). Boule (2011) similarly suggests that traditional learning opportunities for educators do not meet their learning needs. As mentioned, over 90 percent of teachers report having participated in professional development but the majority also report that it wasn’t useful (Darling-Hammond et al., 2009). This is because most development happens in a workshop-style model which has little to no impact on student learning or teacher practice (Darling-Hammond et al., 2009). Current research has shown that one-time workshops that are typically outside the context of a school seldom align with ongoing practice and do not reliably lead to improvements in teaching and learning (Loucks-Horsley & Matsumoto, 1999). From timely access to a multitude of diverse resources, advice and support to interfacing with experts in a particular field or simply engaging in dialogue with like-minded individuals, Twitter has merit to morph traditional learning for educators. Simply put, teachers want choice for their learning, personal and professional lives are heaving with obligations that deem personalized access alluring and school districts are
lumbered by budget constraints. Twitter offers solutions to each of these requests and its usefulness is exploding. With the popularity of social media, research in this area is crucial to understand the marriage between professional learning and Twitter.

The true value of educators involved in professional development is to facilitate student achievement. Some research suggests that educator professional learning expands educators’ knowledge (Learning Forward, 2011). This notion assumes the only challenge facing teachers is simply a lack of knowledge of effective teaching practices. However, the most prevalent model of one-time delivery workshops have an abysmal track record for actually changing teacher practice to impact student achievement. (Yoon et al, 2007).

With the aforementioned as a litmus test to educators’ professional learning, it would seem necessary to seek out every opportunity for educators to develop and amplify their learning. While there is limited quantitative research that substantiates the power Twitter has with regard to professional learning and transformative teaching relative to student achievement, the qualitative data that is trending is positive. Skyring (2014) looked at various uses of Twitter to support professional learning and shares it is advantageous. While it may be more difficult to ascertain the true value of Twitter with regard to student achievement, it is anticipated that educators who use Twitter as a professional learning network will have a much more positive self-efficacy in their respective contexts, thus translating correlatively to increased student achievement. Thus, it is not the tool, Twitter, alone that creates the shift in educator experiences, but how the tool supports collaboration. In fact, it is moreover the features of professional learning, not the structure itself, that are proving the outcomes (Desimone, 2009).

Recent studies indicate that teacher collaboration increases collective efficacy, improves attitudes toward teaching, and fosters a greater understanding of students (Miller et al., 2010).
In short, the assumption can be made that educators that feel more positive about their profession and are surrounded by similar passionate, invested and innovative professionals, even in a virtual setting, are going to impact what is happening in their individual classrooms and their schools. This research will aid to continue the conversation about how to better educate educators in a differentiated, timely and free context.

**Research Questions**

Today’s educators often find themselves involved in required professional development that is time-consuming, unrelated to classroom context and costly; all without affect. Ball and Cohen (1999) support, “A particular target for criticism is the prevalence of single-shot, one-day workshops that often make teacher professional development intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented, and noncumulative” (pp. 3–4). There is a dilemma in truly understanding the totality of traditional professional learning. According to Kabilan (2005), orthodox models of professional development tend to be mandated, institution driven workshops that occur within the school building. Visser, Evering & Barrett (2014) concur that “conventional models of PD are typically mandated and institution driven” (p.397). Visser, et al (2014) continue to put forward that traditional models are “one-time events with little or no follow up” (p. 397). These truncated experiences included little or no follow-up involvement, and/or offered restrictive collaborative support (NCES, 2001). Aside from specific mandatory partial day or day long workshops there are self-selected, individual opportunities that a teacher may pursue (Wilson & Berne, 1999). Yet, even with a more authentic approach such as the latter, Lord (1994) believes that even these experiences are “happenstance, random and unpredictable” (p. 174). Although much of the research suggests that Twitter is perceived to be a positive experience with educators (Skyring, 2014, Carpenter & Krutka, 2014), there is scarce research to suggest what the specific experiences are and if these experiences impact
educators in their profession either pedagogically, through classroom practice or with collaboration and self-efficacy. According to Stake (2010), the question driving the study should be of primary importance. Specifically, my research will investigate the following:

1. Does Twitter, used as a professional learning network, impact educators’ self-efficacy and educators’ collaborative experiences? If so, what kinds of experiences and feelings create this impact?
2. Do educators’ experiences through Twitter as a professional learning network impact classroom practice and pedagogy? If so, what kinds of feelings and experiences create this impact?

**Study Significance**

This body of research as manifested through the lens of educators who are experiencing innovative professional learning through the use of the Micro-blogging service, Twitter, will add to the discussion the value of professional learning that is driven by choice, collaboration and self-reflection. The nuances that will be explored through this research include the transformative nature of Twitter as a professional learning network; the specific alterations to pedagogy of educators that utilize Twitter as a professional learning network; the self-reflective growth of educators that engage with Twitter as a professional learning network and the ease of the isolation stance that educators often feel due to the lack of specific, collaborative and supportive professional learning.

Professional learning for teachers has been a source of constant lamentation in the profession. Much research suggests that the transformative expectation of teacher learning is not happening. From a practical, operational standpoint, educational professional learning experiences tend to be singular occurrences with no follow up accountability and are fiscally challenging in a time where school budgets are often under scrutiny (Master, de Kramer, O’Dwyer, Dash & Russell, 2010). Teachers protest that the topics covered during many
professional development experiences are “disconnected from practice” (Schlager & Fusco, 2003, p. 95) and do not enhance the participants’ toolbox of skills, resources or pedagogy. Even more profound is Guskey (2009) who reports conventional professional development often fails to be an observable impact to student learning.

Teachers remain isolated. The cost of professional learning leaves some teachers without support entirely and the content of the learning is often irrelevant to teachers’ roles in the school (Darling Hammond, 2013, Williams, 2005; Knight, 2000; Carpenter, 2015; TNTP, 2015). Interestingly, as of the fourth quarter of 2015, the micro-blogging service, Twitter, averaged at 305 million monthly active users, Statista (2016) reports. Out of the half billion tweets that post every day, 4.2 million are related to education. Through the use of online learning, teachers have at their fingertips, quite literally, a global network of educators that are willing and eager to grow in the profession. Various theories of learning such as Social Learning Theory, Connectivism and Adult Learning Theory suggest that learning occurs in a social context. Vygotsky (1978) believed that learning could not be separated from social context. By its nature, Twitter is a social experience. While describing teachers’ experiences with Twitter as a professional network and analyzing the experiences as they relate to self-efficacy and classroom practice, this study has the potential to further the conversation about innovative professional learning that can impact individuals. At the least, my study has the potential to suggest that educators’ learning through Twitter as a professional learning network supports the ideas embedded among adult learning theory (Knowles, 1984). This includes adult learning that is self-directed, transformative and connective. This research will further glean information about the importance of adults (educators) planning and evaluating their own learning and the necessity for learning relevant to their profession. Thus, applicable actions with regard to more impactful professional learning can be recommended.
Context

The conducted study focused on the experiences of four educators who consistently and with fidelity utilize Twitter as a professional learning network. The informants were selected based on their participation in Twitter chats designated as #tlap, #satchat and #makeitreal. These chats were selected as criteria due to their large educational following and consistent presence in Twitter. The decision to use participants of these Twitter chats is not nebulous. A nuance of Twitter as a professional learning network is that it affords a level of motivated, self-direction from the educators that use it. Vitala (2016) suggests that it is in fact Twitter that is a hub of a multitude of professional learning choices. “Twitter was the tool through which participants said they learned of upcoming opportunities, shared learning from other informal PD, encouraged colleagues to participate in other PD, and provided links to learning opportunities outside of Twitter, such as edcamps, Edmodo groups, blogs, and podcasts” (Vitala, 2016, p. 134). These three Twitter chats have a cohesive, consistent following as is evident by the analytics and subsequent open coding through Follow the Hashtag. By simply entering the aforementioned hashtags #tlap, #satchat and #makeitreal into Follow the Hashtag (http://analytics.followthehashtag.com/#/) a personalized dashboard is revealed that shares specific information with regard to total audience, total tweets and total contributors within a specified date range. In order to understand authentic experiences, both positive and negative of Twitter users, it is necessary to learn from educators who are actively using the tool. Thus, the necessity of Follow the Hashtag as a sourcing tool. This is further discussed within the methodology section of this paper.

Although the focus of the study is on the informants’ experiences, a mini-case (Stake, 1995) is also presented. A mini-case is a case that is embedded within the greater case in order to provide an additional object of analysis. In this case, a supervisor is interviewed to
share insight through a third person perspective about his staff’s use of Twitter and the challenges and celebrations associated with it. The data gathering in this context will rely on individual interviews, two focus groups and subsequent coding of interview notes and researcher memos using Atlas.ti. A reliance on Follow the Hashtag (http://www.followthehashtag.com) will allow for tweets from informants to be captured as continual member checking. The research questions frame the issues of the case. Using these questions as a lens, content topics of teacher self-efficacy, applicability of pedagogical knowledge gained through Twitter, an understanding of traditional professional development vs online professional development and reasons for teachers to use Twitter as a professional learning platform will be gleaned.

**Conceptual Framework**

Ravitch and Riggan (2012) suggest that the conceptual framework within a body of research is a “dynamic meeting place of theory and method” (p. 141). For a researcher, great consideration must be given to existing theory in order to consider what literature is vital to the study. The conceptual framework for the study (Figure 1 Conceptual Framework) illustrates the relationship between the theories of learning and the topical research that will frame my research. Ravitch and Riggan (2012) state that a conceptual framework aligns the entire research process (p.6). Ravitch & Riggan (2012) further suggest a conceptual framework is defined as an argument about why the topic of a study matters, and why the methods proposed to study it are appropriate and rigorous (p. 7). Ravitch & Riggan (2012) put forward that there are three distinct components of a conceptual framework. These components include the researcher’s personal motivation for the study, the topical research or the “what” of the study and the theoretical framework, that is the “how” and “why” of the study. What follows is a brief discussion of the connections between existing theories.
Although a relatively new paradigm in education, ubiquitous learning (Cope and Kalantzis, 2009), or the notion of learning anytime anywhere as afforded with digital media (Cope and Kalantzis, 2009) is the ultimate convergence and support of the noted learning theories with regard to educators’ professional learning. Cope and Kalantzis (2009) suggest that the marriage of technology and learning create a way to do things better. Similarly, advancing technology is deemed the outgrowth of social needs. After all, it is the idea of ubiquitous computing that is transforming into ubiquitous learning. However, in a learning context, more prevalent than the technology medium itself are the innovative ways that learning and construction of meaning is developed, stored, shared and retrieved with the aid of technology. A ubiquitous learning context is complementary to adult learning theory.

Looking more closely at adult learning theory, or “andragogy” (Knowles, 1980), the research reveals the components of learning as being self-directed, transformative and currently, through the use of technology, connective. The social expectations of adult learning theory complement social learning theory and utilized within an individual’s practice help to develop critical literacy. With this particular study, the innovation of using the World Wide Web to invest in professional learning gains importance when the theory of connectivism (Siemens, 2005) is introduced.

It is important to define and dissect current traditional professional learning as it relates to teachers’ experiences, while at the same time define current professional learning through social networking. As the theories contest, collaboration and learning in a social context is paramount, therefore pitfalls in professional learning that may impact this must be identified. Through studying the traditional methods of professional learning and the failures of this context, merit will be added to my study. The milieu of my study is in an online environment. Accordingly, researching online learning, social networking and the specifics of Twitter is a necessity.
The literature review in chapter two suggests that the relationship between social learning, adult learning theory and connectivism are underpinnings that support relevant topics with regard to educators’ experiences with Twitter as a professional learning network. After describing the research on the various theories, chapter two will focus on current trending topics. The relationship of the tenets of the theories coupled with the practicality of the topics will further support the importance of this study.

**Review of Relevant Terms**

The following are relevant terms and their meanings as they relate to this study:

**Connected Educator** – a general term used to describe educators who seek out individualized professional learning through networking using online tools such as Twitter (Whitaker & Zoul, 2015).
Hashtag (#)-a word or phrase preceded by a hash or pound sign (#) and used to identify messages on a specific topic.

PLN- PLN is an abbreviation for a personal (or professional) learning network. This term is commonly used amongst connected educators, or educators who regularly use tools like social media to network and learn with others.

Professional Development- professional development may be used in reference to a wide variety of delivery of some kind of information to teachers in order to influence their practice suggesting a more passive approach to knowledge acquisition

Professional Learning- professional learning may be used in reference to a wide variety of specialized training, formal education intended to help administrators, teachers, and other educators improve their professional knowledge, competence, skill, and effectiveness.

Professional learning suggests a more active, collaborative approach to learning involving an internal process (Timperley, 2011).

Twitter- Twitter is an online, social micro-blogging platform that allows users to send public messages, or tweets, up to 140 characters.

Twitter Chat- A Twitter chat (or tweet chat) is an online discussion using Twitter.

ATLAS.ti Terms

Codes Primary Document Table- a table which can be created to show the frequency of codes across documents.

The Co-occurrence Explorer- Allows the researcher to ask ATLAS.ti which codes co-occur in the margin area.

Families- A way to form clusters of Primary documents (PDs), codes, and memos for easier handling of groups of codes, memos, and PDs.

Hermeneutic Unit (HU)-This provides the data structure for a project in ATLAS.ti.

It holds all documents and memos.
Network Views - This tool allows connects similar elements together in a visual diagram to express relationships between codes, quotations, and memos.

Primary Documents (PD) - Documents collected

Query Tool - This tool is used to formulate search requests that are based on combinations of codes.

Scope of Query - Allows a researcher to search only the PDs requested.

Organization of Study

Chapter one has presented the introduction, shared the researcher’s personal connection to the research, stated the problem the researcher is invested in, highlighted the research questions, commented on the significance of the study, described the local context for the study, illustrated and discussed the conceptual framework for the study and illustrated relevant terms. Chapter two will contain the review of related literature and research related to the problem being investigated. The review will focus on the intersection of the study’s theoretical framework and the topical research. The researcher will discuss the theories of social learning, adult learning theory, andragogy, self-directed and transformative learning and connectivism as manifestations of ubiquitous learning. Similarly, the researcher will discuss the main topic of professional learning; from its history, to the traditional and online implementation. Within this review the researcher will suggest failures of traditional professional learning. Furthermore, this review will investigate teacher isolation, not as a fallacy of professional learning, but as an impetus for establishing professional learning that combats educator confinement.

Lastly, through this lens, the researcher will discuss existing research regarding social networking, and specifically, Twitter, with a focus on critically reflective educators and how the convergence of the theory and topic support that idea. Twitter as a tool, encourages
educators to become critically reflective of practice and pedagogy. It is not a passive tool, for even Whitaker and Zous (2015) suggest that the power in Twitter lies within the receiving and giving of learning. As well, according to Larrivee (2000), when teachers become reflective practitioners, they shift from learning simple skills to integrating the knowledge into context specific needs allowing innovative practice to emerge.

The methodology and procedures used to gather data for the study will be presented in chapter three. The results of analyses and findings to emerge from the study will be contained in chapter four. Chapter five will contain a summary of the study and findings, conclusions drawn from the findings, a discussion, and recommendations for further study.
Chapter Two

A Review of the Literature

Introduction

Teacher learning is a vast field. Ask any teacher about his or her professional learning and the experiences will run the gamut of descriptions. Even the literature surrounding educators’ professional learning casts a wide net as to what might be included. To understand research in the field of professional learning, this chapter aims to do several things. In order to emphasize the current need for more innovative professional learning, this chapter will highlight the historical journey of educator professional learning and provide an operational definition of professional learning for teachers. Due to the plethora of inclusive ideas of what professional learning is, this chapter will focus on the characteristics of professional learning and highlight the challenges current research suggests are abound with traditional professional learning.

Furthermore, this chapter will continue to further define professional learning through the use of Twitter by discussing social networking and the marriage of the two constructs. Replete with the definitions and characteristics of both traditional and online professional learning, this chapter will also share current critical thoughts about teacher isolation and how the collaborative and critically reflective expectation of professional learning through Twitter combats this issue.

Lastly, this chapter will look keenly at the state of adult learning with the companion of technology by sharing the ideas behind a new paradigm in education, ubiquitous learning. Within that discussion, existing theories of social learning, adult learning theory and connectivism will provide the key theoretical structure that stresses the importance of the existence of professional learning for educators as well as the necessary considerations for professional learning supported by these theories. Through an extensive look at current
literature, this chapter will marry the prevalent work on the topic with existing theoretical framework to frame the research idea and the questions derived for this study.

**Professional Learning**

On December 10, 2015, President Obama signed into law the Every Student Succeeds Act, the reauthorization of the Elementary and Secondary Education Act. It was through this legal maneuver that a legal definition of professional learning within federal policy came to fruition. This law in its entirety is noted in Appendix A. Interestingly enough, even with this comprehensive, inclusive definition, Learning Forward (2015), the sole professional association devoted exclusively to those who work in educator professional development suggests that even this is not enough. Although the cumbersome definition is aligned to Learning Forward’s (2016) professional learning standards, there is some heartburn regarding the language of the law and the suggestions it provokes. For example, the phrase in the introduction of the legislation, “Professional development means activities...” (Paragraph 1) supposes that professional development does not necessitate a continuous learning journey. Similarly, the legislation continues with this phrase: “Professional development ‘may include activities that...’ followed by a long list of professional learning elements, experiences, and topics. The notion that professional development “may include” certain things also leaves the door open for certain things to not be included, depending on the context; while at the same time leaving liberal room for educators to make decisions necessary to differentiate the needs in their specialized context. Learning Forward (2015) states several considerations that they feel are necessary to imply with regard to the legislation including evaluating the impact of professional learning, ensuring a visible cycle of continuous improvement, defining the professional roles and responsibilities for educators and intentionally addressing the changes in practice. Professional learning does not end with a definition. Obviously the planning, facilitating, sustaining and evaluating are also important considerations. It is a cumbersome
task, whereby even legislation cannot encircle every detail necessary to ensure professional learning success. The same is true in the field of research surrounding professional learning. There is a similar discord with defining something as nebulous as professional learning.

According to Cooper (2000), Teachers are positive about all opportunities to learn. They know they often need assistance in improving their instruction and welcome any opportunity to do so. Professional learning is not going to be eliminated, however, understanding the current context of professional learning and professional development is important in order to substantiate the significance of this research. Desimone (2009), describes professional learning as “any activity that is intended partly or primarily to prepare paid staff members for improved performance in present or future roles in the school districts” (p.182). Professional development is defined by Guskey as the “processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students” (p. 16). Thus, professional development is comprised of collective professional learning experiences.

Within these experiences, there are specific expectations. Hunzicker (2010) generalizes that effective professional development needs to be supportive, job-embedded, instructionally focused, collaborative and ongoing. Abdal-Haq (1995) suggests a more specific list of eleven agenda items that support effective professional learning.

Abdal-Haq (1995) puts forward:

That professional learning is ongoing, includes training, practice, and feedback; opportunities for individual reflection and group inquiry into practice; and coaching or other follow-up procedures; is school based and embedded in teacher work; is collaborative, providing opportunities for teachers to interact with peers; focuses on student learning, which should, in part, guide assessment of its effectiveness; encourages and supports school-based and teacher initiatives; is rooted in the
knowledge base for teaching; incorporates constructivist approaches to teaching and learning; recognizes teachers as professionals and adult learners; provides adequate time and follow up support and is accessible and inclusive. (p.1)

This is not just educational rhetoric. Reich, Levinson & Johnston (2011) suggest that professional development should allow educators to learn from each other as they interact in both reflection and action. King (2011) and Reich et al. (2011) purport that the most influential professional learning experiences are continual. One can imagine the learning utopia for teachers if these characteristics were the stronghold of each and every professional learning experience. While professional learning of any context is critically important to realizing school improvement and student achievement gains, there is an apparent disconnect in the idea of professional learning and the implementation of the experience. Borko (2004), Loucks-Horsley and Matsumoto (1999) and Supovitz (2001) all agree that illustrating how professional development translates into gains in student achievement exists with tremendous challenges, even with an instinctual and common-sense connection. While there is demand for high quality professional development there remains a shortage of such programs. (Garet, Porter, Desimone, Birman, & Yoon, 2001.)

**Criticisms of Professional Learning**

Aside from the shortage of programs, further criticism reigns with regard to professional learning in education. Among the criticism, Knight (2000) discusses the “historical belief that professional development is impractical” and a “resentment about the top-down decision-making” (p. 10). Another reproach of educator professional development is the prevalence of “single-shot, one-day workshops that often make teacher professional development intellectually superficial, disconnected from deep issues of curriculum and learning, fragmented, and noncumulative” (Ball & Cohen, 1999, pp. 3–4). Professional development represents a “patchwork of opportunities—formal and informal, mandatory and
voluntary, serendipitous and planned” (Wilson & Berne, 1999, p.174). It is through this critical lens that one begins to see the fallacies of professional development and why an innovation is necessary.

Teacher knowledge is a fair, assumptive, but expected outgrowth of professional learning. Yet, Joyce, Showers & Rolehiser-Bennett (1987) illustrate that professional learning when implemented within a traditional construct, has limited effect on increases in teacher knowledge, skills or changes in classroom pedagogy (Desimone, 2009). Showers and Joyce (1996) share that only ten percent of the participants in professional learning programs actually transfer information acquired in workshop sessions into their classrooms. As a complete process, the very characteristics that make professional learning impactful are missing from most of the traditional professional learning framework. Reich, Levinson and Johnston (2011) share that professional learning should be ongoing, dynamic and flexible. Reich et al. (2011) further contend that professional learning should provoke educators to engage in interchanges of reflection that leads to action.

Beach (2012) summarizes that:

Effective professional development is flexible, provides sustained follow up, includes ongoing coaching, engages teachers in active learning experiences with teaching methods, focuses on integration of specific subject matter content, involves reflection on instruction and beliefs, fosters collaboration with colleagues, an examines the impact of instruction on student outcomes (p. 256).

Given the known entities that should drive professional learning, based on the current research there is a definite lack of implementation of the consistent constructs to prove traditional professional learning has substantial merit. In fact, even Desimone (2009) argues that looking at central features of teacher experiences is paramount to measuring teacher learning.
It is not simply the negative commentary that educators share regarding traditional professional learning, or the struggle with researching the exact impact educator learning has to classroom application that encourage the need for innovative approaches to professional learning. The additional barriers of time and limited financial resources create further challenges with regard to planning and implementing professional development experiences that lead to fruitful professional learning. Time is a resource and "time, or more properly lack of it, is one of the most difficult problems faced by schools and districts" (Watts & Castle, 1993, p. 306). This problem is a significant issue for educators that wish to collaborate. Watts and Castle cite it as an issue when it is not abound while a supportive factor when it is present.

The conventional planning and implementation of educator professional learning is also expensive. Even with much scouring of data, the true cost of total professional development at the district and state level is often unspecified. However, Hess (2013), suggests that the itemized listing of staff development totals of $3,000-$5,000 annually per teacher doesn’t often include real cost considerations such as salaries, facilities, fees, substitutes, stipends, materials, travel, and equipment. Hess (2013) continues to note that, “taking all this into account, staff development studies estimate costs of $8,000-$12,000 per year per teacher” (Hess, 2013). Thus, one would argue that a more informal approach to professional learning should be implemented. An informal approach embedded with characteristics that label the experience as effective and can quash the challenges of a conventional approach is a strong consideration. One such approach gaining attention in the area of qualitative research surrounding educator professional learning is the system of interpersonal connections and resources known as a professional learning network.
Professional Learning Communities

Professional learning communities (PLCs), historically, have not had a universal definition. However, Stoll, Bolam, Mcmahon, Wallace and Thomas (2006) suggest that a PLC is a group of people “sharing and critically interrogating their practice in ongoing, reflective, collaborative, inclusive, learning-oriented, growth-promoting way” (p. 223). Similarly, Astuto, Clark, Read, McGree and Fernandez (1993) share that a “professional community of learners” is one “in which the teachers in a school and its administrators continuously seek and share learning, and act on their learning. The goal of their actions is to enhance their effectiveness as professionals for the students’ benefit” (Hord, 1997, p. 24). This suggests the potential that a range of educators from outside their own school can have a mutually beneficial relationship with other educators from outside their own school. The National Commission on Teaching and America’s Future (2002) states, “The era of solo teaching in isolated classrooms is over. To support quality teaching our schools must support strong professional learning communities” (p. 13). Whereby professional learning communities are situated face to face, built of colleagues from a shared, daily environment with specific foci, professional learning networks thrive on being online, informal and open to a constant flow of newcomers (Kraft & Papay, 2012).

Professional Learning Networks

Professional learning networks (PLNs) are defined as systems of interpersonal connections, relationships and resources that provide a framework for learning (Trust, 2012). Flanigan (2011) describes PLNs as teacher-driven, global support networks that diminish teacher isolation and encourage teacher independence. These online communities create a platform for the sharing of lesson plans, discussion of teaching strategies, shaping of methodologies and provide an array of grade levels, departments and specific content areas for strong collaboration (Flanigan, p. 42).
Professional Learning Networks are not static. One of the exciting things about them is the connections do change and morph. One would assume that the traditional professional training teachers receive simply cannot compete with the fluidness of a professional learning network. To argue the time resource that is often lacking in a traditional professional learning context, because professional learning networks exist in a virtual context, they are nearly always accessible and can be entrenched in the teacher’s daily routine, which can ultimately lead to revolutionary practice (Beach, 2012; Bickmore, 2012; Lock, 2006).

Herrington, Herrington, Hoban & Reid (2009) agree that professional learning is paramount for teachers to grow in pedagogical knowledge and practice. They also argue that online technologies have many benefits including the flexibility and ability to expand quite exponentially. McNaught (2002) stresses the online approach to professional learning is advantageous as compared to a traditional professional learning context, especially with regard to the transcendence of geography and time. In addition, the nature of the experiences of educators participating in a professional learning network are profound. Hughes (2001), Shotsberger, Baker, Stammen, Vetter and Nelson (1997), and Rodes, Knapczyk, Chapman, and Haejin (2000) strongly suggest a rich context of self-directed learning is gained by educators involved in a professional learning network. Galanouli and Collins (2000) found in their study that a professional learning network promotes reflective and critical thinking. Bowman (2000) adds that through a professional learning network, teachers gain “a rich treasury of teaching ideas through the responses of group members to (their) own and others’ questions” and assisted them to solve problems in their teaching” (p. 18). Putnam and Borko (1997) four mantras about professional learning are easily married to a professional learning network. Putnam and Borko (1997) express that teachers should be empowered as professional, self-directed and active with their learning, situate themselves in a position of impacting classroom practice and interact with other educators in a respectable manner. This
could be the code for online professional learning. Progressing forward, as the field of education is resourced by the millennial generation, Baker-Doyle (2011) supports that it is these teachers who “are able to maintain long-term relationships outside their workplace through technology” (p. 31). The characteristics that deem a professional learning experience effective are consistent and more realistic when embedded in a professional learning network experience.

**Twitter**

Twitter, as a social networking tool, is “a service for friends, family, and coworkers to communicate and stay connected through the exchange of quick, frequent messages” (Twitter.com, 2016). Twitter encourages participants to collaborate through ideas, videos, links, images or a short 140 character tweet. As of the fourth quarter of 2016, the microblogging service averaged at 319 million monthly active users (Statista, 2017). Twitter is one of the most popular social networks worldwide. Part of the appeal is the ability of users to follow any other user with a public profile (Statista, 2017). As shared, out of the half billion tweets that post every day, 4.2 million are related to education, according to account executive at Twitter.com Brett Baker, as cited in Stevens (2014). Although this is a lofty amount, there are still educators out there not utilizing Twitter. While the use of Twitter as a professional learning network is contrary to traditional methods of professional learning, the theories and views that support professional learning have a comfortable seat within the “Twitterverse”

Professional learning through Twitter affords educators a self-directed, differentiated, collaborative experience. It requires educators to be motivated and have access to the digital technology, but recent numbers from [http://www.bandwidth.com](http://www.bandwidth.com) (2017) show 80% of active users access the site via mobile. Additionally, Twitter suspends the notion of time, place and eliminates the fiscal responsibility of professional learning.
Twitter allows for asynchronous and synchronous learning depending on how the platform is utilized (Lee & Choi, 2010). Twitter invites educators to participate in weekly chats covering the most general education topics to the most specific. With the use of a hashtag, #, teachers can quickly and easily choose the professional learning network they want to participate in or search archived chat transcripts using the hashtag at a later time. Some of the time Twitter chats move so rapidly, that the archival ability is a positive for participants. The collaborative nature of the Twitter chats coupled with the 140 character micro-blogs that are created, shared and responded to either asynchronously or synchronously by a captive audience put Twitter at the forefront of professional learning through social media. In fact, A feature of PLCs that Twitter exemplifies through a professional learning network, better than many face-to-face communities, is the “collective inquiry into best practices” (DuFour 2008). Also, the self-directed learning posture and choice that educators have with regard to utilizing Twitter as a professional learning network tout it as Jenkins (2009) postulates a “new participatory culture that undeniably “represent(s) ideal learning environments” (p. 10). In effect, since Twitter is utilized with a self-directed, choice participation stance it has worth as a fitting learning space. Since Twitter forces often brief and immediate interaction it creates a unique, individualized learning experience for educators replete with choice and a built in reflective mechanism. While there is much positive praise for Twitter as an easy, accessible, motivating learning tool (Carpenter & Krutka, 2014, p. 426), the research literature surrounding educators’ experiences and perceptions specific to Twitter is lacking. Beach (2012) unwittingly provides an advertisement for the use of social media for professional learning by suggesting:

Effective professional development is flexible, provides sustained follow up, includes ongoing coaching, engages teachers in active learning experiences with teaching methods, focuses on integration of specific subject matter content, involves reflection
on instruction and beliefs, fosters collaboration with colleagues, and examines the impact of instruction on student outcomes (p. 256).

This presumption as well as the 2014 Horizon Report for Higher Education Preview (New Media Consortium, 2014) that identify social media for learning as an accelerating tendency make Twitter a close remedy to the common fallacies and complaints surrounding educators’ professional learning. Add in the acquisition of mobile devices and on demand access through these same devices, Twitter is a viable conduit for professional learning. Whitaker, Casas and Zoul (2015) believe “Connected educators embrace their vulnerability and extend their learning outside their comfort zone in order to make a broader and greater impact on their school communities and across global communities everywhere” (p. 62). Although Whitaker et al. (2015) do not confine their suggestion to connected educators solely relying on Twitter, they do offer that Twitter convenes “literally thousands of educators ready and willing to lend their expertise if asked, typically swiftly and absolutely free of charge” (p. 50). While the current research is illuminating, evaluating the effectiveness of Twitter as a professional learning network is as challenging as evaluating the effectiveness of traditional professional learning. The lens that is used to evaluate all professional learning, but especially online professional learning may need an overhaul as we learn more about educators’ experiences.

**Evaluating Effectiveness**

An assumed pitfall of professional learning is that the effectiveness is not always measurable. This is also true with online professional learning. The inability to not always measure the effectiveness can be attributed to the plethora of varied experiences that can be labeled as professional learning. Although the ultimate goal of professional learning is student achievement, translated through increased teacher knowledge and education (Desimone 2009), evaluating professional learning’s effectiveness does not need to rely
solely on student achievement data. Guskey (2000) puts forth five critical levels of professional learning evaluation. Table one illustrates the levels of evaluation and what they measure. Twitter as a professional learning tool can be viewed as effective or not through this same evaluative lens.

Table 1.

Guskey's Five Critical Levels of Professional Development Evaluation

<table>
<thead>
<tr>
<th>Evaluation Level</th>
<th>What is Measured or Assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants’ Reactions</td>
<td>Satisfaction with experience</td>
</tr>
<tr>
<td>Participants’ Learning</td>
<td>New knowledge and/or skills of participants</td>
</tr>
<tr>
<td>Organization Support and Change</td>
<td>Organization’s advocacy, support, accommodations, facilitation and recognition</td>
</tr>
<tr>
<td>Participants’ Use of New Knowledge or Skills</td>
<td>Degree and quality of information</td>
</tr>
<tr>
<td>Student Learning Outcomes</td>
<td>Cognitive, Affective &amp; Psychomotor</td>
</tr>
</tbody>
</table>

Ingvarson (2005) reports that much of the evaluative data surrounding professional learning is self-report data. These self-reports are in the form of surveys, interviews and observations. This is also true when utilizing Guskey’s professional learning evaluation levels. Much of the data is gathered through questionnaires, focus groups, interviews and personal learning logs. There are slim opportunities to gather first hand evidence of the effectiveness in an expedited manner. Much of the suggested data collection is cumbersome and tedious due to its qualitative nature. Similarly, to really gauge impact of educator learning on student learning, is more than challenging. There are so many factors that impact teaching and learning, to isolate the relationship that educator professional development has on true student achievement is daunting. The notion of valid and reliable professional learning experiences is arguably a challenging thought. One would argue that if the experience of a teacher is personally impactful, it is valid and reliable. For example, Guskey (2000) suggests as the first level of evaluation, participants’ reactions. Questions such as, did participants like it, what time well spent, did the material make sense and will it be useful, all
lend itself to an educator determining if the experience was personally valid and reliable. In short, two educators can attend the very same experience and have completely different perspectives on the effect, neither one being wrong. As educators continue to take the initiative to learn through professional learning networks such as Twitter, they begin to demonstrate what the National Research Council (2000) coins “adaptive expertise” (p. 48). This acquisition encourages educators to think critically and reflectively about their own knowledge and seek to improve their expertise. Simply put, educators who use Twitter as a professional learning network have the opportunity to self-assess in order to understand where they can improve and rely on the professional learning network to connect and expand their repertoire. Because of the collaborative expectation of Twitter, it aides to combat the natural isolation educators often feel and nudge educators to be critically reflective about their practice. Understanding these experiences of educators with Twitter as a professional learning network will glean some pertinent information as it relates to professional learning as a whole.

**Teacher Isolation**

Teaching is a typically autonomous profession. With this belief comes the pitfall that teachers are expected to be independent and expected to do their job seamlessly without oversight most hours of the day. Cookson (2005) explains, “One of the ironies of teaching is that it is one of the most social occupations, but is also one of the most isolating professions” (p. 14). Sadly, collaboration is rare (Wong & Wong, 2005). As a matter of fact, according to Russell (1996) educator isolation is a sweeping characteristic of teacher life within schools. A report commissioned by Bill and Melinda Gates, as cited in Berry (2016), ascertains that with new evaluation practices in place in many school districts, only 45% of educators confirm that they receive support to help implement the changes necessary for improvement.
Imagine how Twitter can incorporate this need into its already accepted prominence. There is growing harmony in what researchers dissect regarding how teachers learn best to improve their practice. Collaboration is a prominent route for improvement (Berry, 2016). As a single entity, Twitter provides collaboration by the very nature of the platform. Teachers who do not have the time to collaborate with colleagues within a school building, can find the camaraderie within Twitter suitable. Specifically, for educators, Twitter demands professional synergy in an expansive environment. This synergy is of primary interest, while Twitter affords an even greater opportunity for teachers to be nurtured professionally. Due to the far reaching nooks and crannies of the educational world that Twitter reaches, educators have a myriad of people who have expansive experiences to interact with, versus a smaller group within their school buildings. Forte, Humphries and Park (2012) define Twitter as “a forum for teachers to not only talk about their classroom practice and share practical information and news, but also to find like-minded educators and give voice to their ideological commitments” (p. 1). How teachers experience synchronicity, choice, personalized content and on demand access at no cost to districts or local schools is important to substantiate a commitment to infusing Twitter into professional learning as a professional learning network to catapult teachers within their own pedagogy and quash the experiences of isolation.

**Critically Reflective Teachers**

Teaching is more than simply acquiring knowledge and methods. Being reflective nudges teachers to move beyond simply employing a rote methodology to establishing a pattern of perpetual and deepening understanding that will launch their individual practice. Historically, it was Illich (1971) who proposed, “What kinds of things and people might learners want to be in contact with in order to learn?” (p. 78). This question posits that the nature of an online learning environment, one that allows choice of interactors and content,
promotes a cadre of critically reflective teachers all whom possess certain, identifiable attributes. Amboi (2006) called reflection “a quintessential element that breathes life to high quality teaching” (p. 24). Brookfield (1995) shares, critically reflective teachers are masterful instructors who perfect their “authentic voice and “pedagogic rectitude” to showcase the “value and dignity” of their work (p. 46-7). Research by Kist, Tolalfield & Dagistan (2015) argue that reflection via professional learning networks, even without social media, is “a vital part of the professional life of a critically reflective practitioner” (p.318). Being critically reflective enhances the potential of transformative learning and manifests as a natural component of connectivism, especially with the plethora of information that is exchanged. Simply put, teachers must be discerning with the information and how to assimilate it into their professional repertoire. Teachers who engage in social networking are not critically reflective in isolation. Kruse and Louis (1993) and Little (2002) suggest that an educator’s interactions on Twitter are a source of amplification. Simply, Twitter is the loud speaker that allows educators to engage in reflective discourse, question inadequate methods and routines and consider new perspectives on teaching and learning.

Aside from being critically reflective, an innate prompt from the nature of Twitter, early research suggests that educators who utilize Twitter tend to have a particular taxonomy. Visser et al (2014) suggest that educators who use Twitter for professional learning consider themselves to have an above average level of technology proficiency. They are positive, motivated and eager to learn new things. The kind of educator you will become is directly related to the kind of educators you associate with, is an old adage that gives educators the fuel to seek like-minded thinkers through a vast, global network such as Twitter. Forte et al. (2012) share a specific taxonomy of educators who rely on Twitter as a professional learning network. Among the characteristics of the educators is the belief that they are “early adopters and technology evangelists” (p.1).
Theoretical Framework

Ubiquitous Learning

Despite the vast attention professional development receives among researchers, there have been few attempts to ground it within a theoretical framework (Eun, 2008). In other words, the relationship between how teachers acquire knowledge and skills to effectively teach and improve practice are not generally explained with the support of a unified theory. Eun (2008) further shares, “Grounding professional development in a theoretical framework is not only important in revealing the process of development itself but also for devising plans that contribute to the effectiveness of professional development programs” (p. 135). However, with a look at new research on ubiquitous learning and a reflective posture on social learning theory and adult learning theory, a confidant framework to support professional development will emerge.

The convenience of Twitter and the viability of its use as a professional network is enhanced, theoretically, with the recognition of a new paradigm shift now associated with education, the ubiquity of technology access. The term “ubiquitous computing” was coined by Mark Weiser (1993). Ubiquitous learning, a more modern manifestation of Weiser’s phrase, refers to the constant opportunity for learning experiences and media transfer or communication, afforded by the continuous access to computing connectivity. The ubiquity of technology access suggests that any situation can become a purposeful instructional experience; not only can people learn at any time, but they can receive media that is explicitly learning-focused. There is growing research regarding this model of learning with regard to students, but little exists that specifically speaks to ubiquitous learning as a theory to support adult or educator learning. Take for example collaboration as thought of in a traditional professional learning context. Time for educators to collaborate can be accomplished, however, it is often bemoaned that the time necessary to collaborate is often not found, or
there is not enough of it. Cope and Kalantzis (2009) submit computers make it easier. Cope and Kalantzis (2009) further posit that as computing is accessible on demand, it makes the construct of collaboration easier. Collaboration then becomes an outgrowth of the self-directedness of educators and is therefore more attractive than through a traditional method of gathering such as faculty meetings or grade level meetings. This is a fitting illustration of how the ubiquity of technology can sustain the self-directed involvement of an educator with Twitter as a professional learning network.

The notion of ubiquitous learning is a dynamic paradigm. Ubiquitous learning affords specific social effects (Cope and Kalantzis, 2009) that can be connected specifically to educator professional learning. The effects that reinforce the plausibility of Twitter as a professional learning network include interactive computing, participatory computing, spatial computing, temporal computing and cognitive computing (Cope and Kalantzis, 2009). The significance of an interactive computing effect is that what once was a computer data input algorithm that responded to a person according to the way it was programmed, has been replaced by the idea that a person can respond to another person through the computer (Cope and Kalantzis, 2009). In short, interactive computing allows for more people to connect in more ways, more easily and more cheaply (Burbeles, 2014). Participatory computing (Jenkins 2009) is the idea that ubiquitous computing generates ubiquitous media, which in turn creates a culture of people that participate as readers, purveyors, authors and an audience of experts. Spatial computing (Cope and Kalantzis, 2009) is an effect that suggests the dissolution of confined, built spaces. One can simply work, shop, be entertained and learn without distinguished boundaries. This is one of the strong attractions of Twitter as a professional learning network since it quashes the traditional construct of educators needing to be at a certain location. Similarly, the temporal computing effect (Cope and Kalantzis, 2009) that suspends time and creates a personalized “now” or “when” without regard for another
person’s schedule is a strong agent for using Twitter as a professional learning network. Historically, learners needed to be in the same place at the same time. Everyone was on the same page, learning the same thing. This traditional mode of learning made practical sense. Yet, today, the blurring of the traditional institutional and spatial lines is happening without prompting. Education can happen anytime and anywhere.

Ubiquitous learning has created the necessity of learning how to navigate cognitively through pathways and ideas that are different. This cognitive computing (Cope and Kalantzis, 2009) effect allows new reasoning to be established. Where once directions were followed A to Z, the cognition utilized within a ubiquitous learning construct affords things such as new reading paths and new reflective practices based on the information journey. As the world rapidly and optimistically moves to an ever-present ubiquitous existence, there is agreement that the objective of ubiquitous learning is to provide the right information at the right time and place for accommodating life and work style. It is not just the social effects of ubiquitous learning that make the paradigm exciting. Moreover, it is the characteristics of permanency, accessibility and immediacy, put forward by Yahya, Amad and Jalil (2010) that make ubiquitous learning a strong theoretical support for educators’ professional learning.

Similarly, Burbules (2014) suggests, “In an era when people can carry the Internet in their pocket, teaching and learning must be reconsidered (p. 2).

Newer research has looked keenly at the characteristics of ubiquitous learning. An analysis of the research by Chen, Kao, Sheu, and Chiang (2002); Curtis, Bobrowski, Quintana, and Soloway (2002); Ogata (2004); Hwang (2008); and Chiu, Huang and Chen (2008) suggest five characteristics of ubiquitous learning.

**Permanency.**

The first characteristic of ubiquitous learning is permanency (Yahya, et al., 2010). Permanency is the notion that information remains where it is unless a learner intentionally
removes it. Perhaps this characteristic is not solely reliant on ubiquity. However, it provokes a strong argument for the motivation of educators using the ubiquity of Twitter.

**Accessibility.**

A second characteristic of ubiquitous learning is accessibility (Yahya, et al., 2010). In a ubiquitous learning context, information is always available. Even if a user chooses not to utilize what is available, that information is attainable. This characteristic is, additionally, a highlight of using Twitter as a professional learning network. Tweets are available all the time, sometimes in an archived manner, whether they are used or not does not change the accessibility of them.

**Immediacy.**

A third characteristic of ubiquitous learning is immediacy (Yahya, et al., 2010). Where accessibility refers to the information being available, immediacy refers to the retrieval of the accessible information. Immediacy allows information to be retrieved instantaneously by the learners. For an educator’s context, this is crucial. No longer do educators have to wait for the next scheduled learning opportunity. Learning can happen at their fingertips.

**Interactivity.**

Another characteristics of ubiquitous learning is interactivity (Yahya, et al., 2010). Interactivity affords learners the ability to interact with peers and professionals proficiently and successfully through media. The interactivity of Twitter as a professional learning network is a caveat that affords educators to interact with an exhaustive list of professionals, experts and peers when wanted. Many of the characteristics discussed above could be situated in additional learning contexts, even online learning contexts. However, there is one additional characteristic of ubiquitous learning that sets it apart and is a distinguishing characteristic of Twitter as a professional learning network.
Context-Awareness.

Context-awareness (Yahya, et al., 2010) or the idea that the environment is adaptable to the learners’ actual situation is a crucial component of ubiquitous learning. Twitter is abound with adaptable contexts applicable to every educators’ need. A simple hash tag search for a myriad of educational titles, methodologies, or key words reveals multiple contexts for educators to participate in. For example, if an educator wants to learn more about engaged learning, a simple search within the Twitter framework will reveal opportunities to partake in dialogue about this topic. This adaptability affords learners to get the most appropriate and satisfactory information. Shin, Shin, Choo and Beom (2011) go as far as to say that ubiquitous learning is designed to support specific user needs. Thus, the theories of social learning, adult learning theory and connectivism etch the strong advocacy for ubiquitous learning within this research’s conceptual framework.

Social Learning

Both Bandura (1962) and Vygotsky (1978) assert that learning occurs in a social context. Social learning theory combines cognitive learning theory, which posits that learning is influenced by psychological factors and behavioral learning theory, which assumes that learning is based on responses to environmental stimuli. Bandura integrated these two theories and came up with four requirements for learning: observation, retention, reproduction and motivation. (Bandura, 1962). It could be argued that this stance is counterintuitive to an online mode of learning, such as what occurs when educators use Twitter as a professional learning network. However, dissecting Bandura’s theory more intricately, the principles can be constructed around Twitter quite profoundly. Similarly, emphasis must be placed on the notion that the principles that lead to improved student learning also guide the professional learning for teachers (Eisenhower National Clearinghouse, 1999).
**Observation.**

Initially, Bandura suggests that observational learning or modeling is a key feature of the social context in which learning occurs (Bandura, 1962). In an online environment like Twitter affords, the modeling is situated in audio and visual recordings. Educators can easily view video capture of learning and facilitating. These interactions can happen asynchronously or synchronously.

**Retention.**

A second principle of social learning is that of retention and context (Bandura, 1962). Simply put, we learn by storing information in our memories and when we are required to respond to a similar situation, we recall that information. We make information memorable by attaching context and emotion to the context. Similarly, from a social lens, when people start talking about something, it is often related to personal experiences and when shared with other people, those people connect with it too. With this thought, there are many opportunities to share in an online environment such as Twitter. The idea behind Twitter is to give and receive, which is discourse at a very simple level.

**Reproduction.**

A third principle of social learning is reproduction (Bandura, 1962). Reproduction is the ability to perform the behavior that was previously modeled. An aspiration of Twitter as a professional learning network is that educators will take the learning and reproduce it to fit their individual context. Educators can reproduce ideas similar to reproducing behaviors.

**Motivation.**

A final principle of social learning is motivation (Bandura, 1962). Motivation is the will or want to perform a specific behavior. This value supports the behavior of educators choosing to use Twitter as a professional learning network, initially, as well as affording
educators the choice of replicating a behavior, ideas or suggestions learned through the actual interactions on Twitter. McLeod (2011) shares, “The social learning approach takes thought processes into account and acknowledges the role that they play in deciding if a behaviour is to be imitated or not” (p.3).

**Social Constructivism**

Whereby Bandura focuses on the aforementioned principles, Vygotsky’s focus is the connections between people, the context in which they act and the experiences they share. Since Vygotsky emphasized the critical importance of interaction with people, including other learners and teachers, in cognitive development, his theory is called “social constructivism” (Maddux, Johnson and Willis, 1997). Ergo, for social constructivists, “learning should involve interaction with other people or environments, which foster potential development in collaboration with more capable peers” (Huang, 2002, p.7). In fact, Vygotsky (1978) implores that in order to learn constructively there must be an environment in which learners work collegially and the work is situated in authentic activities and contexts. This idea is an advertisement for Twitter as a professional learning network. Twitter’s very nature is ripe with collegiality embedded with current educational fodder. Vygotky’s social theory is appropriate support for professional development not only because of the emphasis on the concept of development they share, but also more importantly the fact that both professional development and Vygotsky’s theories cogitate that social interaction is crucial for both (Eun, 2008).

**Models of Professional Development**

It is Guskey (2000) and his models of professional development that suggest professional development must rely on some form of social interaction. Looking at Guskey’s models there are several that can be manifested through the use of Twitter as a professional learning network. The model based on training relies on an individual or a group of experts to
share their ideas through presentations or a variety of group-based activities and discussions (Eun, 2008). The mentoring model is most closely related to one of Vygotsky’s central concepts, the Zone of Proximal Development (ZPD). The Zone of Proximal Development is the space created by novice learner and experienced learner. This can be translated to educators who utilize Twitter. Novice educators to the field or novice educators to the medium relate to more competent educators or users of the medium. Collective scaffolding (Eun, 2008) is an intricacy of the development process model of professional learning Guskey (2000), an additional model of educator learning supported by Vygotsky’s theory. Eun (2008) shares, “This type of professional development model illustrates the crucial role collaboration among peers play in the process of acquiring knowledge and skills” (p. 143).

Another professional learning model, study groups and inquiry/action research (Guskey, 2000) are in agreement with the assertion that cognitive development is a product of the collaboration that occurs between and among individuals engaged in concrete social interaction (Donato, 1994). Eun (2008) argues, “Only concrete social interactions that are embedded in purposeful activities directed at achieving specific goals will drive development” (p. 143). Again, the relevance of Twitter to this theory is suggested. The assumption is that the social interactions through Twitter are established by the educator to be purposeful and supportive of individual, specific learning goals.

The last professional learning model suggested by Guskey (2000) are individually guided activities. At first analysis, one would argue the idea of “individually guided” may negate a social aspect of learning. However, Guskey (2000) notes that this type of professional development leads to self-analysis and personal reflection. It is through this critical reflection where Vygotsky’s (1978) theory of internalization is the bridge from theory to practice. So even the introverted user of Twitter as a professional learning network who
participates as an audience member is individually guiding the learning and gaining fodder to critically reflect and assimilate learning into a personal context.

**Adult Learning Theory**

Much like how children learn, the research literature surrounding how adults learn is not confined to a single theory. Today’s modern adult learning theory can find a foundational basis in the following assumptions of Lindeman (1926):

1. Adults are motivated to learn as they experience needs and interests that learning will satisfy.
2. Adults’ orientation to learning is life-centered.
3. Experience is the richest source for adults' learning.
4. Adults have a deep need to be self-directing.
5. Individual differences among people increase with age.

While it is Merriam (2001) who argues there are two theories of adult learning that are stalwart to keenly understanding adult learners. The two foundational theories supporting adult learning are androgogy, or pedagogy for adults (Knowles, 1968) and self-directed learning (Knowles, 1975; Tough 1961; Houle, 1961).

**Androgogy**

Knowles proposed a theory of adult learning, pedagogy for adults, called Androgogy (Knowles, Holton III and Swanson, 1998). This theory was derived from Knowles’ (1984) characteristics of adult learners. These adult learning characteristics include:

1. Self-concept: Adults move from a more dependent stance to an independent, self-directed one.
2. Experience: Adults have more experiences and plentiful schema from which to pull as a resource.
3. Readiness to learn: Adults preparedness to learn are situated within the tasks of the social roles he or she has.
4. Orientation to learning: Adults shift the application of knowledge from delayed to immediate so the approach toward learning manifests into a problem-centered posture versus a subject centered one.

5. Motivation to learn: Adults motivation to learn is more internally driven. Table two illustrates how the use of Twitter as a professional learning network is supported by Knowles’ characteristics of adult learners.

*Table 2.*

Adult Learning Characteristics Supported by Twitter

<table>
<thead>
<tr>
<th>Adult Learning Characteristics</th>
<th>Transfer of Adult Learning Characteristics to Utilization of Twitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-concept</td>
<td>Educators are self-directed to choose to use Twitter</td>
</tr>
<tr>
<td>Experience</td>
<td>Twitter promotes the use of educators’ personal reservoir of experiences</td>
</tr>
<tr>
<td>Readiness to Learn</td>
<td>Twitter is an option for educators who want to learn or be exposed to more educational information</td>
</tr>
<tr>
<td>Orientation to Learning</td>
<td>Twitter is an immediate solution bank and learning platform for educators</td>
</tr>
<tr>
<td>Motivation to Learn</td>
<td>Educators must be motivated to learn to utilize Twitter</td>
</tr>
</tbody>
</table>

In addition to the character assumptions of adult learners put forth by Knowles, Knowles (1984) also shares four principles of Androgogy that are necessary for its application. These include:

1. Adults need to be involved in the planning and evaluation of their learning.

2. Experience, both successful and unsuccessful, provide the scaffold for learning practices.

3. Adults are most interested in learning that has direct relevance to their job

4. Adult learning is problem-centered rather than content-oriented. (Kearsley, 2010)

Table three illustrates how these tenets of Andragogy are supported by educators’ use of Twitter as a professional learning network.
Principles of Andragogy Related to Educators' Use of Twitter

<table>
<thead>
<tr>
<th>Principles of Andragogy</th>
<th>Twitter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult involvement in planning and evaluation of learning</td>
<td>Self-directed use and self-directed content with reflective analysis</td>
</tr>
<tr>
<td>Experience provides the scaffold for learning</td>
<td>Synchronous and asynchronous sharing of ideas, successes and challenges</td>
</tr>
<tr>
<td>Learning is directly relevant to context</td>
<td>Expansive content, methodology and pedagogical information available</td>
</tr>
<tr>
<td>Problem-centered learning</td>
<td>Collective group of educators collaborating to improve best practices</td>
</tr>
</tbody>
</table>

While there is some heartburn over whether andragogy is reserved for solely adult learners, if it gleans information on how adults learn or even if andragogy is a contender for theory (Merriam 2001) it does have merit as a lens for understanding adults as learners; who they are and what they prefer. The totality of andragogy urges that learning can and should be transformational.

Transformative Learning

Transformative learning, simply stated, “shapes people; they are different afterward in ways both they and others can recognize” (Clark, 1993, p. 47). Not since andragogy has an educational theory received more attention. Taylor (2008) states that transformative learning “has replaced andragogy as the dominant educational philosophy of adult education, offering teaching practices grounded in empirical research and supported by sound theoretical assumptions” (p. 12). The two major practices essential to this theory of learning are the use of reflection and dialogue. Subsequently, these are also primary underpinnings of Twitter use. Twitter provokes dialogue and reflection on messages received and messages shared as an innate part of the process. To consider Twitter as a vehicle for transformative learning, there are necessary conditions or processes that must occur. Table 4 illustrates how Twitter coincides with a transformative learning experience.
Table 4.

Transformative Learning Process via Twitter

<table>
<thead>
<tr>
<th>Transformative Learning Process (Mezirow, 1991)</th>
<th>Twitter as a Transformative Learning Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activating Event</td>
<td>Anything that triggers an educator to examine their thinking (ex: challenge with classroom management)</td>
</tr>
<tr>
<td>Identifying Current Assumptions</td>
<td>Educators explain their thinking via Twitter with regard to pedagogy based on experiences</td>
</tr>
<tr>
<td>Encouraging Critical Reflection</td>
<td>Educators respond to others’ questions or ideas on Twitter</td>
</tr>
<tr>
<td>Encouraging Critical Discourse</td>
<td>Twitter provides a platform for educators to discuss agreement and disagreement</td>
</tr>
<tr>
<td>Testing a New Paradigm or Perspective</td>
<td>Educators can apply new knowledge gained from Twitter to their teaching context</td>
</tr>
<tr>
<td>Fostering Intellectual Openness</td>
<td>Twitter’s vast population allows for ideas and thoughts to be challenged and experimented with</td>
</tr>
</tbody>
</table>

With the plethora of research, it is Mezirow’s pioneering work on transformative learning that creates a theoretical underpinning for this study. Mezirow (2000) advocates that transformative learning is “a process by which we transform our taken-for-granted frames of reference (meaning schemes, habits of mind, mindsets) to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide actions” (p. 8).

Transformative learning is a process of making meaning out of one’s experiences. As the research has been refined, an interesting harmony between transformational learning and the power of reflective thought has emerged. Since transformational learning is the metamorphosis of thought, there are two interesting considerations with regard to this type of learning. One is that reflection can take the form of “content reflection, or what we perceive, think, feel or act upon” (Mezirow, 1991, p. 107). A subsequent form of reflection is “process reflection, or why we perceive, think, feel or act as we do” (Mezirow, 1991, p.108). This
reflective process is a key component of professional learning and allows for self-directed learning to be purposeful.

An early perspective on the reflective nature of transformational learning that impacted Mezirow’s work is one held by Paulo Friere in the nineteen seventies. Friere’s (1970) perspective centered on conscientization or conscious-raising. Although his work focused on literacy instruction, the ideologies of conscientization revealed the processes that afford adults the ability to analyze, pose questions and take action on the contexts that impact their lives (Friere, 1970). While Friere focused on developing a process of education, his influence on Mezirow is evident. Both researchers agree that reflection and dialogue are important elements to transform learning (Dirkx, 1998). Twitter is a channel that affords both synchronous and asynchronous dialogue. Similarly, as educators utilize Twitter, they are nudged to reflect on areas of practice that can contribute to the greater community of learners as well as identify personal challenges and seek out support in the same manner. Therefore, the assumption that Twitter consistently creates a context where adult learners have the ability to think critically through dialogue created from a reflective stance about their own educational schema and that of so many others is exciting. Sokol and Cranton (1998) explain, "As transformative learners, they question their perspectives, open up new ways of looking at their practice, revise their views, and act based on new perspectives" (p. 14). This is a concept mirrored in educators who engage with Twitter as a professional learning network. By developing their thoughts, sharing them with an audience, reflecting on the responses, their practice may change. Even without this causal supposition, the self-directed nature of learning forging a transformational experience is evident as educators intentionally seek out using Twitter to impact their pedagogy.
Self-Directed Learning

Self-directed learning as a trait of andragogy that promotes transformative learning, is also a singular adult learning theory. Merriam (2013) defines self-directed learning as a process through which a learner “intentionally sought out the learning, planned [one’s] learning, took responsibility, controlled [one’s] learning, and evaluated the outcome” (p. 61). Knowles (1975) describes self-directed learning as "a process in which individuals take the initiative without the help of others in diagnosing their learning needs, formulating goals, identifying human and material resources, and evaluating learning outcomes" (p. 18). Knowles (1975) further identifies three positive outcomes and suggested reasons for employing self-directed learning:

1. Individuals who take the initiative in learning, learn more things and learn better than do people who sit at the feet of teachers possibly waiting to be taught.
2. Self-directed learning is more in tune with our natural processes of psychological development.
3. Many of the new developments in education ... put a heavy responsibility on the learners to take a good deal of initiative in their own learning. (p. 14-15).

While it is mentioned that an estimated 70 percent of adult learning is self-directed learning (Cross 1981) it is also noted that about 90 percent of all adults conduct at least one self-directed learning project per year (Tough, 1971). A benefit of self-directed learning is that learning can easily be incorporated into daily routines and occur at the learner’s convenience.

Twitter as a professional learning network is driven by this very tenet. In fact, self-directed learning in online contexts is a growing phenomenon with specific effects for learning processes and the learner (Song and Hill, 2007). An online context gives more control to the learner (Garrison, 2003). Furthermore, the ribbon of time to reflect and reference ideas to allow the fermenting of thought is supported by an online self-directed learning context. With
Twitter, as an example, ideas and perspectives can be retrieved multiple times. Additionally, the prospect of being able to view the exact verbatim of comments, allows for deeper self-reflection on the topic (Garrison, Anderson, & Archer, 1999).

As an innovative and popular context, online learning presents learners with unique opportunities but also some challenges with adults ascribing to a self-directed approach. Bullock (2013) vies that, even though self-directed learning has spanned decades of conversation there is still a gap in literature focused on educator professional learning (pp. 105-106). Even Merriam (2013) explains that, while it is assured that all adults possess the capacity to be self-directed in their learning, situational context and personal enthusiasm effects this capacity in each individual.

**Connectivism**

The aforementioned learning theories are not absolute to be grounded in context. The ubiquity of technology illustrates how those learning theories can be supported within a technological context, although they can certainly exist without it. Connectivism (Siemens, 2005) although debated as a theory, can be defined as social learning that is networked. Downes (2007) described it as “… the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks” (para. 1). Connectivism as a digital age learning theory is further defined as “actionable knowledge, where an understanding of where to find knowledge may be more important than answering how or what that knowledge encompasses” (Duke, Harper and Johnston, 2013, p. 7). Connectivism is social learning characterized as the enhancement of how learning occurs via knowledge and perception gained through the addition of a personal network (Siemens, 2005). It is through these personal networks that learners can acquire the viewpoint and diversity of opinion to learn to make critical decisions, thus relating back to critical reflectiveness. It is impossible for learners to experience everything, but sharing
through a collaborative network creates the idea of experience. Such is the inference of the power of Twitter as a professional learning network. Similarly, due to the ubiquity of digital media, it would be impossible for a learner to acquire all of the knowledge available in the vast context of the world. Thus, being able to tap into huge databases of knowledge instantaneously empowers a learner to seek further knowledge in a self-directed manner. Lastly, while traditional learning theories, as discussed to understand the processes, can be somewhat limited due to the rapid change brought about by the very technology that is supporting learning, connectivism as a companion theory makes sense.

**Conclusion**

Learning Forward, the professional learning association, shares that “Increasing the effectiveness of professional learning is the leverage point with the greatest potential for strengthening and refining the day-to-day performance of educators.” Understanding the intricacies of professional learning, the challenges of the traditional context and the opportunity of a ubiquitous learning perspective through Twitter is powerful. In the context of this theoretical framework, the focus is on educators’ experiences with professional learning in a specific context. There are varied attributes of professional learning that are continually researched. The focus of this study is to look at the traditional underpinnings of learning theory and adult learning theory and recognize the fluidity of these ideas with online professional learning through social networking. Although the definitions and characteristics are comparable between the learning theories that professional learning affords, the idea of ubiquitous learning to promote critically reflective practitioners is an enhancement of Twitter as a professional learning network that is lacking in conventional professional learning experiences. With the paradigm of learning anytime anywhere, the natural outgrowth of social learning, adult learning theory and connectivism, the exploration of educators’ experiences with this milieu and how these experiences translate to classroom practice, will
shed light on and produce a keener understanding of the capacity of using Twitter for professional learning.
Chapter Three

Methodology

Worldview

As an educational researcher, it is me who seeks to understand. This supersedes testing a theory. The transition from teacher to teacher leader prompts me to want to understand the educational context in which I work. With this in mind, I would subscribe to a social constructivist approach (Vygotsky, 1978) to research. Since I am personally invested in this research, a constructivist approach allows me to reveal my own biases, interpretations and assumptions. The goal of research supportive of this worldview is to rely as much as possible on the participants’ views of the situation being studied. Constructivism will try to uncover meaning from data, whereas pragmatists would collect data (quantitative and/or qualitative) in order to find solutions and solve problems. Since the field of social media as a construct for educator professional learning is in the infant stages of research, disclosing meaning is important. Further research can dissect the meaning and interpret possible problems and needed solutions.

Guba (1994) shares that “a paradigm may be viewed as a set of basic beliefs that deals with ultimate or first principles” (p. 107). This paradigm then suggests “a worldview that defines, for its holder, the nature of the ‘world,’ the individual's place in it, and the range of possible relationships to that world and its parts” (Guba, 1994, p. 107). The paradigmatic view or worldview is based on a basic set of beliefs derived of two assumptions. The first assumption is ontological, or what is the nature of reality. The second assumption is epistemological or how one knows something. Considering these assumptions, from an ontological point of view, constructivism understands that the nature of reality is multiple and socially constructed. From an epistemological point of view, constructivism holds that there
should be an interactive link between research and participants. These two assumptions conform the reason why constructivists prefer conducting a qualitative, hermeneutic study, such as this.

I appreciate that my research will include data collected by people from people, with data collection instruments designed by people, and analyzed with methods devised by people, thus emphasizing the socialization of this paradigm. A social constructivist approach creates a fundamentally subjective viewpoint during every part of the process. Approaching my research with this worldview, it will be inductive in nature and a theory will evolve after establishing a pattern of meaning based on the data collection. Furthermore, since my focus is on educators’ experiences, a literary, narrative style is complementary to the study (Figure 2).

Figure 2. Study Context. A visual representation of the research design.
Problem Statement and Research Questions

Today’s educators often find themselves involved in required professional development that is time-consuming, unrelated to classroom context and costly; all without affect (Jaquith, Mindich, Wei & Darling-Hammond, 2011). Visser, Evering & Barrett (2014) pose that “conventional models of PD are typically mandated and institution driven” (p.397) while Jaquith, et al., (2011) continue that traditional models are “one-time events with little or no follow up” (p. 397). Educators are frustrated with the churning out of new standards, new curricula being glossed over and continually higher standards expected, void of little if any training and support. Teachers are frustrated by overcrowded classrooms, the stress of meeting demanding standardized testing, and pedagogical expectations of differentiation and inclusion (Hargreaves, 2003). DuFour, Guidice, Magee, Martin, & Zivkovic (2002) even suggest that educators do not have the inspirational camaraderie of a supportive community. Although much of the research suggests that Twitter is perceived to be a positive experience with educators (Skyring, 2014, Carpenter & Krutka, 2014), there is scarce research that isolates Twitter as a conduit to educators’ professional learning. Furthermore there is insufficient research to suggest what educators’ specific experiences are with Twitter as a professional learning network and if these experiences impact educators in their profession either pedagogically, through classroom practice or with collaboration and self-efficacy. Through a case study (Cresswell, 2013), this qualitative study will expose the experiences of K-12 educators who participate in three weekly educational Twitter chats, illustrated by the hashtag #TLAP, #SATCHAT and #MAKEITREAL. These experiences will illuminate how the use of Twitter impacts educators’ self-efficacy, collaboration with other educators, classroom practice and pedagogy. Specifically, this research investigates the following:
1. Does Twitter, used as a professional learning network, impact educators’ self-efficacy and educators’ collaborative experiences? If so, what feelings and experiences create this impact?

2. Do educators’ experiences through Twitter as a professional learning network impact classroom practice and pedagogy? If so what feelings and experiences create this impact?

Methodology

Research Tradition

Marshall and Rossman (2006) propose three major purposes for research: to explore, explain, or describe a phenomenon” (p. 31). This study explores educators’ experiences with Twitter as a professional learning network through deep explanations and descriptions of the personalized experiences. According to Cresswell (2013), “Qualitative research is an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. The researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting” (p. 15). The nature of qualitative research is that it is flexible and iterative (Cresswell, 2013; Merriam, 2009). The qualitative nature of this research suggests that a phenomenon or experience can emerge as the study morphs, therefore, after the initial steps are outlined and acted on, the initial data collected will inform the subsequent steps of the research process including potential additional questions to get to the heart of the Twitter experience of educators. Ultimately, this research can transform educators’ professional learning through the data gleaned from the informants. The incentive of this study is to use the data from the informants to influence and improve current educators’ professional learning stance.
As stated, the researcher’s worldview is based on social constructivism. This worldview insists the researcher allows participants to tell their stories. It is this inquiry process coupled with the researcher’s social constructivist worldview that prompts the researcher to invoke a case study research tradition (Cresswell, 2013). Merriam (2009) and Stake (1995) suggest that case studies have unique aspects adhering to this particular tradition. Case studies look keenly at a participant’s personal context within the experience and at the context of the bounded system under study. Consequently, the data reflect many types of evidence. Case studies are seated within a bounded system. Lastly, case studies are particularistic, descriptive and heuristic cases (Merriam, 2009; Yin 2009). A case study is a strong design for this research because of the emerging ideas surrounding ubiquitous education and online educator professional learning as a whole. Within this qualitative case study, the researcher studied educator’s experiences with Twitter as a professional learning network. This research lends itself to a qualitative study since the researcher is keenly interested in the actual participation of educators and their use of Twitter and how their participation parleys into classroom practice. The researcher sees qualitative research to be rich in description and the best method for discovery and innovation, two things valued highly by the researcher. It is a growing body of research. The nature of exploratory studies through a qualitative lens provide work that is ever-evolving. Thus, exploring the experiences in this manner is apropos.

**Qualitative Inquiry**

According to Cresswell (2013) a qualitative study is urged when a theory is undeveloped, there is a key concept to be explored and/or participants’ voice is the crux of the narrative. A qualitative approach that promotes an “open and flexible design” (Corbin & Strauss, 2015, p.4) is supportive of the established research questions for this study and those that may evolve through the data collection process. Although this study is grounded in
relevant historical theory, the researcher relied heavily on the analysis of participants’ experiences to reveal patterns and establish a meaningful perspective that may develop into theory-building. The reliance on the participants’ narrative supports the primary goal of this study; to explore for the purpose of identifying emerging patterns of meaning (Cresswell, 2013).

**Case Study.**

Stake (1995) bases the approach to case study on a constructivist paradigm. According to Stake (1995) a case study design should be considered when the focus of the study is “the particularity and complexity of a single case, coming to understand its activity within important circumstances” (p. xi). This study explores two overarching questions related to the manner in which educators interact with Twitter as a professional learning network. Stake (1995) states, “Researchers need a set of two or three sharpened issue questions (research questions) that will “help structure the observation, interviews, and document review” (p. 20). Furthermore, Stake (1995) proposes that since a case study approach is reliant on participants in the study, it is the researcher who gives voice to the participants. Also, because the context of this study is a virtual environment, the contextual conditions are relevant to the experiences that will be under study. This is another factor supporting a case study approach. Without an understanding of Twitter as a context, it would be difficult to get a true picture of the participants’ experiences.

Whereby Yin describes case study based on the research process, Stake (1995) focuses on the determination of the unit of study. Stake (1995) shares, “We study a case when it itself is of very special interest. We look for the detail of interaction with its context. Case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances (p. xi). Merriam (1988) sees a qualitative case study as a focus on the end product. Merriam (1988) offers, “A qualitative case study is an
intensive, holistic description and analysis of a single instance, phenomenon or social unit”
(p. 21). With the researcher’s constructivist worldview, the aforementioned approaches
solidify the process, the importance of the interest in the unit of study and the expectation of
the end product which support the choice of a qualitative case study.

Njie and Asmirian (2014) proffer, “The case study is a demarcation of a group, area
or a situation for the purposes of concentrating intrinsically on it to understand and explain
how it is living its case of interest” (p. 37). This specific delineation is important to allow the
researcher to concentrate essentially on the case through parameters that enable the research
focus. Stake (1995) suggests binding a case by time and activity. This study lends itself to
this delimitation because the researcher gathered detailed data using various data collection
methods on an ongoing basis over a period of time. More specifically, this case is an intrinsic
case study (Stake, 1995) in which the focus is on the case itself; educators’ experiences with
Twitter as a professional learning network.

**Context and Participants**

The selection of participants in this study was based on what was identified,
historically, as a purposive criterion sample (Palys, 2008). Patton (2015) suggests a
modernized etymology of the term *purposive sampling* with *purposeful sampling* to mean a
“specifically qualitative approach to case selection” (p. 265). The intent of purposeful
criterion sampling is to select participants that are plausibly going to provide information rich
experiences. Thus purposeful criterion sampling (Patton, 2015) was used to select
participants for this study.

Criterion sampling involves “selecting cases that meet some predetermined criterion
of importance” (Patton, 2001, p. 238). Stake (1995) recommends that it is through
participants’ selection, researchers aim to learn as much as possible in order to gain the most
thorough understanding of a particular case. To determine selection for this study,
participants self-reported on the following criteria: frequency of use of Twitter, experience in education, education role, participation in educational Twitter chats delineated by #tlap, #satchat, #makeitreal and a willingness to participate in multiple lengthy interviews. The milieu of this study is in an online environment, thus, for ease of accessibility, participants came from the researcher’s current Twitter professional learning network (n> 1800) from within a call for participants. A survey (Appendix B) was used to call for participants and was sent out via Twitter using the aforementioned hashtags (#tlap, #satchat and #makeitreal). Initially, there were 26 interested participants. In order to be selected for this study, participants needed to self-report at least a twice monthly participation in a Twitter chat delineated by #tlap, #satchat, and/or #makeitreal. This limited the initial pool of 26 participants to 12 participants. The outlying participants utilized Twitter chats outside of the designated boundary or did not interact with Twitter for the minimum criteria. Cresswell (2013) advises that the number of participants should “provide ample opportunity to identify themes of the cases as well as conduct cross-case theme analysis” (p. 157), the case number of this study was limited to four. Three of the participants were classroom educators with various pedigrees and one additional participant held an administrative role. In order to assimilate various perspectives on the phenomenon, a special education educator, a private school educator, a public school educator and a K-12 supervisor were selected as informants. Table five below summarizes the informants for this study with a taxonomy of each informant below the table.
**Table 5.**

Participant Demographics

<table>
<thead>
<tr>
<th>Participant (Pseudonym)</th>
<th>Years in Education</th>
<th>Role in Education</th>
<th>Length of time using Twitter</th>
<th>Approximate Age</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evan</td>
<td>12</td>
<td>Special Education</td>
<td>3 years</td>
<td>late 20s</td>
<td>M</td>
</tr>
<tr>
<td>Jarrod</td>
<td>6</td>
<td>Private School (6-8)</td>
<td>3 years</td>
<td>mid 30s</td>
<td>M</td>
</tr>
<tr>
<td>Mabel</td>
<td>21</td>
<td>Elementary (3)</td>
<td>1 year</td>
<td>mid 40s</td>
<td>F</td>
</tr>
<tr>
<td>Doug</td>
<td>21</td>
<td>Supervisory (K-12)</td>
<td>2 years</td>
<td>Early 40s</td>
<td>M</td>
</tr>
</tbody>
</table>

**Evan.** Evan is an international educator. After working for some time in the United States, he had the opportunity to work abroad and decided to move, along with his wife to a South American country. Evan works in the field of special education and suggests that this specialized field presents additional challenges for him as an educator. Among Evan’s challenges are the lack of specialized training and development for his education context. Evan describes himself as an advocate for understanding and exemplifying cultural relevancy and understanding among educators and students. Evan believes he is a self-directed learner and shares that he often seeks out learning opportunities above and beyond what is presented or provided to him. He joined Twitter at the encouragement of a colleague three years ago after much deliberation and uses the tool consistently to support his teaching and learning. Evan sees the positive in most situations and his personal twitter voice is always very supportive and positive of his network.

**Jarrod.** Jarrod is a middle school teacher in a Midwestern private school. He considers himself to be at the forefront of using technology in his classroom but never saw the value of Twitter for his own learning until three years ago. Jarrod attended a national
conference and one of the speakers he listened to, who is considered one of the “Eduheroes” on Twitter, suggested to the audience that if they were not using Twitter to amplify and expand their repertoire, they were missing out. Right then and there Jarrod activated his Twitter account and began engaging in Twitter experiences. He dealt with extreme isolation in his teaching context and feels that his experiences on Twitter saved him as a teacher. He shares that his professional learning network is so much more than professional. Jarrod uses the descriptor “phenomenal” consistently when he describes his experiences with Twitter.

Mabel. Mabel is a veteran, 21-year elementary educator in the southeast, but new to using Twitter. Mabel first started using Twitter after a flood had occurred in her city and she rallied to get aide to the local community. She used Twitter as a vehicle to mobilize resources and shares that in a very short amount of time, donations and people ready to help were available. Her very first Tweet received two thousand views. It wasn’t until much later at the suggestion of a media specialist through a professional learning experience and a “Twitter Bingo” challenge Mabel began to see the relevancy Twitter could have in her professional life. The “Twitter Bingo” was a locally created task card with fifteen assignments all related to getting to know Twitter as a professional learning tool. One of the challenges within the “Twitter Bingo” was to participate in a Twitter chat. Mabel selected #tlap and she was hooked. Mabel shares that she cannot believe the world of educators that are available at her fingertips. While Mabel has only been using Twitter for six months, she is very discerning in her approach. Mabel provides a unique perspective on her experiences with Twitter due to her methodical approach to discovering and trying new things.

Doug. Doug is a 21-year educator who has had various roles in education but has settled in a K-12 district supervisory role in the eastern United States. Doug also consults on a local and national level on relevant educational topics. Doug shares the epitome of his experiences in professional learning has been through Twitter. Doug shares that although he
has only been using Twitter for 2 years he has investigated all the many facets of the tool and has not only seen it transform himself, but he has seen it transform the teachers under his supervision. Doug cannot understand why any educator would not join Twitter. Ironically, as someone who is in the trenches with professional learning, Doug is assured that Twitter is a “conduit to exponential teacher learning (personal interview, June, 2017).

These informants were selected as they most exemplified the criteria set forth for the study. Since they each have varied experiences with Twitter use, their individual perspectives were necessary to explore the full experiences with Twitter as a professional learning network. Participants varied in age, experience, role, gender and grade level. The researcher did this to ensure a diverse group of educators were participating so as to accomplish near maximum variation sampling (Patton, 2015).

Data Gathering Methods

Leedy and Ormrod (2006) indicate that qualitative research is not the method to take if one is seeking quick results and easy answers. Leedy and Ormond (2006) suggest that qualitative research requires enthusiasm and determination on behalf of the researcher to dig deep. Qualitative research data collection often relies on further inquiry situated in observation and interviews. Stake’s (1995) constructivist approach to case study utilizes qualitative data exclusively, including interviews, observations, and documents.

The data sources the researcher examined for this study included a survey, a written reflective response, one-on-one online personal interviews, online focus group interviews, analysis of the content of tweets and researcher memos. Stake (1995) believes that the participants’ descriptions and insights are paramount to a qualitative case study. Stake (1995) further believes interviews are “the main road to multiple realities” (p. 64). It is the personal one-on-one interviews and follow up online focus interviews gleaned the more rich
explanations and perceptions of the participants’ experiences with Twitter as a professional learning network.

In order to prepare participants for the unstructured interviews, the initial phase of data collection was the utilization of an online document submission in which participants expressed via a template (Appendix C), in narrative form their personal experiences with Twitter as a professional learning network. This was a reflective response that acted as a schema building experience that enabled participants to reflect on their experiences and prepare general thoughts to utilize as a guideline during the interviews. This initial submission also helped the researcher curate additional questions as the researcher felt necessary.

According to Stake (1995) interviews allow for the distinctive experience to be shared and that each interviewee has “special stories to tell” (p. 65). The intent of the interview according to Stake (1995) “for the most part is not to get simple yes and no answers but description of an episode, a linkage, an explanation” (p. 65). The researcher of this study conducted online interviews over an eight week period. These 60-90 minute interviews were structured based on the responsive interview model established by Rubin and Rubin (2016). The interviews allowed information to be collected about the participants’ experiences including feelings, opinions or emotions surrounding the use of Twitter as a professional learning network (Patton, 2002). These interviews took place via SKYPE and were recorded using the embedded SKYPE recording feature. The interview was transcribed using Transcribe (https://transcribe.wreally.com/), an online software that allows for controlled playback of audio while typing in the same window. Questions were designed to explore participants’ everyday lived experience with regard to the use of Twitter as a professional learning network and the meaning of that experience (Appendix D). The scheduling of the personal one on one interviews were scheduled using direct messages on Twitter. Each
participant was given several days and times to consider for an interview. Once all interviews were scheduled, the researcher practiced a Skype (https://www.skype.com/en/) session with a colleague to ensure the collection of the interview data would work. The first interview was with Evan. Evan’s interview lasted 84 minutes. The next interview was with Mabel. Mabel’s interview lasted 64 minutes. The next interview was with Jarrod. Jarrod’s interview lasted 72 minutes. The last one on one interview was with Doug which lasted for 80 minutes. During the interview, the researcher was focused on the initial questions and subsequent necessary follow up questions, so in order to get a sense of the overall response, initially, the researcher replayed each interview without any transcribing. This also ensured that there were not any technical issues with the recordings. During this preliminary listening, the researcher created researcher memos to record thoughts and ideas that seemed significant to the research questions. After the initial playback of the interviews, the researcher transcribed each of the interviews using Transcribe (https://transcribe.wreally.com/). The transcription process was a lengthy process. The researcher transcribed word for word each of the interview responses. When the researcher recognized something memorable, it was further noted in the researcher memos established for each participant.

After the personal one on one interviews were analyzed individually, the initial focus group interview was scheduled. To schedule the focus group, four informants and five different time zones needed to be considered. The researcher used Doodle Poll (http://doodle.com/) to share open opportunities to have the focus group convene. The first focus group that was scheduled was void of one participant. Upon a request to reschedule, all four informants and the researcher could be present. The focus group met during a synchronous online SKYPE session to discuss aspects of the primary interviews that were unclear or needed additional explanations. Questions, again, were formulated and shared based on the same responsive interview model and were written to delve deeper into the
focus group responses (Appendix E). Answers were recorded using the embedded SKYPE record feature and transcribed using Transcribe. The researcher shared the major themes consistently evident during the one on one interviews. Throughout the focus group interview, the researcher developed ad lib questions as necessary based on responses of the participants. The first online focus group lasted 68 minutes. A tertiary piece of the data collection was the subsequent terminal focus group interviews via a synchronous session that allowed for participants to share and debate experiences as well as to ensure the researcher understood the experiences and illustrated them appropriately. This session was scheduled, recorded and transcribed in the same manner as the aforementioned procedure. This terminal focus group session was a shorter 24-minute recorded session.

Protocols were established for each phase of the interview process and as part of the methodology, participants were made privy to the data results prior to publishing in order to ensure the data communicates the intent of the participants’ responses. Throughout the interview process, member checking was handled by the researcher continually sharing emerging themes and asking for clarification as needed. Ancillary to the interview process was a content analysis and coding of the “tweets” that were created by the participants. Alongside the informants’ tweets, other members of the researcher’s and informants’ Twitter professional learning networks were captured and utilized as a means of credibility and additional member checking over the eight-week data collection period. Through Follow the Hashtag, www.followthehashtag.com, a Twitter analytics tool, the researcher was able to retrieve four weeks’ worth of Tweets from each informant. These tweets were categorized within the major emerging themes the researcher had previous noted in the interview data analysis. Appendix F is an example of one informant’s analytics. These Tweets were transcribed into a word document by the researcher and embedded as a primary document.
within the complete data analysis and subject to the same coding as discussed further in this research.

For further credibility and consistent member checking, the researcher created questions to share on Twitter, listing the research IRB reference asking for additional thoughts or comments on the statements shared within the data capture. With the creation and designation of #tweetlearntweet, the researcher shared four questions (Appendix G) soliciting responses from participants and other educators within the participants professional learning network. Responses and asynchronous commentary were collected from the four informants and an additional eight educators who shared responses to the preliminary findings. These Tweets were translated into a word document and used as a primary document in the complete analysis of data as well as a separate data piece; content analysis.

Throughout the data collection process the researcher relied heavily on personal memos to help make sense of the data, share personal reflections on the process and continue to formulate questions during the process. Prior to the data collection the researcher created a matrix (Table 6) that displays what the researcher needed to know, the rationale, and the process by which each concept was to be explored. The researcher created a personal researcher memo for each participant. Additional memos were created to record methodology reflections and general reflections. Initially, the researcher created these memos in Microsoft Word and the salient points were then added as memos in Atlas ti (2013).
Table 6.

Data Collection Strategies and Timeline Matrix

<table>
<thead>
<tr>
<th>What do I need to know?</th>
<th>Why do I need to know this?</th>
<th>What kind of data will answer the questions?</th>
<th>Where can I find the data?</th>
<th>Whom do I contact for access?</th>
<th>Timeline for Acquisition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educators experiences with traditional professional learning</td>
<td>To gain insight to historical experiences as to better understand educators' perspectives</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators beliefs about traditional professional learning</td>
<td>Beliefs of educators will formulate the perspective of the educators and allow a comparison between traditional professional learning and Twitter learning experiences.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators participatory tasks with Twitter</td>
<td>To understand how educators are using Twitter and how they decide what to use it for. This will shed light on the types of tasks educators can participate in through Twitter.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators reasons for</td>
<td>To understand the</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Utilizing Twitter</td>
<td>motivation behind using Twitter. This will give insight as to the characteristic s of educators that use Twitter. It will also indicate the self-directedness that Twitter necessitates.</td>
<td>Tweets shared by participants</td>
<td>Archival analysis of Tweets</td>
<td>#followthehashtag and a search of @ (Twitter handle)</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
<td>-----------------------------</td>
<td>-------------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Educators experiences with Twitter</td>
<td>This will allow me to understand educators’ perspectives on self-directed professional learning. It will also discern meaningful experiences from not so meaningful ones.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators beliefs about Twitter and the impact to pedagogy</td>
<td>This will indicate whether Twitter is impactful to the art of teaching and in what ways educators’ pedagogy is transformed.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators beliefs about Twitter and the impact on relationships</td>
<td>This will indicate if Twitter is impactful on collegial relationships and how it</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators beliefs about Twitter and the impact on classroom climate</td>
<td>This will indicate if Twitter impacts an educator’s classroom climate and what the impact is.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>---</td>
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<td>---</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Educators beliefs about Twitter and impact on classroom methods</td>
<td>This will indicate if Twitter impacts the methods an educator relies on in the classroom and if there is transformative value in using Twitter.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators beliefs about Twitter and impact on motivation</td>
<td>This will indicate if educators are more motivated in some capacity when interacting on Twitter. It will also shed light on the characteristics of educators with regard to motivation.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators beliefs about Twitter and transforming</td>
<td>This will indicate if Twitter is transforming</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Impact on Educator Learning</td>
<td>Educator Learning and the particular things it is impacting.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------------------------------------</td>
<td>----------------------------</td>
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<td>-------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Educators beliefs about the effectiveness of Twitter as a professional learning network</td>
<td>This will indicate if Twitter is effective as a professional learning network and why it is perceived as such.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators beliefs about Twitter as a collaborative tool</td>
<td>This will indicate if Twitter is a collaborative tool for educators. It will also indicate if educators place value on collaboration.</td>
<td>Semi-structured interviews</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
<tr>
<td>Educators beliefs about the contribution of Twitter</td>
<td>This will indicate whether educators feel Twitter has a positive impact. This will also shed light as to the specific ways Twitter contributes to educator learning.</td>
<td>Semi-structured focus group interview</td>
<td>Transcript from interviews</td>
<td>Participants</td>
<td>June 1-July 31, 2017</td>
</tr>
</tbody>
</table>

**Data Analysis**

Data analysis with a case study can be overwhelming due the fact that it can generate a cumbersome amount of interview notes and transcripts. Using a computer assisted qualitative data analysis system (CAQDAS) and the approach of noticing, collecting, and
thinking (NCT) (Seidel, 1998), the researcher relied on R (2013) to store and support the analysis all of the data. Specifically, the researcher relied on the following to aid in the process:

*Table 7.*

**Atlas Ti tools used in research**

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
<th>Used by Researcher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hermeneutic unit (HU)</td>
<td>the data file that stored the data and everything related to the data</td>
<td>Started a new project and uploaded all original data and researcher created transcripts</td>
</tr>
<tr>
<td>Memos</td>
<td>the receptacle for all of the researchers thoughts and ideas</td>
<td>Created a memo for each participant with ongoing reflections and ideas and questions as well as a general memo for the entire process</td>
</tr>
<tr>
<td>Network view</td>
<td>the visualization of the relationships of the selected data</td>
<td>Conceptualized the connection of the data with the theories and content of supported literature review</td>
</tr>
<tr>
<td>Primary documents</td>
<td>transcripts of all of the data</td>
<td>15 transcribed documents were uploaded; original data sources were uploaded but not used except for review if needed</td>
</tr>
<tr>
<td>Query tool</td>
<td>Retrieval tool for quotations based on combinations of codes</td>
<td>Used for co-occurrence of codes that overlapped</td>
</tr>
</tbody>
</table>

Each piece of data uploaded was a primary document, together forming a hermeneutic unit. Figure 3 illustrates the primary documents prepared by the researcher that were used in this study. Each of these documents were comprised of transcriptions of online reflections, one-on-one interviews, focus group interviews, content of Tweets and researcher notes. Tweets were additionally transcribed as the Mac version of Atlas ti does not offer Tweet imports as of analysis date. The researcher notes that these documents ranged from 3-12 pages each, depending on the document. Primary documents 1 through 4 listed in figure 3 are the personal online reflections. Primary documents 5 through 7 are the individual personal interviews. The other primary documents were labeled more precisely. As the researcher was
using Atlas ti for the first time, the nuances of the program were often learned after some of the screenshots were captured and analysis completed.

![Figure 1. Primary Documents. This is a listing of the primary documents used for analysis in this study.](image)

Atlas Ti (2013) guided the open and axial coding (Strauss & Corbin, 1990), as well as provided an instrument to display the summaries of the conducted analysis. Initially to analyze the data, the researcher determined what parts of the responses were most important to the efficacy of the study. The initial open coding of primary documents through Atlas ti (2013) allowed for the researcher to reference important aspects of the interview. The researcher began the data analysis by reading through each document and building a library of quotations and comments. Each quotation was assigned an open code. For example, the researcher coded the description each participant offered about traditional professional learning with the code TRADITIONAL EXPERIENCES. Thus, any experience highlighted in the online reflection, the one on one interview, the focus group interview or tweets that related to traditional professional learning was coded. This same pattern of assigning codes for each primary document was followed within the hermetic unit. The research approached the initial open coding in this way in order to establish a consistent reading of each transcription so a general idea of codes could be established before assigning more specific
finding interesting ideas, segment by segment, and assigning codes to them. This initial open coding and commentary helped the researcher identify relevant quotations. Atlas ti (2013) references quotations using a quotation ID (the primary document where the quote is found) in addition to the location of the quote within the primary document (the paragraph number at the start of the quote) making it easier for the researcher to refer back to quotes. After the initial quotation and commentary library was created, the researcher assigned a subsequent open code to each quotation. Beginning with Evan, then Mabel then Jarrod, then Doug, the researcher coded over 300 quotations initially comprising 26 codes. As the researcher worked with each new primary document, new codes were formulated thus prompting the researcher to revisit primary documents over again. This framed the initial coding manual used in the data analysis. Noted below are the codes, in capital letters, and sub-codes, as delineated with an underscore and lowercase lettering used as codes in the coding manual. As intricate as the initial coding was for these documents, it was necessary for the researcher to create sub-categories of codes to allow for more specificity of the data analysis. For example (Figure 4), the researcher identified a plethora of experiences shared by the participants that echoed positive experiences with Twitter. To better understand the specific experiences that participants felt were positive, the researcher created sub-categories identifying reflection as a positive experience, combatting isolation as a positive experience and twitter relationships as a positive experience. Each quotation was coded within a code or a sub-code, or multiple codes and sub-codes depending on the content of the quotation.
Figure 2. Codes Created in Atlas ti. This is a list of codes created by the researcher during the open coding analysis of the primary documents.

A caveat of Atlas ti (2013) is, through the open coding process, the researcher has the ability to tally the frequency of each code and the relationship between each code. There were multiple codes the researcher applied with more frequency. Using the code co-occurrence table analysis tool, the researcher was able to determine, for example, the code of Reasons for Twitter and Twitter Experiences had a high level of co-occurrence so the researcher merged those codes. Through this exploration of code merging, the researcher also used the analysis word cruncher tool to identify the impactful terms informants were using. For example, by extracting terms and derivatives of the terms, collaborate and isolation, the researcher was able to assign broader code categories as groups that related to self-efficacy, pros and cons, pedagogy, educator impact, collaboration and classroom impact. These groups (Figure 5) were created as they related directly to the research questions. By creating these groups, the researcher was able to funnel the descriptive evidence into these groups and utilize axial coding to centralize the data.
Figure 3. Groups Created in Atlas Ti. These are the groups that were created in Atlas Ti that directly related to the research questions.

Axial coding in Atlas Ti (2013) aided in the organization of previous quotations among central themes. The linking of the text codes is crucial to the study as it linked the words of the participant to the researcher’s approach. It is through this reanalysis that the researcher illustrates new understandings of the experiences. Throughout the coding process, the researcher also relied on continual personal memo documentation to make connections and realizations among the themes that were pertinent to the research questions. The following figure (Figure 6) is an example of the coding process used during data analysis.

Figure 4. Open and Axial Coding Example. This illustrates the use of Atlas Ti software showing the coding process used during data analysis.

The analysis of the interview data was an ongoing, overlapping process in order to dive deeper into the participants’ experiences. Since participants’ tweets were transcribed into documents, the coding of the tweets occurred in conjunction with the interview transcript.
analysis within the same groups as indicated in table six, above. In addition, the tweets were extracted categorically to suggest content themes. In this manner, as previously stated, the tweets served as a dual data resource.

In the next stage of analysis, the researcher used Atlas ti (2013) analysis tool functions to further dissect codes and relative quotes to create a visual representation of the interrelatedness of the data and look in more detail at the research questions and the data that supported them. The researcher created a visual representation (Figure 7) to show the interrelatedness of the codes and sub-codes that were created by the researcher. This was done so the researcher could visually comprehend the connective ideas that emerged from the data.

![Figure 5. Visual Network Representation of Codes. This is a pictorial representation of the interrelatedness of themes and topical research created by the researcher.](image)

This is a pictorial representation of the interrelatedness of themes and topical research created by the researcher.
After creating the visual network and viewing the pictorial interrelatedness, the researcher analyzed each node and the documents associated with the node. Specifically the researcher looked at coding individual quotes as they related to the pertinent research questions of the study. By disaggregating the quotes, the ideas that related specifically to the research questions were aggregated into additional groups labeled RQ1 and RQ2. By focusing the analysis of the data on these two questions from within the aforementioned coded groups, the themes that emerged were even more definitive. The researcher ran report query illustrating each analysis filter used. Figure 8 shows a sample of the quotations filtered by the code RQ 1. Figure 9 shows a sample of the quotations filtered by multiple codes.

Figure 6. Quotations Filtered by RQ1. This is an illustration of the report query used that filtered quotations by research question one.
After the analysis of the group codes and quotations, the researcher then looked specifically at each informant’s data individually to encourage the narrative for each informant. The informants’ individual voice is important to this research, it is the researcher’s belief that a collective voice is also crucial. To “build abstractions across cases” (Merriam, 2009, p. 121) the researcher used co-occurrences of codes through filtering data within the co-occurrence analysis tool. This allowed for the researcher to see what codes were specific to each participant and as a collective group. Figure 10 and 11 show the researcher’s method in filtering and obtaining co-occurrence code data.

Figure 7. Quotations Filtered by Multiple Codes. This is an illustration of a query where quotations were sorted by Pedagogy and RQ1 to show a multiple code query used by the researcher.
Trustworthiness

There are multiple strategies to consider within a qualitative research study in order to assure trustworthiness. Lincoln and Guba (1985) posit that trustworthiness of a qualitative research study is important to evaluating its worth. Trustworthiness involves establishing credibility, transferability, dependability and confirmability. The following details how credibility, transferability, dependability and confirmability were addressed as the researcher explored educators’ experiences with Twitter as a professional learning network.

Credibility

According to Merriam (1998), a qualitative research equivalent that suggests internal validity of a study is to consider how consistent the researcher’s findings are with reality. Merriam (1998) suggests adopting a well-established research method and triangulation as two provisions that will provide credibility to the phenomena under analysis. In particular, this study is comprised of a well-recognized research tradition in that the research methodology is a case study. Triangulation of data through multiple informants will further
ensure credibility of the study. Since the field of study is infant in its specificity a deep examination of previous literature about professional learning, both traditional and online and the use of social media for educator learning has framed the researcher’s findings. To further produce a credible body of work, the expressed confidentiality of the responses encouraged honesty of participants. Furthermore, participants were allowed to refuse participation at any time during the study to provoke credible research. Lastly, by sharing the data and interpretations with the participants allowed for them to check the accuracy to further promote credibility within the body of research.

**Transferability**

Within a qualitative research tradition, transferability takes the form of naturalistic generalization (Stake, 2005). Naturalistic generalization allows for an audience of research to reflect on the descriptions in the research against their own experiences to determine if their personal schema is compatible enough to the research results to make generalizations. To ensure transferability of this study, the context and detailed description of the phenomenon being explored is explicitly communicated. A “rich” and thorough description of the experiences of educators who use Twitter as a professional learning network is provided (Guba, 1985). Lastly, the researcher ensured a purposeful sampling with a set criteria to ensure transferability. This type of sampling assumes varied responses from participants.

**Dependability**

To support the dependability of this qualitative research, the researcher provided an in-depth description of the context and boundaries of the case so it can be replicated in the future. Similarly, the processes used in this study have been reported in detail enabling further researchers the ability to repeat the work. Allowing member checking, whereby informants are allowed feedback on results also supports the dependability of this study. The
participants were given the opportunity to read the entire final dissertation and provide feedback.

**Confirmability**

To ensure confirmability of this study, the researcher expressed a personal worldview and any predispositions or biases personally brought to the research. With regard to data collection and analysis, the data was triangulated to alleviate researcher bias. Lastly, the researcher ensured accurate and thorough record keeping of the entire methodology to confirm that any decisions made throughout the process are clearly understood.

**Ethical Considerations**

Ethical considerations in research are critical. Ethics are the norms or standards for conduct that distinguish between right and wrong. They help to determine the difference between acceptable and unacceptable behaviors. The Belmont Report (1974) suggests three basic ethical principles relevant to research involving human subjects. First, participants should be treated with respect. This includes participants receiving a full disclosure of the nature of the study, the risks, benefits and alternatives, and are afforded an extended opportunity to ask questions. Respect assumes autonomy of participants. Since this research was conducted with educators, the participants had full autonomy with regard to their participation. Therefore, although it doesn’t pertain to this study, persons with a diminished autonomous disposition, such as children, should never be coerced to participate in research. Beneficence refers to the maximization of benefits to the research and the minimization of anything harmful. The research for this study did not presume any harm to the participants. The question of justice begs, what is deserved? One way of regarding the principle of justice is that equals ought to be treated equally. In this manner the avoidance of an injustice occurring, for example, when some benefit to which a person is entitled is denied without
good reason or when some burden is imposed unduly, is avoided. The nature of this study capitalizing on the individual experiences of educators who use Twitter for professional learning is esteemed with ethical competence. To further ensure a strong ethical study, the researcher has adopted the following Decalogue that was adhered to during the research:

1. Treat all participants in a manner that does not cause any harm.
2. Ensure complete privacy and anonymity of participants.
4. Clearly inform participants of the nature of the study.
5. Create a trustworthy environment.
6. Remain impartial.
7. Safeguard a professional relationship with participants.
8. Be respectful of time and space.
9. Fairly represent the data.
10. Share in the celebration of the work.

**Conclusion**

This chapter began with the researcher’s worldview and explained the specific methodology complete with the rationale for this qualitative case study. This chapter further discusses in detail the participants that were a part of this study and the intricacies of the data gathering. The researcher shares in detail each step of the analysis process and lays out the considerations for the trustworthiness of this study. Lastly, this chapter shares the limitations and delimitations with the methodology of this study and the ethical considerations that the research took into account to establish this research. Chapter four will present the data findings and the researcher analysis based on the findings.
Chapter Four

Findings

Data Descriptions

In this qualitative case study, the researcher examined the experiences of educators with Twitter as a professional learning network. Specifically, the overarching research questions were:

1. Does Twitter, used as a professional learning network, impact educators’ self-efficacy and educators’ collaborative experiences?
2. Do educators’ experiences through Twitter as a professional learning network impact classroom practice and pedagogy?

Through personal written reflections, intensive one-on-one interviews, follow up focus interviews and continuous member checking of the four informants, these research questions were investigated.

After methodic analysis with Atlas ti (2013) noteworthy themes of isolation, collaboration, pedagogy and classroom methodology and climate emerged. Each theme occurred in each of the data sources collected from each informant. This chapter presents the findings and interpretations for the case analysis. Initially, a portrait of each participant is shared beginning with Evan, then Jarrod, then Mabel, then Doug. Each portrait shares the participant’s personal experiences and feelings with traditional professional learning and then the participant’s personal experiences and feelings with Twitter as a professional learning network. The major themes are highlighted for each participant through the narrative. The case narratives terminate with a summary of the findings inclusive of final member checking.
Lastly, this chapter provides researcher analysis of the case findings based on the evident themes. Through the participants’ varied experiences, findings are directly tied to each research question one and two.

There were many illustrative stories to select to represent the evident themes identified in the data and frame the research questions. The researcher chose examples that were not only identified as high frequency examples, through Atlas ti (2013), but also had the most significant voice.

**Evan**

Evan is a global educator. His focus is on special education as this juncture in his career. Evan has a passion for his learners. He believes that relationship building with his students and technology integration and exposure are the most important aspects to his teaching. Evan considers himself to be a motivated educator. He does not wait to be given information and often seeks out more learning when a topic interests him or even more so when a topic interests his learners. He recognizes that he has to stay relevant with his learners and shares, “My students come into class all the time with more technology knowledge than me, so I need to quickly be able to respond to that need” (personal communication, June, 2017). Evan began using Twitter at the prompting of a colleague three years ago. He purely uses Twitter as an educational tool.

**Traditional Professional Learning Experiences**

Evan describes his professional learning as not varied. He describes instances of professional learning that were county mandated. Some of Evan’s experiences involved sessions at the county office while other sessions saw county personnel or county appointed personnel assigned to Evan’s specific school. Topics were haphazard and often did not relate to Evan’s teaching context. For example, Evan shares that an entire professional development
cycle centered around working with students on the Autism spectrum and Evan did not have any students with Autism. In fact, there were only a handful of learners that this training was pertinent to. Evan shares the experiences were “scattered” and states, “I don’t think it was really professional learning. It was sitting and getting information” (personal interview, June, 2017). Evan’s further experiences with traditional professional learning have provided him the opportunity to have more personalized learning, if he seeks it out. In his current teaching context, schools and individual teachers are in charge of their own professional learning.

While this is attractive in some regards, Evan shares that it is challenging to find the time to seek out one’s own professional learning. When the researcher asked what the challenges are, Evan argued that, “Mostly I don’t even know where to start. I mean now, I have Twitter, but before Twitter, I was literally looking for flyers in the mailroom just to be able to attend something” (personal interview, June, 2017).

**Effectiveness of Traditional Learning Experiences**

Evan’s feelings about the effectiveness of his traditional professional learning are somewhat of a letdown. Evan shares he typically is excited about traditional professional learning but then feels that one of two things happens after the experience. Evan suggests that “traditional professional learning is short lived” with “very little follow up to see if we are implementing what was learned” (personal communication, June, 2017) back in the classroom or “Worse. It (traditional learning experience) is not used at all” (personal communication, June, 2017). Evan feels that the effectiveness is limited by how relevant the training is to his own teaching context or his own motivation to implement what was learned.

Evan summarizes the effectiveness of his traditional professional development experiences by saying it is limited based on “how interesting to me the person is that is presenting; how essential I feel the information is to my practice; and the level of support of my

**Twitter Experiences as a Professional Learning Network**

Evan remarks, “I’m one of those every day Twitter people” (personal interview, June, 2017). He uses Twitter to post original ideas and thoughts as well as re-tweet ideas and thoughts of others that he feels has merit. He does sometimes approach Twitter more passively and just reads threads without adding commentary. However, Evan feels that “the whole point of Twitter is collaboration” (personal interview, June, 2017) and argues that even though there is a feeling of vulnerability in putting himself out there among so many people, that without sharing, there really is no point in the tool. Laughingly, Evan shares, “I mean, if everyone just lurked and read things? Well, who would be creating the information to share? Twitter wouldn’t even exist. Right?” (personal interview, June, 2017).

Evan states that he pays attention to specific content over Twitter personas. “If I see something that resonates with me and is specific to my needs, I will interact” (personal interview, June, 2017). Evan mentions again that he feels it is important to thank people for sharing. “Simply thanking them maintains a human aspect” (personal interview, June, 2017). Within a Twitter chat context, Evan seeks out chats that focus on “keeping kids first” (personal interview, June, 2017). Examples include #kidsdeserveit, #makeitreal and #tlap. Evan also seeks out conversations that will further cultural understanding and eliminate bias. Since Evan teaches in an international school, Evan chooses many interactions that involve a global perspective with participants abroad or in the United States.

**Positive Experiences with Twitter**

Evan describes his experiences with Twitter as a professional learning network center as overwhelmingly positive. He specifically addressed three main areas when the researcher asked what he liked about interacting with Twitter chats. The positivity, the relevancy of the
topics and what Evan identifies as “the robust discussion” (personal interview, June, 2017) are the three areas Evan stressed as being things he liked about Twitter as a professional learning network.

Evan finds very little criticism from others when interacting on Twitter. He has the impression that Twitter seems to be a more level playing field with regard to teacher knowledge. Do to the online format, it “eliminates the intimidation factor” (personal interview, June, 2017). Evan furthers, “You’re not sitting next to someone who apparently knows more than you do in a traditional setting” (personal interview, June, 2017). Evan believes that Twitter is a place of encouraging professionals. He goes on to share that even if he is just scrolling through Twitter feeds, the general sense he gets is one of “positivity, motivation and willingness to help others” (personal interview, June, 2017). In one experience, Evan highlights a conversation about blended learning. Evan retells that as the words were scrolling by, he realized his knowledge base on this topic was lacking. Evan admits that in a traditional professional learning setting, he would have likely just sat and listened and eventually turned his thoughts to the things he needed to be doing instead of listening to the information about blended learning. However, when presented with this information on Twitter, Evan interacted immediately. By simply typing “I admit I don’t know much about this topic. Can’t wait to learn” (personal interview, June, 2017), a group of teachers in Evan’s Twitter professional learning network suddenly exhibited camaraderie in not knowing much about the topic either and Evan believes they were able to dissect the confusion together with experts in the chat who did have experiences with blended learning.

The relevancy of topics is a positive for Evan. Being able to choose what he is interacting with and whom he is interacting with are very important to Evan since his traditional professional learning experiences offered little choice. He appreciates that “the topics change as education changes” (personal interview, June, 2017). Not only do the topics
change, but the educators using Twitter are up to date with the innovations in education. Evan marvels that while he may not be up to date on all things educational all the time, through Twitter, he finds that extra encouragement to be more up to date and shares that there are always educators who know more than himself. When the researcher probed if the knowledge of feeling somewhat out of his depth created any sort of feeling in him, Evan said for him, he took the feelings as a positive. In his own building, Evan feels on the forefront of methods and approaches with his learners. Through Twitter, however, he reconciles that, “Maybe I don’t know as much as I thought I did. There are all of these educators out here doing more and trying more” (personal interview, June, 2017). So for Evan, this nudged him to continue to grow professionally and seek out other resources based on what he was learning through Twitter as a professional learning network.

Evan shares his surprise at how robust a conversation in Twitter can be. He is convinced the varied voices that interact on Twitter create this strong discourse. One thing Evan feels is often missing in traditional professional learning is the conversation. “We never have time to talk to other teachers about what we are learning. We are just given the information and that’s it” (personal interview, June, 2017). He feels that Twitter affords the opportunity to talk and share through “conversations that are natural and organic” (personal interview, June, 2017) that are derived from needs of teachers. Evan concludes, “I mean if you think about it, you’re getting so much more professional learning around so many more topics that you select. Everyone is bringing their own perspective and their own experiences, even their own training to Twitter” (personal interview, June, 2017).

**Educator Isolation and Twitter**

“I went through some major times where I was lonely and isolated. It put me in a negative place with education” (personal interview, June, 2017) Evan says matter-of-factly. Evan feels he is an “oddity” (personal interview, June, 2017) in his current teaching context.
He says there is only one other teacher with similar methodological and philosophical approaches within his school building. Evan says it is Twitter that saved him as a teacher. In fact, Evan believes Twitter is “teacher changing” (personal interview, June, 2017). When asked to share what it is about Twitter that quashes his feelings of isolation, Evan shares he just became aware that no matter what the issue or concern or struggle he was dealing with, he could turn to Twitter for answers, suggestions and sometimes just moral support (Figure 12).

A7: I rely on my PLN. When I'm down or too hard on myself, there are ppl ready to encourage me to dust myself off and move on. #weleadby

*Figure 10.* Twitter Response from a Twitter Chat. Evan shared commentary suggesting how Twitter impacts him.

Evan shares his amazement at the myriad of issues Twitter provides a support platform for, “I mean, did you know there is a fit chat for educators? It’s just teachers who are trying to balance teaching and exercising” (personal interview, June, 2017). Evan effuses a comfort level with his colleagues on Twitter, but does admit that while it helps his own feelings of personal isolation, it is sometimes a Catch 22 in his own building. While Evan tries to share things he is learning from his professional learning network on Twitter, he is conscious that he is met with some resistance. He shares the internal struggle he feels of the notion that perhaps he should be learning and growing with people in his own building. He also mentions that Twitter seems to suspend the reality of his teaching context. He goes as far as to say, “The positivity exists virtually” (personal interview, June, 2017). He clarifies this statement by saying that he will walk away from a Twitter interaction very energized and excited only to be met with consternation and naysaying in his own school. He has difficulty rationalizing
the feeling of, “wait…people on Twitter just told me these ideas are great…why doesn’t my own building see that?” (personal interview, June, 2017).

**Educator Collaboration and Twitter**

Evan feels that the collaborative nature of Twitter is innate. He understands the learning curve and the hesitation with new educators that begin their journey on Twitter, but urges that in order for Twitter to really manifest as a learning place for educators, people have to work together. For Evan, being selective is paramount to the collaborative experiences on Twitter. One perspective Evan shared was the notion that if you are not aware of who you are interacting with, you could end up with only a singular viewpoint. Evan feels that the larger audience in a Twitter professional learning network, although supporting some of the positive traits of Twitter, can make collaborating a little more challenging. Evan shares a personal example that he captions, “More of a southern ‘we should get together’ instead of a true let’s get down to doing something together for our learners” (personal interview, June, 2017). Evan was prepared and energized to share a cross-cultural experience with another teacher and the students of that teacher. After the initial excitement and exchange of several direct messages, the idea just filtered out. When the researcher asked how this was the same or different to traditional collaborative experiences, Evan paused. He then suggested that perhaps, “Twitter broadens the idea of collaboration” (personal interview, July, 2017). Evan postulates that collaboration does not have to be a long, drawn out process resulting in a product. Evan supposes some collaboration could be in the form of a conversation. “In fact,” Evan continues, “even in my school, I don’t have the time or take the time to collaborate even in conversation in the hallway, so Twitter takes that barrier away” (personal interview, June, 2017). “We get more out of who we collaborate with on Twitter because it’s purposeful and intentional” (personal interview, July, 2017). Evan is open to tackling larger collaborative pieces with educators. He notices that through Twitter what evolves as a collaborative
experience is more of an asynchronous experience. “You know. We collaborate on an idea with our 140 characters and then we each go into our own schools and try it and then we get back to each other (Figure 13)” (personal interview, June, 2017).

Figure 11. Twitter Response from Evan. Evan shares commentary illustrating collaboration. When probed about the success of continued collaborative experiences through Twitter, Evan laughs and says, “Well, it might be easier to collaborate with people in the same space but you certainly don’t get the varied perspectives” (personal interview, June, 2017).

Pedagogy Impact with Twitter

Evan has always had a difficult time defining himself in terms of his pedagogy. He simply states that he could always describe what he does in his classroom with regards to lessons and methods, but on a broader sense, he was challenged with crafting a sense of the art of teaching. Evan shares:

I know that I am deeply student centered. Relationships matter to me. Before Twitter, I focused on my relationships with my learners. Those have always been strong. But nothing else in my teaching was changing. In fact, I was the teacher who would talk about taking risks, trying new things, growing so I could do more for my students. But I wasn’t doing it. It wasn’t until I started using Twitter that I observed many other teachers who valued relationships with students but were pairing that with innovative teaching (personal interview, June, 2017).

It was a wake-up call for Evan, He knew that to better inform his practice he had to take some of what his Twitter professional learning network were sharing and modify it to suit the
needs of his learners. Without Twitter, Evan’s approach to teaching and understanding of the profession would have never evolved (Figure 14).

Figure 12. Evan's Twitter Commentary on Pedagogy. A Tweet sharing Evan's feelings on pedagogy.

“Twitter motivated me to keep on growing. It was easy for me to feel comfortable in my limited group” (personal interview, June, 2017). Evan says that it’s an adage that education is always changing and admits “I don’t like abrupt change, but Twitter has helped me see change is positive, especially when it comes to my pedagogy” (personal interview, June, 2017).

**Classroom Methodology and Climate Impact with Twitter**

When the researcher asked specifically about classroom methodology and the climate of his classroom, Evan shared that his experiences with Twitter have directly impacted specific methodologies in his classroom and enhanced the overall positive climate in his classroom. Evan expands on this by sharing an experience with a Twitter chat about flipping one’s classroom. Evan had slight exposure to this method and was trying to roll it out to his classroom, but was not really sure how to implement the specifics, especially with technology being a challenge for his learners. While involved in a chat centering on flipped learning, Evan asked for help with Flipgrid (https://info.flipgrid.com/) (Figure 15).
Figure 13. Tweet Soliciting Help for Classroom Methodology. Evan's Twitter reply asking for help on flipped class methodology.

Flipgrid is a voice discussion platform whereby students create their own videos and responses to peers. What ensued for Evan was a process of learning all he could about Flipgrid ultimately earning him the accolade of Flipgrid certified educator (Figure 16).

Figure 14. Tweet Illustrating Professional Growth. Evan shares his success at earning a digital badge and acquiring new learning.

Evan continues explaining the badging system educators can be a part of. “It’s basically a system of digital tokens that appear as icons or logos” (personal interview, June, 2017). Evan houses his badges on his classroom blog and shares them in his Twitter biography. To earn a badge, an educator completes a specific set of criteria. Evan feels it’s an “amazing way to

While Evan shared the impact Twitter has on his approaches to teaching, he also shares that Twitter changes his classroom climate. He says his learners know when he has discovered something new on Twitter to try. Evan shares an anecdote in which his learners would “sort of roll their eyes when I would come back from traditional professional learning. They knew I had been out and were ready for some disconnected idea to be tried out on them” (personal interview, June, 2017). Now with Twitter, they (his learners) are exposed to more technology, more innovation and a consistent process with these things. “It’s not like we try one thing and move on. Because I have such a strong Twitter professional learning network I can circle back around with things I am trying and make them better” (personal interview, June, 2017).

**Reflective Practices with Twitter**

Evan feels that Twitter limits the reflective response somewhat, “because you only have 140 characters and sometimes I have more to say” (personal interview, June, 2017). Evan does suggest that the use of images and quotes offer a good starting point for reflective discourse and says, “Of course just responding to someone requires some level of reflection, I mean you’re not just saying stuff to say stuff” (personal interview, June, 2017). The most reflective learning Evan shares is the notion that he realized that he has a lot of room to grow. As someone who considers himself knowledgeable and masterful in the profession, Evan realized through Twitter that this feeling was built on the perspective he had of himself in his own building. “In Twitter, I see everyone growing. It made me realize I have room to grow” (personal interview, June, 2017). When Evan was asked if there was an instance he could highlight from his classroom that showed the reflective nature of Twitter, he shared that he
was in a chat and teachers were sharing about implementing a design cycle challenge. He jumped on board and decided to try it with his learners. Evan shares, “It was disastrous. Probably one of the worst lessons I ever taught” (personal interview, June, 2017). So from that instance, Evan learned “I had to remember not to jump on the Twitter bandwagon and reflect on my own teaching context before implementing something I find” (personal interview, June, 2017). Evan laughingly shares, “Just because it’s on the internet…” (personal interview, June, 2017) suggesting that everything on the internet is not good or true, relevant or wholesome. With the rapidly changing information shared on Twitter, Evan punctuates, “We can’t be zealots. I am quick to reflect on traditional professional learning experiences. Twitter gives us the opportunity to be reflective practitioners, we have to do it. Twitter is not a cure all without teacher reflection” (personal interview, June, 2017).

Negative Experiences with Twitter

While Evan shared many positive experiences with Twitter as a professional learning network, according to Evan, it is not without some challenges. The limited text allowed sometimes presents a challenge for Evan when he wants to say more or expand on a thought, but, “On the flipside of that? It makes everyone be concise and focused” (personal interview, June, 2017). Evan shares that the largest negative issue he has with Twitter is that sometimes educators “fall into the trap of looking for stars—eduheroes—edu-stars” (personal interview, June, 2017). Evan is direct in sharing that he “does not want to follow someone just because everyone else thinks they are great” (personal interview, June, 2017). He feels that there tends to be a common desire for educators to gather as many followers as possible, but for Evan, it is “quality over quantity” (personal interview, June, 2017) and quality for Evan are “People that are going to influence and make my teaching better” (personal interview, June, 2017). Evan says if you are just building a following without regard to who you are
following, “You may as well just stick to traditional professional learning” (personal interview, June, 2017).

Evan also highlights that while he appreciates Twitter as a generally positive place, he feels there is an “unwillingness for some to bare the truth” (personal interview, June, 2017). He likens this to using filters on today’s social media photograph applications. “On Twitter you can curate things, you can share what went well. You can put an image out that isn’t a true reflection” (personal interview, June, 2017). For Evan that negative has caused him to be more discerning and reflective in his own practices and the practices of others. For Evan, “Real life teaching can be an utter disaster. Despite my own research and planning. For me? I want to share that with people, we only get better when we share our failures” (personal interview, June, 2017).

Lastly Evan shares that Twitter highlights people getting “over caught up with what is popular for the time” (personal interview, June, 2017). Evan shares an example with “grit.” He said when “grit” became a term in education that we needed to address with our learners, it appeared that every Tweet was about grit. He shares this same perspective with new educational technology tools. “They are shared on Twitter as if they are going to be life changing. What is Grit today on Twitter is something else tomorrow” (personal interview, June, 2017).

**Jarrod**

Jarrod is a private school middle school educator. His school is located in a very small parish in the Midwestern United States. Jarrod describes himself as more of an introvert when it comes to interacting with other teachers, but a “teacher that comes to life” (personal communication, June, 2017). Jarrod’s subject matter is on social studies and he shares that making the content come to life for his learners it what is most important to him. Since Jarrod teachers in a small parish with limited resources, he loves the ideas that Twitter has illustrated
for him. He feels that Twitter allows for his classroom walls to be expanded beyond what he could do by himself.

**Traditional Professional Learning Experiences**

Jarrod illustrates his traditional learning experiences as typical workshops with a lecture based format. He says his school typically has a focus each year. He is not sure how the focus is chosen and has yet, after six years of teaching, been involved in a workshop or training that has any relevance to his teaching. Jarrod did offer that interwoven into the year of professional learning is training on cultural competence. While he finds the information generally applicable to all teachers, the delivery method is “dry and predictable” (personal communication, June, 2017). Jarrod remarks most of the time it is one person delivering the information and on occasion teachers are asked to get into groups to discuss what was just shared. Jarrod feels that the traditional learning experiences are actually put in place for the administration, not the teachers. He feels, “decisions are made so that a box can be checked saying ‘yes, we gave our teachers professional development’” (personal communication, June, 2017). Jarrod argues, “Professional development? No. Three days of listening to someone talk with little participation on our part. Yes. No reflection. In fact, with my last three day training, I don’t think I heard anyone ask a question the whole time” (personal interview, July, 2017). Jarrod candidly admits, “There has been a lot of professional development that I have done but I don’t remember it because I didn’t get much out of it” (personal interview, July, 2017).

**Traditional Professional Learning Effectiveness**

“In one ear and out the other” (personal interview, July, 2017) is how Jarrod describes the effectiveness of his personal traditional professional learning. He finds traditional learning boring as it is not connected to what he does at the school. Jarrod shares that the traditional learning experiences are packed full of information with very little application. He
states, “They give us handout after handout, we watch a power point, we watch a video clip and then they say go do this in your classroom” (personal interview, July, 2017). Jarrod shares another example, “My school brought in a motivational speaker. They spent $3500 to bring this guy in. It was the same guy they brought in three years prior. He shared the exact same information” (personal interview, July, 2017). Jarrod argues, “If this is an example of growing teachers? Does this mean that in three years we shouldn’t have changed what we are doing in our classrooms either?” (personal interview, July, 2017). For Jarrod, he feels learning from others that do what he does every day is important. “Sometimes the traditional professional learning I go to, these people haven’t been in the classroom in a long time, if ever” (personal interview, July, 2017). Jarrod finds traditional professional learning very frustrating. He feels, even for him personally, it’s a checkbox. His school requires a prescribed number of hours each year and he checks it off but never uses the information.

**Twitter Experiences as a Professional Learning Network**

Jarrod interacts with Twitter several times daily. He posts original ideas as well as comments on others tweets. Jarrod appreciates the ability to interact both synchronously and asynchronously. He has found a smaller, collegial group within his larger professional learning network and likes the collaborative back and forth between that smaller group. While Jarrod scrolls through and reads a lot on Twitter, he finds that it is important to actually comment and give feedback to what he is reading.

I am more introverted, even on something like Twitter. So sometimes it would be easier for me just to read and take information, but the whole point of Twitter is to grow as professionals. We can’t grow if we all stay quiet (personal interview, July, 2017).

Jarrod starting using Twitter because of his own personal interest in technology. He did not know very much about the interface. He did not know who to follow or how to
interact. Jarrod attended a national conference and the speaker at the conference inspired Jarrod. It was at this conference that he started to follow this speaker. Through this follow, Jarrod was introduced to other people and then he says, “My professional learning network just exploded” (personal interview, July, 2017). Now Jarrod is interacting with educators from Massachusetts to Australia and every place in between. He shares, “So really, going to that conference was my Twitter life changing experience” (personal interview, July, 2017). As a result, “everything I do in teaching has changed” (personal interview, July, 2017).

Jarrod participates regularly in chats on topics that interest him or topics that he knows he needs support with. Because his area of content is specialized in social studies, he often seeks out chats that center on that content area. Jarrod says, “I just search for what I need and chat” (personal interview, July, 2017). Jarrod reminisces, “I remember my first ever chat. It was actually with #worldgeochat. I could not believe the ideas teachers were freely willing to share. I got ideas and encouragement and help in a matter of thirty minutes” (personal interview, July, 2017). Jarrod, who has a master’s degree in education states, “I have learned more from my Twitter professional learning network than I did when I got my Master’s degree in teaching” (personal interview, July, 2017). Jarrod’s most recent endeavor is a book chat with his Twitter professional learning network.

Jarrod says that he tends to ask a lot of questions on Twitter and loves that no matter what he asks, he gets a response. He feels compelled to share his questions in the hopes of helping other teachers. He directed the researcher to the following tweet that he felt was the pinnacle of a successful Twitter experience. Jarrod had a question about the current issue of fake news and tweeted it out to @newshourextra who, in turn, used the question as a cornerstone for a discussion at a more traditional professional learning experience in a completely different region than his own. The facilitators of a workshop, enlarged Jarrod’s
tweet onto a screen and used it to springboard a conversation between educators present at the workshop (Figure 17).

Figure 15. A Pinnacle Twitter Experience. Jarrod shares how his learning is impacting other educators outside of Twitter.
Jarrod thinks his professional network is difficult to describe. He states that there are several people he considers to be experts but most of his network he perceives as “just teachers who are motivated to learn from each other and make learning better for their kids” (personal interview, July, 2017). He considers his network to be a “good mix” (personal interview, July, 2017) which he appreciates so he can get varying perspectives. Jarrod says at his school he feels that “every idea and thought is coming from one angle. With Twitter, I get different ideas and frames of reference” (personal interview, July, 2017). Jarrod loves his Twitter professional learning network. “You know. These teachers are my professional learning network, but they are also my professional support network (Figure 18)” (personal interview, July, 2017).

Figure 16. Twitter as a Professional Support Network. Jarrod shares the personal and professional support he gains from Twitter.

Jarrod knows he has not explored all there is to explore with his professional learning network, but feels that no matter what he would go to them with, he would get a response. Jarrod is such an advocate of Twitter as a professional learning network, he states emphatically,

I feel like now having a Twitter account (as an educator) should be mandatory. Just scrap PD days and make teachers participate in one chat a week. Learn from others. We are all there for a reason and we are choosing that reason (personal interview, July, 2017).
Positive Experiences with Twitter

Jarrod’s positive experiences with Twitter are abundant. He likes that Twitter is always available. “If I can’t sleep, I can get on at night and it’s working” (personal interview, July, 2017). Similarly, if Jarrod only has a few minutes, he can scroll through posts and gather a tidbit of information. He feels like his Twitter feed is a “constant scrolling of new information to help me in my teaching” (personal interview, July, 2017). Jarrod also likes the international aspect of Twitter. “You’d be amazed at the teachers I have worked with that live nowhere near me in fact not even in America” (personal interview, July, 2017). When asked why that is important, Jarrod explains,

Today we need lots of perspectives. We sometimes do things our way and think it’s the only way. Also for me? I teach social studies. I live in a very quiet little community. It is hard to really teach social studies with just this setting. So it is good to get international thoughts and experiences and resources (personal interview, July, 2017).

Jarrod continues that the fact that Twitter is quick is appealing. He also appreciates that it is free.

Jarrod values and fosters the positivity on Twitter. He often encourages others as they encourage him. He offers help because he feels that help has been offered to him time and again and to make the experience mutually beneficial, “it is important to not always be the receiver of the goods (Figure 19)” (personal interview, July, 2017).

Figure 17. Tweet Offering Help. Jarrod offers help illustrating the mutually beneficial relationship on Twitter.
Jarrod is a questioner. He often asks things of his Twitter professional learning network and is amazed at the quantity of responses. He asked the researcher if he could share archives of responses he received during a single question about lesson planning. “You should see the feed on a recent question I asked. Can I send you the feed? Within minutes I had articles and pictures and links” (personal interview, July, 2017). The positive responses included over a dozen and a half perspectives, ideas and reflections that Jarrod could reflect on and use (Figure 20).

![Figure 18. Screenshot of Received Tweet Responses. The multitude of responses that Jarrod received when asking for help with lesson planning.](image)

Jarrod asserts that asking this question in his traditional professional learning network at school would not have yielded this time, energy and level of support. He shares, “My Twitter professional learning network is a little community that we have created that is changing what we do each day. We are this eclectic group that fits” (personal interview, July, 2017).

**Twitter and Teacher Isolation**

“I have always felt isolated at school” (personal interview, July, 2017) says Jarrod, “not from the kids, just the other teachers” (personal interview, July, 2017). When asked why this was true for him, Jarrod admits,
I’m not very accepted. I mean, it takes me time to figure things out. I’m a guy on staff in mostly a female school. If someone were to describe me they would probably say, ‘Oh it’s that crazy teacher (personal interview, July, 2017).

When asked how Twitter impacts these feelings, Jarrod openly shares, “Well, being on Twitter makes me feel more supported and I find like teachers so I can’t be the only crazy one” (personal interview, July, 2017). But he also shares that since he is the only person on Twitter in his building, it also is more secluding at times. He describes it as a dilemma. He knows he is growing as a professional through using Twitter, but he doesn’t like that the reality is he is still isolated in his own building. “The trick” Jarrod says, “is to figure out how to get people in my school on Twitter. But, I’m trying. I just have to keep sharing what I am learning” (personal interview, July, 2017). Jarrod says the end result of his presence on Twitter is to “be more innovative for his students” (personal interview, July, 2017) so it doesn’t really matter if he is isolated at school. Through his Twitter professional learning network, “I have my own personal clique of crazy, insane teachers and it definitely influences my feelings about my own building, sometimes good and sometimes bad” (personal interview, July, 2017).

**Educator Collaboration on Twitter**

Jarrod believes that while there are collaborative experiences on Twitter, they are different. “They are different because I get to choose who I collaborate with” (personal interview, July, 2017). Jarrod also suggests that “Twitter has more innovative ways to collaborate” (personal interview, July, 2017). While the nature of Twitter stresses that people talk with each other, Jarrod says it’s more than just the initial conversations that provoke collaboration. To truly collaborate, Jarrod says,

“It’s when you take those beginning conversations and move them to a different place. You can’t really collaborate or what I think it means to collaborate with just a
chat. That’s the start. You have to really take the opportunities and grow them 
(personal interview, July, 2017).

Jarrod doesn’t argue that collaborating face to face in a traditional manner is easier. But he 
does conclude that “sitting face to face when you are with an assigned team or with people 
who do nothing during the time together” (personal interview, July, 2017) is not really 
collaborating either. Jarrod does say that Twitter likely adversely affects his already strained 
relationships in his building. While he should be looking to collaborate at his local school, he 
finds it difficult to pass up the opportunity to be part of a collaborative, exciting project that 
opens up more learning than what could be gained with a local teacher. For Jarrod, he would 
rather choose to mimic a traditional collaborative context through Twitter. He has recognized 
in himself that he “wants to work with the people on Twitter that reach out to him” (personal 
interview, July, 2017). While he isn’t sure why that is, the researcher probed further and 
Jarod suggests that the people in his Twitter professional learning network are “innovative, 
motivated and positive” (personal interview, July, 2017) and it is hard to not want to work 
with those types of people.

**Pedagogy Impact with Twitter**

“Twitter is validating. I don’t use it for validation, but it does validate that I can keep 
being me in teaching” (personal interview, July, 2017) adds Jarrod. When things work for 
Jarrod in his teaching repertoire, he tends to keep doing them. When they don’t work, he 
turns to Twitter. For Jarrod, his pedagogy shifts as the Twitter topics shift. For example, 
“Fake news is such a current topic in the world, it started to shape the idea of resources in my 
classroom. I would have never really thought about this being part of my teaching before 
Twitter” (personal interview, July, 2017). Because Twitter affords choice in professional 
learning, Jarrod says he has better defined his pedagogy. “I can say that I am student centered 
and innovative because of the support I get on Twitter with these ideas” (personal interview,
July, 2017). Jarrod also says he has been more thoughtful about the underlying traits of pedagogy and has asked himself “What kind of teacher am I to other teachers?” (personal interview, July, 2017) and “How do I value thinking about my teaching?” (personal interview, July, 2017) both of which came from Twitter interactions. Jarrod feels his participation in Twitter has given him a deeper understanding of pedagogy and how it can be shaped.

**Classroom Methodology and Climate Impact with Twitter**

Jarrod shares that it is his approach to teaching and the climate he is creating for his learners that are most impacted through his Twitter use. From questions about lesson planning to a syllabus to instructional methods, Jarrod uses Twitter for support (Figure 21, Figure 22 and Figure 23).
Figure 21. Tweet Illustrating Methodological Support. Jarrod shares how many people responded to a question regarding methodology.
Figure 22. Tweet Illustrating Methodology Support. Jarrod shares another opportunity to learn from others.

Figure 23. Tweet Illustrating Questioning for Methodological Support. Jarrod shares probing questions to learn from others on Twitter.

One of the biggest shifts Jarrod has made that he feels completely changed the climate in his classroom is his move from purely lecturing his learners to a more student centered approach. “I haven’t given a direct lecture in forever only because of the super stars on Twitter leading me to change” (personal interview, July, 2017). Jarrod says he “only learned about flexible seating through Twitter” (personal interview, July, 2017). He adds, “Where I teach and where I live? It is one way. One type of student. One type of teacher. One type of classroom” (personal interview, July, 2017). Twitter is a cornerstone to Jarrod’s professional learning but he also shares that he gets more than just information from Twitter because Twitter is sending him in various paths in all directions to learn more. Jarrod believes Twitter learning is a domino effect. I feel to be able to participate in Twitter chats and conversations with other educators, I need to stay current. I am constantly reading and learning as much as I can so I can share. I feel I am spending more time learning than I do teaching (personal interview, July, 2017).
Reflective Practices with Twitter

From a traditional stance, Jarrod does not feel that Twitter allows for reflection. He states, “We aren’t filling out what we learned, what questions we have, etcetera” (personal interview, July, 2017). Jarrod feels, instead that “Twitter is an always reflective conversation. Teachers are having to tell what is working and to know what is working you have to reflect” (personal interview, July, 2017). Jarrod shares the perspective that while most of what is consumed on Twitter is quick responses, “Some of the best chats are those where someone asks a deeper question. Slow chats are good for that. The questions make you really think” (personal interview, July, 2017). For Jarrod,

The many, many ideas make me reflect. I mean I want to try everything but of course some things just won’t work and I know it. So I do like to see ideas and then put my own spin on them. That’s a quick way to be reflective (personal interview, July, 2017).

Jarrod furthers this notion of quick reflections,

I think Twitter is changing the definition of reflection. I mean what does it mean to be a reflective educator? Taking something we learn and using it in a way that works. That’s what we do on Twitter. Or we decide it doesn’t work and don’t use it (personal interview, July, 2017).

He continues,

We have to filter things all the time on Twitter. What we share what we click on. All of that is reflection. It just seems natural so we don’t call it reflection. But it is transforming what we are doing, so something is happening (personal interview, July, 2017).
Negative Experiences with Twitter

“You get what you give” (personal interview, July, 2017) says Jarrod. He is a positive person so much of what he receives is positive. Jarrod does share one experience where a comment he made was not appreciated by a participant, but it was short lived and he does feel that if he only had one poor experience, he is lucky. In fact, “It had nothing to do with teaching. I was commenting on the use of primary documents and someone didn’t think my opinion was valid” (personal interview, July, 2017). But when it comes to teaching, “Twitter is a positive influence on me as an educator” (personal interview, July, 2017).

At times the chats move so quickly. He laments,

It is question after question after question and if the chat is very busy just when you get your thoughts together and answer they are already on question two or three. It is a challenge to respond yourself and answer others and comment (personal interview, July, 2017).

However, Jarrod stresses that one of the caveats of Twitter is you can go back and re-read and process information at a later date. “So, even though the pace is sometimes fast, I would rather that than slow” (personal interview, July, 2017).

Mabel

Mabel is a twenty-one year veteran educator. Her school is in a K-12 setting in the southeast United States. She describes herself as “introspective, thoughtful and deliberate” (personal communication, June, 2017) especially when it comes to education. Mabel believes strongly in creating a real world audience for her learners. She focuses on building trusting relationships with her students. Her interactions with her colleagues are “somewhat planned for her” (personal communication, June, 2017). Mabel confesses that the onslaught of social media is somewhat overwhelming for her but she is applying her same deliberate, poised
approach to learning how to integrate what is available into her repertoire. Mabel is sympathetic to what school districts are trying to offer educators, but does sense there needs to be a “blending of ideas even for teachers’ learning experiences. We do it for children, why don’t they do it for those of us that teach. That seems like the right thing to do” (personal communication, June, 2017).

**Traditional Professional Learning Experiences**

Mabel describes her traditional professional learning experiences as limited. She shares, specifically, “It is hit or miss” (personal interview, July, 2017). While Mabel prefers going to conferences and engaging in that type of traditional professional learning experience, they are infrequent. Most of her experiences have been centered on a speaker coming into the local school or joining a speaker from a different venue and the speaker uses SKYPE to share information to the staff at Mabel’s school. There are opportunities for breakout sessions among this context, but Mabel offers, “The smaller groups usually are to discuss general school topics, not necessarily topics that are relevant to my specific teaching context” (personal interview, July, 2017). Mabel does recognize that because her context includes K-12 learners, “trying to find professional development that fits everyone is challenging” (personal interview, July, 2017).

A new focus at Mabel’s school is to embed some sort of professional learning within department and division meetings. The department or division head selects the learning focus. “As a teacher, I don’t have a lot of say in my traditional professional learning. I can give my opinion or fill out a survey but it is usually after the fact and in my experience doesn’t have any weight anyway” (personal interview, July, 2017). This last year, Mabel’s school focused on project based learning. She describes some of the experiences within this broad topic as “beneficial, while others were not as organized or motivational or even applicable” (personal interview, July, 2017).
Mabel shares that she has tried to seek out additional traditional professional learning opportunities but they seem to be a “vast field of opportunities that cost money, are at a long distance and not easy to find” (personal interview, July, 2017). Mabel did participate in an EdCamp which she described as “A list of topics are written down and various teachers volunteer to facilitate the topic” (personal interview, July, 2017). She shared she can see the value in something like this, but feels that “they were trying to blend a mix of traditional and innovative professional learning and it sort of just fell apart and became round table discussions about anything and everything” (personal interview, July, 2017). However, Mabel does offer that having never attended an EdCamp before she did not have anything to compare it to, so her assertions may have been biased.

**Traditional Professional Learning Effectiveness**

Mabel feels that the traditional learning experiences she seeks out are more effective than those that are imposed on her. Mabel suggests “This is due to the nature of the grander audience they are trying to reach. Traditional experiences would be much more beneficial if they just differentiated it, even just a little bit” (personal interview, July, 2017). The traditional experiences that are imposed on her, are more challenging for her to connect to her teaching context. “I try to get something out of everything I attend. I am there, so being present is important, it is what we expect from our students. But, sometimes I just cannot find a way to relevancy” (personal interview, July, 2017). As a self-professed introvert, “the worst experiences are where we are paired up with people or small groups of people with no commonalities between us and told to work together and then share out loud” (personal interview, July, 2017).

For Mabel, “I feel like an outsider among my faculty” (personal interview, July, 2017) and in that, “the support and training we need or want is vastly different” (personal interview, July, 2017). For example, Mabel continues,
I believe in the importance of teaching my students how to deal with failure, how to treat others, and how to find their role in global society. To me, those are big ideas. My colleagues, however, have selected a very narrow view of education-meet curriculum standards (personal interview, July, 2017).

While it appears to Mabel that her colleagues are fine with status quo traditional professional learning that requires little of them, Mabel wants more and finds her traditional professional learning experiences lacking.

**Twitter Experiences as a Professional Learning Network**

Mabel describes her Twitter journey as “beginning with a literal flood” (personal communication, July, 2017). Her involvement with Twitter came as a result of a blog post during the “Great Flood of 2016” in which Mabel was organizing efforts to put items in the hands of teachers who lost everything in a flood. Mabel had such a quick response to aid the classrooms that lost everything. Mabel was amazed at the reach that Twitter had and the eagerness of people to help a virtually anonymous request. However, it wasn’t until some months later that Mabel was once again presented with an opportunity to use Twitter. A media specialist from her school gave her a Twitter bingo challenge and Mabel accepted it.

Mabel interacts with Twitter daily. She posts original content and shares content others have presented. Mabel feels, “Feedback is important, that’s what creates the discourse and the idea sharing. If everyone just read things it would be passive and Twitter is a great opportunity for active learning” (personal interview, July, 2017). With complete transparency, Mabel shares that at first she was very hesitant to use Twitter. She lurked for some time and just felt, “This is silly. It’s a time waster. How is this changing teaching?” (personal interview, July, 2017). But then, Mabel shares, as she got better at locating chats that were relevant to her teaching, she suddenly felt, “I found my people! and quite honestly, I do not have that in my own school (Figure 24)” (personal interview, July, 2017).
Figure 24. Tweet Illustrating Impact. Mabel shares in her own words a highlight of Twitter.

Most of Mabel’s experiences with Twitter have been through Twitter chats. She describes her own Twitter professional learning network as “emerging” (personal interview, July, 2017). Mabel is new to Twitter and does suggest that while she is close to one or two people whom she is developing a stronger collegial relationship with, the majority of her Twitter professional learning network are what she describes as “a little more distant and so big. There are so many people” (personal interview, July, 2017). Although the quantity of her growing network is somewhat overwhelming to Mabel, she is pragmatic in her approach to getting familiar with them. “The veil of anonymity forces me to take my time and be thoughtful and discerning with who is in my network. Otherwise, I could end up with just people with no influence on me as a teacher” (personal interview, July, 2017).

One of Mabel’s highlight experiences with Twitter is the abundance of resources she has been introduced and exposed to. “I have been introduced to some fantastic educational resources that I would have never heard of had I not joined Twitter” (personal interview, July, 2017). Mabel is surprised by this, “These people seem to have a huge following on Twitter and seem to be a big deal, but I knew nothing about them until Twitter” (personal interview, July, 2017). When questioned further about this, Mabel suggests that in her opinion, “their merit is obvious, I just simply didn’t know about them. So even if I used Twitter as a repository of resources, it would be a positive influence on my teaching repertoire” (personal interview, July, 2017).
Positive Experiences with Twitter

Mabel appreciates the structure of Twitter. Specifically, “the questions are posted so it’s not just a free for all” (personal interview, July, 2017). Mabel also appreciates the choice that she gets with learning on Twitter. “I can be part of a very focused conversation. If it starts to go awry, I can leave and not feel embarrassed or guilty. I never feel that my time is wasted on Twitter” (personal interview, July, 2017). The conversations are structured, in Mabel’s experiences. “People are responding to a given prompt” (personal interview, July, 2017). When asked how this structure affects Mabel’s learning, Mabel furthers, “The prompts are open-ended. There aren’t any right answers and the flexibility of the answers allows for me to curate them into my teaching practice” (personal interview, July, 2017).
Without Twitter, Mabel feels she would not get the diverse opinions that she does.

Images are important positive experiences Mabel engages with on Twitter. While an acknowledged author as well as educator, Mabel likes that an image on Twitter can provoke a deeper thought or idea. “Images, whether it’s a sketch or an inspirational quote or even a photograph, seem to be more noticed and typically attached to a positive thought” (personal interview, July, 2017). For Mabel, the images are “eye-catching and where I might not focus in on the verbiage someone shares, I may attend more if there is an image that catches my interest” (personal interview, July, 2017).

Mabel says with regard to choice, “It’s a smorgasbord” (personal interview, July, 2017). Mabel finishes with,

I didn’t realize how out of the loop I am in education. From specific learning ideas like problem based learning to Google tools to topics like Grit and relevance and ditching homework, it is surprising how many new ideas are generated and shared. Twitter took my teaching blinders off. I am able to select things I want to know more about (personal interview, July, 2017).
Mabel appreciates that her Twitter feed is custom made to her own likes and passions. “I follow authors I love, teachers who inspire me. My professional learning network is bookish and nerdy and perfect for me” (personal interview, July, 2017). Mabel continues, “With Twitter, teachers hold themselves accountable for what they are doing and what they are seeking. I like that” (personal interview, July, 2017). Mabel concludes, “Twitter contains a powerful group of educators that just want to improve their practice continually and actually use the nuances of Twitter to help with that” (personal interview, July, 2017).

**Twitter and Teacher Isolation**

Mabel is no stranger to the feelings of teacher isolation (Figure 25). She shares, “There are times I feel isolated and alone at my school. I’m surrounded by great teachers, but my personal passion, using adult literature to foster empathy, is pretty darn narrow” (personal interview, July, 2017). While Twitter helps Mabel meet people who are driven by the same goal.

![Figure 25. Tweet About Isolation and Twitter. Mabel shares a response as to why educators use Twitter as a PLN.](image)

With so many choices of people and topics and times and contexts, Mabel truly believes that “If you are still feeling isolated in your school, it is your fault” (personal interview, July, 2017). When probed if the feelings of isolation truly disappear, Mabel says that by having a place to go with ideas that may not meet the approval of people in her building,

I do take more risks with things that I do even knowing I might get a disapproving glance. So maybe Twitter doesn’t demolish the feelings of isolation in my building,
but I haven’t figured out a way to feel better in my school, while I generally feel better about teaching because of Twitter (personal interview, July, 2017).

Mabel does posit a question after sharing an example of a teacher in her building who does not make an effort to speak to her while in the building, but does ask for recommendations for literature for her learners on Twitter, “I often wonder why people are eager to collaborate on Twitter, but not in the school building? Is it time? Do we not have enough time? I wonder” (personal interview, July, 2017).

**Educator Collaboration on Twitter**

Mabel appreciates the choice of content on Twitter, but also highlights the choice she has with the people she interacts with.

I like that you don’t have to interact with everyone every day. Let’s say I add someone to my network and I don’t really get much from them. That’s really okay. I have the same choice. I can interact or not. I’m not sitting a table being told to talk to each other and learn (personal interview, July, 2017).

When Mabel was asked about the collaborative nature of Twitter, she wholeheartedly believes Twitter is collaborative. She punctuates her belief with, “Of course it’s collaborative. It has to be or people are just creating a soliloquy. A conversation is collaboration and at any given time there are multiple conversations going on” (personal interview, July, 2017).

When asked about the similarities and difference with collaboration on Twitter versus traditional collaboration, Mabel does share that during traditional collaboration she appreciates the time she has to “let ideas sink in” (personal interview, July, 2017). However, when collaborating with Twitter, “I get quick feedback that I may not get in a traditional setting. With Twitter, I can learn about something, try it out pretty immediately, and then share it on Twitter and immediately get feedback” (personal interview, July, 2017). This is not the case with traditional collaboration believes Mabel. “If I am involved in a traditional
collaborative experience, I may never see, let alone communicate with those people again, and certainly won’t see any follow up on the sessions” (personal interview, July, 2017). So where there is collaboration in traditional professional learning and within Twitter, Mabel feels that “Traditional collaboration seems a waste of time, what do I ever do with that time spent? Nothing, usually” (personal interview, July, 2017).

**Pedagogy Impact with Twitter**

Mabel believes Twitter impacts her pedagogy, but not in a way she thinks most people would suggest. Mabel’s point of view regarding Twitter’s pedagogical impact comes from the vantage point of her content teaching. Mabel teaches writing and she feels Twitter “gives (her) a better appreciation for how important it is for writers to make real connections with an outside world” (personal interview, July, 2017). This pedagogical realization transforms into classroom learning in that Mabel feels she needs to facilitate their learning to go beyond the walls of her classroom. Mabel says, “We have talked about making real connections forever, but Twitter spans all the possibilities with this” (personal interview, July, 2017). Twitter has also impacted Mabel’s pedagogy in another way. “Words are important and you can reach people and that you have a voice to impact the things you are passionate about” (personal interview, July, 2017). So, for Mabel, Twitter has shaped her pedagogical belief that “we, educators have to ensure our learners are hearing the message of words matter, be a voice…that sort of thing” (personal interview, July, 2017).

**Classroom Methodology and Climate Impact with Twitter**

Mabel suggests that because she is so new to Twitter, she does not feel that using Twitter as a professional learning network has impacted her classroom methodologies. She is assumptive that they will. While Mabel does share what she coins “a small thing” (personal communication, July, 2017) with regard to needing assistance with reading logs. “I simply wanted to know how to revamp my reading logs” (personal interview, July, 2017). What
ensued, according to Mabel, “Multiple perspectives, where some people were passionate about not using them, definitely using them, and those that were using them were willing to share various templates of their reading logs” (personal interview, July, 2017). Before Twitter, changing something as simple as this would have taken Mabel a lot longer. “I don’t get that sort of immediacy with anything at my school, especially methods of teaching” (personal interview, July, 2017). With regard to her classroom climate, she has already started to see an impact.

I am reading books with my learners that I hear about on Twitter. I am using resources that are recommended on Twitter. So while these things are directly impacting my classroom climate, indirectly, they are exposing my learners to things they would have otherwise not been exposed to (personal interview, July, 2017).

As well, Mabel again offers, “The general awareness of words matter and having a broader audience for your voice, while that shapes my pedagogy, it absolutely changes my classroom immensely” (personal interview, July, 2017).

**Reflective Practices with Twitter**

Mabel feels that the most reflective practice with Twitter is when a chat ends with participants sharing one take-away or one new thing they are going to commit to try. That specific question, Mabel believes, is a direct, immediate reflective practice. However, Mabel also shares there are indirect reflective practices, too. For example, “Twitter ensures succinctness and concise and that takes reflective thought. I am a writer. I tend to be verbose. Twitter has tamed my esoteric tendencies. It’s a challenge, but I like it” (personal interview, July, 2017).

**Negative Experiences with Twitter**

Mabel summarizes her negative experiences with two thoughts. She admits she struggles with the pace. She suggests this is because she is still so new and shares, “I am still
getting the hang of going back and forth between notifications and keeping up with the chat” (personal interview, July, 2017). For Mabel, she doesn’t want to miss responding to someone, but sometimes it is too fast for her but feels “it’s important to be diligent to respond to people” (personal interview, July, 2017). The other thought Mabel shares is what she argues is “the lack of nuance on Twitter” (personal interview, July, 2017). Similarly, Mabel shares, while there is a lot to learn on Twitter, “I sometimes think there is a shallowness of knowledge” (personal interview, July, 2017). Admittedly, she is not sure if this is just an effect of learning how to use all of the functions of Twitter. Mabel is adamant, “I do not like being told Twitter is a good replacement for face to face professional learning opportunities. I think you do lose something when you’re not having the opportunity to have a face to face conversation” (personal interview, July, 2017). When asked specifically what Mabel feels she is losing through Twitter conversations versus face to face conversations, she candidly believes, “You’re losing the opportunity to read nuance. You often don’t have the immediate opportunity to ask follow up questions. It’s different. I’m not implying it’s worse. Just different” (personal interview, July, 2017). Mabel defends the use of Twitter by sharing the realization that professional learning is expensive, but would prefer a blend of learning instead of one or the other, and certainly does not want “Twitter to replace all traditional learning” (personal interview, July, 2017).

Doug

Doug is a twenty one year veteran educator in the eastern United States. His teaching background was in the area of math and music in a secondary public school setting. Now, Doug is in an administrative, supervisory role in a small K-12 school district. While Doug stresses that it has been almost ten years since he was a teacher, he wishes Twitter was as prominent when he was a teacher. As an administrator at the local school and now district
level, Doug recognizes the importance of growing leaders. Doug questions teachers that don’t use Twitter to expand their learning, “In today’s educational world, I simply don’t understand why educators would not use Twitter in some capacity” (personal communication, June, 2017). Doug shares a different perspective on Twitter as someone who plans and implements professional development as a mandate but feels that his experiences are the same as many educators that use Twitter.

Traditional Professional Learning Experiences

Doug highlights his own traditional professional learning experiences as an educational administrator, first. Doug shares a menu of traditional learning that he personally experiences from national professional conferences to regional conferences. Doug’s purpose in participating in these trainings is to “look for more examples of effective leadership for change” (personal communication, June 2017). As an administrator who plans professional learning for educators, Doug shares a perspective that he feels is common. “Not every teacher is interested and growing and enhancing their teaching for student success,” which creates a dilemma in trying to plan traditional professional learning experiences for educators. While Doug suggests these experiences must be created for educators, he does share that the traditional learning experiences take the form of workshops, book studies or guest speakers invited in to speak to a broad group of educators. Doug corroborates the majority of his own professional learning as “sit ‘n get sessions where I listen to stories and examples” (personal interview, June 2017). Doug does offer that some of his experiences do provide time for administrators and educators to sit and discuss topics, but feels that is a rarity and often when a workshop time runs short and the talk time is just a filler. Doug reminisces, “When I was a teacher, I could not stand our professional development days. I remember thinking to myself, I am wasting my time sitting here” (personal interview, June 2017). When asked to describe those types of experiences, Doug says, “Well, it hasn’t been that long ago, but I don’t
remember much. A few after school workshops. I do remember filling out the surveys at the end of them. The questions on the surveys made me feel like I didn’t get anything that was intended” (personal interview, June 2017). Doug feels the intent of traditional professional learning is likely there for most planners and organizers, “they are just missing the fact that you can’t meet the needs of all educators in one general setting. Period” (personal interview, June 2017).

Traditional Professional Learning Effectiveness

Doug suggests that the most effective trait of traditional learning effectiveness is the ability for these experiences to build relationships. With regard to the content, Doug shares, that teachers and leaders are typically shown a strategy or a method, “without relating how the idea of activities like it can be developed and implemented” (personal interview, June, 2017). According to Doug this means you have a group of educators leaving a presentation or a workshop all with the same information, expecting to implement the information back into the school or classroom, “which is completely ineffective. There is no way every participant can impact their teaching or their leading with the same information” (personal interview, June, 2017). Doug suggests that there is somewhat of a disconnect with what is relevant and what is necessary when educators attend “learning for the masses” (personal interview, June 2017). However, Doug circles back to the importance of using the traditional professional learning experiences as relationship builders. He feels, if educators “are not going to get anything out of the content, at the least they can network and experience the participants perspectives and ideas” (personal interview, June 2017).

From an administrative perspective, Doug shares that while he and his team attempt to create authentic learning experiences for teachers, it is costly, it is geographically challenging at times and difficult to meet the needs of every educator in one building, let alone every educator in an entire district. Doug believes, “A blend of learning for educators is the new
path for traditional professional learning” (personal interview, June 2017). While professional learning is often a mandate, there is flexibility in what to create and Doug feels, “administrators need to tap into the power of Twitter. If they use it, they will see what it can do for their teachers. I believe this” (personal interview, June 2017).

**Twitter Experiences as a Professional Learning Network**

Doug interacts with Twitter multiple times a day. While he admits that much of what he shares are retweets or links to his lengthier blogs, Doug does share original thoughts during the chats he attends. He discovered Twitter only three years ago and shares that it became his “new primary and favorite location for connecting with teachers, empowering my own teaching, and seeking new resources and relationships” (personal communication, June, 2017). Doug jumped into two of the widely populated chats Teach Like a Pirate, #tlap, and Saturday Chat, #satchat. Doug explains his Twitter experience as a “Twitter lifestyle” (personal communication, June, 2017). He shares, “The connections I made on twitter encouraged me to begin blogging, which turned into conversations about presenting at conferences, which turned back into twitter meet ups, which turned into a chance meeting with an educational innovator and author who supported my ideas and connected me with Dave and Shelley Burgess who, 7 months after meeting, published my book” (personal communication, June, 2017). Doug indicates that except for one or two people, his entire professional learning network has been established through Twitter. He admits that the other educators he works with are secondary to the Twitter community he is a part of.

While Doug reassures that not everyone’s Twitter experience is a journey like this, he feels that he can attribute all of his professional growth to Twitter. Doug continues to participate in the aforementioned chats and has established his own weekly chat, too. His mantra is, “the more the merrier” and while he recognizes that a Twitter following isn’t the most important part of engaging with Twitter, his own following is in excess of 7,000
educators. For Doug, “the feeling that what I am saying and sharing has the potential to impact that many more educators is unbelievable” (personal interview, June, 2017). Doug, too, feels that Twitter is a game changer in the world of professional learning for educators. Personally, Doug feels that he has reached the “epitome of what can come from a professional learning network via Twitter” (personal interview, June, 2017). He highlights his journey from chat participant to a strong network of math-focused educators with whom he collaborated to develop a search engine dedicated to the blogs that the Twitter participants have written. “That’s the epitome of what can be gained from a Twitter network” (personal interview, June, 2017) thinks Doug.

**Positive Experiences with Twitter**

Doug describes his experiences on Twitter as positive. While he does defer to the few people that, in any context including Twitter, will try to make it miserable for others, Doug says those personalities don’t bother him. He adds, “That’s the cool thing about Twitter. You are not captive. You don’t have to listen or argue or defend. You simply can walk away” (personal interview, June, 2017). From an administrative perspective, Doug further illustrates his beliefs on the positivity of Twitter as a professional learning network by sharing he appreciates how voluntary Twitter is. He believes the teachers and other educators that have a presence on Twitter are those that want to improve their craft and learn from others in similar educational settings with similar content or methodology or anything to do with education, need” (personal interview, June 2017).

While Doug feels the participatory nature of Twitter fuels him, professionally, he also shares that he appreciates the opportunity to just listen, observe and formulate a response when he wants to. Doug appreciates the unique voices interacting on Twitter and maintains that the voluntary aspect of Twitter is one of his favorites. He believes that the teachers that interact on Twitter “are positively interested in sharing and collecting ideas, growing
relationships, building a network, asking questions, etc.” (personal interview, June, 2017).

Personally, Doug remarks, “I use Twitter because every time I open the Twitter door, there are friends there ready to take me in” (personal interview, June 2017).

**Twitter and Teacher Isolation**

From an administrator’s perspective, when Doug notices a teacher who seems to be disconnected from the flow of a team or a department, he will always suggest Twitter. For Doug, he shares, “You know it’s a challenge. I mean we need to be building relationships in our buildings, but let’s be real, it doesn’t happen. So for me, as an administrator, if I can convince a teacher to get onto Twitter, it likely would at least mask the feeling of isolation. That teacher may feel like she or he isn’t so alone” (personal interview, June, 2017). While Doug ponders this, he does offer that many administrators are so far removed they don’t really know if a teacher feels isolated and he has not been privy to a teacher complaining of isolation, per se. Doug says, “I tend to think isolation stems from not getting the support needed to do the job. So if Twitter is presenting a ton of resources for teachers that they feel can help them with their job? Then likely that leads to feeling less isolated” (personal interview, June, 2017). When the researcher probed further and asked if Twitter provided a new perspective on his teachers, Doug shared that while he is able to get a general sense about the teachers who are using Twitter, he was pleased to see so many of his own teachers on Twitter. He adds, “Interestingly, the teachers that are on Twitter are also the teachers that collaborate together at school” (personal interview, June, 2017). Doug notices “a natural kinship that exists” (personal interview, June, 2017) between educators that invest in Twitter.

**Educator Collaboration on Twitter**

Doug insists that without collaboration there is no Twitter. The nature of the venue begs collaboration. When the researcher asked to describe the types of collaboration Doug has observed or been a part of on Twitter, he shares, “Twitter is the beginning point of
Running head: A LITTLE BIRDY

collaboration. The general body of educators on Twitter are there to do more in their practice for kids” (personal interview, June 2017). Doug mentions that some of the discourse on Twitter leads to larger opportunities to collaborate. He gives examples of teachers skyping other classes around the country and teachers meeting up at regional or national conferences. “From those experiences, Twitter is the spark, the initial fire starter for bigger things” (personal interview, June, 2017). While Twitter, itself, has a built-in requirement for collaboration, Doug questions what is meant by collaboration. He asserts that some educators stretch the notion of collaboration to mean any conversation around the needs of student success. Personally, Doug thinks while Twitter is collaborative in nature, it takes more interest and motivation on the parts of the participants to expand the collaborative experience. Doug supposes this is not the case with traditional professional learning, but in the end argues that he doesn’t observe more than surface collaboration within a traditional learning setting anyway, stating, “Just sitting at a table with someone talking about a shared topic that neither person is interested in, is collaboration, but not in its truest sense. Educators can do this with Twitter and likely getting something more out of it” (personal interview, July, 2017).

**Pedagogy Impact with Twitter**

As a veteran educator, Doug explains that as his role has shifted in education from classroom teacher, to college math professor, to teacher professional development facilitator, to ultimately educational district administrator, his pedagogy has morphed along with each role. He describes the lens that he has viewed his pedagogy from as moving from very self-centered to more global. Since Doug has only used Twitter for the last three years, it is the passion for learning that surrounds him on Twitter, no matter the experience or context of the educators’ he interacts with, which has invigorated Doug. With Twitter, “You never know what is going to be discussed. There are always relevant topics to whatever I am seeking” (personal interview, June, 2017) and, “the body of educators on Twitter are continuing to
motivate me, encourage me and quite honestly, push me to do more for my teachers, my
district, which ultimately leads to more for the students” (personal interview, June, 2017).

Classroom Methodology and Climate Impact with Twitter

The majority of Doug’s experiences with the impact that Twitter has had on his
methodology and climate, refer to his teachers and district personnel. However, Doug does
share that he has changed, “instructional techniques, attitudes toward student use of personal
technology, attitudes toward assessment and homework and my approach to students who
struggle” (personal interview, June, 2017). These methodological changes directly impact the
decisions he makes that ultimately impact his teachers. Similarly, Doug says that his
approach to the trainings he facilitates has evolved because of what he has learned on Twitter.
He has begun creating “inquiry based, open ended” (personal interview, June, 2017)
professional learning experiences for his schools. He states, “If teachers won’t come to
Twitter, I can bring Twitter to them” (personal interview, July, 2017).

Reflective Practices with Twitter

Doug professes that he has always been a learner. Twitter has allowed him to seek out
his own learning in a way that he has never been afforded before. He doesn’t have to wait to
be given information, think about it, and decide how to integrate it into his own repertoire. As
far as reflective, Doug reveals that to him, “Twitter is like a virtual staffroom” (personal
interview, July, 2017). Twitter allows him to see what the pulse is among teachers. “Because
Twitter is full of teachers, while some concerns or thoughts may be isolated, I feel that if
teachers are saying it on Twitter, then it is likely a common problem” (personal interview,
July 2017). Therefore, Doug can use Twitter to reflect on his role and impact with his
teachers. Doug also shares that if you are intentional with what chats you engage in, there are
those that invest more in a reflective practice. For example #reflectiveteacher is a hashtag that
Doug says continually shares articles, ideas and commentary that come from a place of deep
thought over just a quick activity that can be implemented. Doug ends with, “Just because learning happens traditionally or on Twitter, it doesn’t mean it creates reflection. That’s something that teachers need to activate and not suppose that the vehicle is going to create reflection for them” (personal interview, July, 2017). When asked to expand on this thought by the researcher, Doug says, “Well, being a critically reflective teacher is part who the teacher is, part what they are being exposed to in their learning, part self-motivation and probably some other traits, in my opinion. So I guess the opportunity to be reflective with Twitter is more so because they want to be there and they are being shown so many new things without someone making them” (personal interview, July 2017).

**Negative Experiences with Twitter**

Doug highlights only three general thoughts about the negative aspects of Twitter. He typically likes everything about Twitter, except the notion of self-promotion. “Some people are just there to promote their one idea, their book, their blog” (personal interview, June, 2017). Doug feels it is one thing to want to add to the conversation in this way, but the continuous sales pitches or repetitive posts of the same content are contrary to the expectations he has with Twitter. Secondly, Doug says there can be naysayers. When the researcher asked if there was any sincerity in posing a different perspective, Doug suggests that he feels the intent of disagreements is likely wholesome, but with 140 characters, the conversation can degrade quite rapidly especially if the conversation is around some of the topics that divide educators like homework or no homework. Lastly, a small bothersome detail, is that Doug believes that some of the chat moderators rely on too many questions. “If we really want to get the most out of Twitter, questions need to be direct and intentional, but allow for the most voices to respond” (personal interview, July, 2017). Doug suggests 3 questions for a thirty minute chat and no more than 5 or 6 for an hour chat. “Otherwise, chat
participants get frustrated because the information is at an overload level” (personal interview, July, 2017).

**Tweet Commentary**

The researcher analyzed the 140 character micro-blogs known as tweets, to better understand the content being shared on Twitter and how the content related to educators’ experiences and feelings about Twitter as a professional learning network. Participants’ tweets were gathered as a method of triangulation. Multiple perspectives were solicited from participants’ expansive Twitter professional learning network as the data from this study emerged. Specifically, the researcher created three questions in the form of a Twitter chat. Participants were asked to respond to three questions (Appendix G) via Twitter. Table eight is an analyzed compilation of the tweets by emerging themes utilized as a data collection point as described in chapter three of this study. These tweets are an accumulation of the four participants’ tweets as well as the participants that offered member checking commentary denoted by #teachlearntweet. Examples of specific tweets that illustrate the emerging themes of the data are included in Appendix H. The content of the Tweets included original commentary, external links to relevant articles, videos, educational resources, and imagery with supporting text.
Table 8.
Number of Tweets Categorized by Emerging Themes

<table>
<thead>
<tr>
<th>Theme of Tweet</th>
<th>Number of Tweets Illustrating Theme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Climate</td>
<td>72</td>
</tr>
<tr>
<td>Classroom Methodology</td>
<td>89</td>
</tr>
<tr>
<td>Collaboration</td>
<td>32</td>
</tr>
<tr>
<td>Isolation</td>
<td>38</td>
</tr>
<tr>
<td>Pedagogy</td>
<td>21</td>
</tr>
<tr>
<td>Positive Reactions to Twitter</td>
<td>48</td>
</tr>
</tbody>
</table>

Classroom climate tweet content addressed specific ideas or thoughts related to learners in a classroom from building relationships, to classroom management ideas such as morning meetings, to flexible seating opportunities and classroom routines and rituals. Classroom methodology tweet content addressed specific content areas, technology integration and specific teaching approaches, such as Socratic seminar, to even more specific curriculum commentary, dependent on the focus of the educator need. Collaboration tweet content highlighted tweets that indicated educators working together in such contexts as book studies or learning projects such as Mystery Skype. Collaboration tweets also suggested the power of a Twitter professional learning network and learning from like-minded educators. Tweets regarding Isolation were not as explicit at times. These tweets centered on the general self-efficacy commentary on being alone, isolated, or feeling a sense of belonging on Twitter. In addition, commentary that suggested Twitter fills a learning void for educators was evident. Pedagogical tweets ranged from beliefs about teaching and leading to being innovative and a being a change agent in education. While many of the aforementioned tweets were positive in nature, there were additional tweets that directly captured and emphasized the positivity of Twitter as a professional learning network.
Data Interpretation

The rich, descriptive voices of the participants shed a spotlight on the researcher’s questions that frame this case study. While the participants’ stories have been shared, this section will share the similarities and the differences that emerged from these data. Through this analysis, the researcher will glean responses to the research questions:

1. Does Twitter, used as a professional learning network, impact educators’ self-efficacy and educators’ collaborative experiences? If so, what feelings and experiences create this impact?

2. Do educators’ experiences through Twitter as a professional learning network impact classroom practice and pedagogy? If so, what feelings and experiences create this impact?

The data suggest a general positive experience with Twitter as a professional learning network for all informants. However, the researcher considered each theme with regard to content and attitudes to determine impact of each of the themes as they relate to the research questions. The researcher identified individual and shared beliefs regarding each of these themes by indicating actual feelings and experiences shared by the participants.

Traditional Professional Learning Experiences and Effectiveness

The traditional professional learning experiences of the study participants all mirrored a similar approach. The participants all shared their experiences were generally planned from a top-down mandate and lacked relevancy and connection to each specific role the participants held in education. These lackluster feelings echo a survey conducted by The Teaching Commission (2004) that revealed 42 percent of teachers specified that professional development either felt something was missing or was a complete waste of time (Peter D. Hart Research Associates & Harris Interactive, 2004). The participants shared experiences that ranged from one shot workshops to after school meetings, to during the day meetings to
visitors facilitating to lengthier sessions over several days or the course of a year. The participants were inconsistent with being able to share the specific foci of the learning and relied on general ideas that were presented or shared, while some did not recall the content at all. Mabel shares, “They just tried to cram so much into our learning instead of just having one focus. It was so ineffective” (personal interview, July, 2017). The participants did appreciate the traditional professional learning experiences that were centered on regional or national conferences. These were appreciated because the participants felt they were given choice of learning and they were able to connect with dynamic educators. The researcher notes that these attributes are two of the attributes that Twitter can afford educators. The researcher asserts that traditional professional learning experiences for these participants were difficult to define. This comes as little surprise as Desimone (2009) concurs that there are a “myriad of experiences” (p. 181) that are considered teacher learning. This openness of description for what constitutes teacher learning does present challenges when discerning the effectiveness of educator learning.

With this approach to professional learning, the participants felt the effectiveness of the experiences were lackluster. Even for a motivated group of educators, such as the participants in this study, they were pressed to find relevancy and applicability to what was being learned through the traditional learning experiences. Mabel shared, “I try to always have one take-away and it is just getting more and more challenging to even find one thing to add to my teaching toolbox” (personal interview, July, 2017) when it comes to traditional learning experiences. The researcher shares that the participants believed the effectiveness of their traditional learning experiences was limited. Desimone, Porter, Garet, Yoon & Birman (2002) along with Learning Forward discuss the considerations of high quality professional learning. Table 9 indicates the five characteristics, that based on the participants’ feelings and experiences with traditional learning were lacking.
Table 9.

High Quality Professional Learning Characteristics

<table>
<thead>
<tr>
<th>High Quality Professional Learning Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alignment with school goals, state and district standards and assessments, and other professional learning activities including formative teacher evaluation</td>
</tr>
<tr>
<td>2. Focus on core content and modeling of teaching strategies for the content</td>
</tr>
<tr>
<td>3. Inclusion of opportunities for active learning of new teaching strategies</td>
</tr>
<tr>
<td>4. Provision of opportunities for collaboration among teachers</td>
</tr>
<tr>
<td>5. Inclusion of embedded follow-up and continuous feedback</td>
</tr>
</tbody>
</table>

While this research suggests these attributes were not visible in the participants’ professional learning, they do offer fodder to explore if Twitter can be considered high quality professional learning. Through the participants’ perspectives regarding their specific experiences on Twitter as a professional learning network, the researcher will share how these experiences and feelings support a high quality professional learning experience.

**Twitter as a Professional Learning Network Experiences and Effectiveness**

While the participants have not all used Twitter as a professional learning network for the same length of time and both Evan and Mabel had to be encouraged profusely to engage in Twitter, they all share the many positive experiences with Twitter. These experiences run the gamut from professional to personal and the researcher suggests that the lines are blurred with Twitter as to what experiences create something professional or personal in the participants as much of what was explored in this research were affective positions of educators such as isolation and self-efficacy and general feelings about Twitter. Even the few negative experiences shared seemed minute in compare to the positives. Within the narrative, in the prior section, each participant shared how Twitter directly altered their feelings, beliefs,
or actions with regard to education. Utilizing the same aforementioned characteristics of high quality professional learning, the researcher shares commentary on how specific experiences and feelings regarding Twitter as a professional learning network can be associated with high quality teacher learning. The researcher asserts that while the participants shared experiences with Twitter as a professional learning network, when addressed through the lens of high quality characteristics of professional learning, Twitter has merit as a positive and worthy educator learning experience (Table 10). To look more closely at the specific experiences and feelings that are noted as valuable educator learning, the researcher will address each theme from the research.

**Table 10.**

Twitter as High Quality Professional Learning

<table>
<thead>
<tr>
<th>High Quality Professional Learning Characteristics</th>
<th>Twitter as High Quality Professional Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Alignment with school goals, state and district standards and assessments, and other professional learning activities including formative teacher evaluation</td>
<td>A nuance of Twitter is that educators can use what is already learned in professional learning to further learning. Garet et al. (2001)</td>
</tr>
<tr>
<td>2. Focus on core content and modeling of teaching strategies for the content</td>
<td>Twitter has a plethora of commentary, resources and educator sharing examples of teaching strategies that are specific to a multitude of content areas.</td>
</tr>
<tr>
<td>3. Inclusion of opportunities for active learning of new teaching strategies</td>
<td>Twitter demands active participation and engagement which supports research that states that teachers report greater changes in their instructional practice when they are actively learning (Desimone et al., 2002; Garet et al., 2001).</td>
</tr>
<tr>
<td>4. Provision of opportunities for collaboration among teachers</td>
<td>Twitter is collaborative among teachers. It supports Hill et al. (2010) that believe teachers only develop skills and proficiency when they are not isolated.</td>
</tr>
<tr>
<td>5. Inclusion of embedded follow-up and continuous feedback</td>
<td>Because of the ubiquitous, connective nature of Twitter, educators are able to receive instant and continuous feedback.</td>
</tr>
</tbody>
</table>
Research Question One

Educator self-efficacy

For the purpose of this study, the researcher addressed research question one, initially through the lens of Bandura (1962) and his research on self-efficacy. Self-efficacy is one’s belief in his or her ability to succeed in a particular situation. Interestingly, the researcher did not preset questions to discuss isolation. However, Evan, Jarrod, Mabel and Doug all stressed that Twitter eradicated the feelings each one had regarding isolation. “I feel isolated because I don’t see other teachers teaching like me” (personal interview, July, 2017) says Jarrod. Evan corroborates this by suggesting that he isn’t going to compromise who he is as an educator just because people at his school do not appreciate his methods or ideas. Specifically Evan shared, Twitter is “Connecting with a much larger community of educators and receiving much needed encouragement to carry on” (personal communication, July, 2017). Of the four participants, Evan, Jarrod and Mabel all suggest that Twitter saved their teaching life in one regard or another. Doug’s perspective as an administrator is one in which, “I want to encourage teachers to participate in Twitter, especially if they are feeling alone and not supported” (personal interview, July, 2017). Each participant alluded to Tweets that impacted how they felt about themselves when they were feeling, “low, sad or just so frustrated” (personal interview, July, 2017). Evan shared, “We help each other. Not just work help but heart help. You know when you just need to know you’re not alone” (personal communication, July, 2017). Regardless of the transfer of information to practice, Twitter has had a positive impact on these participants’ beliefs in themselves. While the researcher did not investigate how this translated to classroom practice, it is Bandura (1963) that suggests self-efficacy can impact behaviors, motivations and psychological states. Thus, while these educators express a positive impact with regard to feeling less isolated, the researcher submits
that the feelings of camaraderie and support derived through Twitter do build a positive self-efficacy.

While Twitter combats feeling of isolation and thus as proposed by the researcher, does impact educators’ self-efficacy, the researcher notes that it can come as a detriment to educators’ relationships in their own buildings. While the participants all believe Twitter hampers the feeling of isolation, it is Evan who stressed that perhaps this feeling is merely a virtual feeling, that the feeling of isolation still exists in the school building, but because educators feel better about at least having one outlet (Twitter) the isolative feelings in their individual schools doesn’t distract them as it once did prior to Twitter. Thus, Twitter’s impact on self-efficacy is once again illustrated to be a positive one.

**Educator collaborative experiences**

To further answer research question one, the researcher explored participants’ feelings and experiences about Twitter as a collaborative force in educator learning. For the purpose of this research, the researcher did not want to imply Twitter was or was not collaborative and did not define the term for the participants. Thus, the notion of collaboration through Twitter presented participants with a dilemma. Each participant, Evan, Jarrod, Mabel and Doug all challenged their schema for the meaning of collaboration. While all four agreed Twitter, by the nature of the tool, requires collaboration. There was not agreement as to how Twitter shapes collaboration. Questions arose for each of the participants, for example, Jarrod asked “Do you mean just talking? Is that collaboration?” (personal interview, July, 2017). During the terminal focus interview, the researcher queried the uncertain idea of collaboration with all four participants. Ultimately, the discussion settled on the following consensus, articulated by Doug,

> We usually think collaboration is working together to create something, right? Well, we don’t really know once we walk away from a Twitter chat, what, if anything is
being created. But I would argue something is going on. Not every time, but sometimes. I know for me, I take things and adapt them. Whether I am using them for myself or sharing them with other people” (personal interview, July, 2017).

The other participants agreed. The direct impact of collaboration, as shared by Doug, is really not known. However, Evan shared multiple examples of how just conversations on Twitter, which he considers collaboration, influenced his feelings about teaching or “sometimes it just opened my mind to something I had never considered. Like I would have never allowed devices in my classroom” (personal interview, July, 2017). Mabel suggests for her, “The collaboration builds confidence. That’s the impact for me. I am more confident because I have people that will work with me through an issue” (personal interview, July, 2017). Again, the participants, as with the subject of isolation, share that the notion of collaboration and what Twitter supports, can impede collaborative relationships in their individual schools.

Each of the participants cheer on the fact that Twitter collaboration affords choice where traditional collaboration does not. However, none of the participants were able to rationalize why they choose to collaborate with educators on Twitter over the educators in their own contexts except to assert that the educators on Twitter seem to be more motivated, innovative and positive than those that are not engaged with Twitter in their own environments. The researcher suggests that while the impact of the collaborative experiences that Twitter creates are unknown, they could be exponential. Research suggests that collaboration is not occurring within traditional professional learning (Wong & Wong, 2005) while based on this study, Twitter drives and encourages collaboration. Educators are seeking out other educators to work together to improve practice.
Research Question Two

Classroom practice

To explore the impact of Twitter, if any, on classroom practice, the researcher focused on the classroom changes participants shared that were adopted or adapted within their repertoire. The data from this study supports that Twitter seems to have a stronghold on the impact it has with regard to classroom practice. While Doug’s lens is not focused on a classroom per se, he sees methodologies changing in the teachers that he leads because of their interaction on Twitter. Due to the short snippets of information allowed in a 140 character tweet, the participants suggest that, “It’s easy to share a link, a classroom photo, or something that takes the Twitter learning further” (personal interview, July 2017). The researcher puts forth that there are multiple methodological shifts by educators that interact on Twitter. Table 11 highlights some of the classroom changes the participants shared that were adopted and adapted because of their interactions with Twitter.

Table 11.

Example Changes by Participant via Twitter Interactions

<table>
<thead>
<tr>
<th>Participant</th>
<th>Methodology Adoptions or Adaptations</th>
</tr>
</thead>
</table>
| Evan        | • Flipped learning  
             | • Technology Use with Google  
             | • Technology use with FlipGrid  
             | • Different ways to assess     |
| Jarrod      | • Lesson plan design change  
             | • Classroom arrangement/flexible seating  
             | • Student engagement strategies  
             | • Using Tedtalk for Inquiry     |
| Mabel       | • Reading logs  
             | • Implementing student choice  
             | • New resources for my learners  
             | • Arts integration in novel studies |
| Doug        | • Removed lecture  
             | • Problem based learning       |
While the researcher was able to create a list of methodological adoptions and adaptations that impact the participants’ individual classrooms, the researcher implies that Twitter is merely the spark that ignites these ideas and surmises it takes additional learning steps to engage these ideas into action into the classroom. It is not Twitter alone that impacts the classroom. The ideas that Twitter forges are manicured for each educator’s context. That being said, on the basis of Twitter being a receptacle for methodological ideas that educators can choose to implement, assures that Twitter has a positive impact on educators’ classroom practices. The researcher would argue that it is this piece of Twitter that nudges the reflective practitioner to materialize. With the abundance of information available to educators on Twitter, an educator must be able to differentiate what is important to his or her context and then, ultimately, mull over what is working and what is not.

**Pedagogy**

To expose thoughts related to research question number two and to understand if Twitter as a professional learning network has a pedagogical impact on feelings the feelings and experiences of the educator participants, the researcher focused on interview questions that broaden the edification of teaching for the participants. In short, the researcher delved into the question, how, if at all, does Twitter impact the intellectualism of the profession? To explore this, the researcher focused on participants’ responses to questions regarding beliefs about the educational profession and the subtleties of motivation and self-growth. Similarly, the researcher paid particular attention to comments regarding the transformative patterns that Twitter was promoting with regard to teaching, interacting with other educators and seeking
professional learning. It is interesting to note that the question of pedagogy is rather an enigma. To better understand the impact Twitter may or may not have on an educator’s pedagogy, the researcher had to allow the participants time to reflect on former ideas about education and thus digest if Twitter has impacted who they are as an educator. Evan, Jarrod, Mabel and Doug all agree that through Twitter they have realized they are not as astute as they thought they were or as it “appears in their own personal building” (personal interview, July, 2017). Doug finds the “keeping up with the Jones’ phenomenon” apparent in most of his Twitter interactions. However, Doug finds this energizing because the educators in his Twitter professional learning network all want to do more and do better. The researcher postulates, that this notion highlights how Twitter impacts pedagogy from a motivational stance. These educators want to know more about teaching, to be better teachers, because of who they are interacting with on Twitter and the fact that they are being exposed to ideas that they were not familiar with.

The participants also share that innovation drives their pedagogy. “There are new things all the time being discussed on Twitter, we have to keep up to be relevant” says Evan (personal interview, July, 2017) in response to the journey his pedagogy has taken since before interacting on Twitter and after being part of a professional learning network on Twitter. Twitter is on the forefront of tools available for ubiquitous learning so it is safe for the researcher to assume that the content of Twitter that is being digested by educators is also on the forefront of educational theory and application. Which, in turn, means there is a constant shift in pedagogy.

The idea of pedagogical shifts whether conforming beliefs or practices, based on interactions on Twitter prompts the researcher to remark that the transformative nature of Twitter as a professional learning network happens here. The educators in this research all shared personal aha! moments that they felt altered their cognition or affection with regard to
education. This was specifically illustrated through Jarrod and Mabel who both expressed the number of professional books they had picked up to read because they were being discussed on Twitter. The researcher affirms that when these educators strive to explore new ideas in education that stem from either action research or more epistemological approaches, they engage in some shifts in philosophy whether it is just adding support to an already established belief or completely altering one’s stance.

**Conclusion**

This chapter shares the specific findings of the research through a narrative that focuses on each participant’s individual voice. Through rich description and direct quotes from personal interviews, personal communications and content of Tweets, the researcher initially shared participants’ explicit experiences, thoughts and feelings with regard to traditional professional learning experiences and effectiveness. Then, the researcher shared findings as they related to Twitter as a professional learning network. While other discussions were highlighted in the findings, the researcher focused on the emergent themes of teacher isolation, collaboration, classroom methodology and pedagogical impact. To answer research question number one, does Twitter used as a professional learning network, impact educators’ self-efficacy and educators’ collaborative experiences? the researcher focused on analyzing the responses and Tweets directly related to teacher isolation and educator collaboration. Similarly, to answer research question number two, do educators’ experiences through Twitter as a professional learning network impact classroom practice and pedagogy? the researcher focused on responses and Tweets directly related to classroom methodology and pedagogy. Chapter Five will conclude this research with a discussion of the findings specific to each research question, the limitations of the findings, researcher commentary, the
connections to the literature that framed the study and implications for future practice based on the findings and suggestions for future research.

Chapter Five
Discussion, Implications, Future Work and Conclusion

Through a qualitative case study, this research investigated educators’ experiences with Twitter as a professional learning network. Participants were selected via purposeful criterion sampling in order to obtain information rich experiences (Patton, 2015). Through individual personal reflections, in-depth personal one-on-one interviews, subsequent focus group interviews and a thorough analysis of content of educators’ 140 micro-blog commentary, an illustration of these experiences was formed. Comprehensive researcher analysis, with the aid of Atlas ti (2013), of each reflection, interview and content revealed the themes that emerged and were put forth in chapter four. This chapter presents a discussion of the findings specifically related to the research questions. This chapter will also shed light on the limitations of the findings. Additionally, the researcher shares commentary and personal reflections on the methodology ascribed to in this study. Moreover, this chapter will consider the relationship of the findings to the literature presented in chapter two of this study. Lastly, this chapter will discuss the implications for further practice and suggestions for future research.

Discussion of findings

Through this qualitative case study, the researcher delved into the experiences of educators’ with Twitter as a professional learning network. Specifically, the researcher was interested in answering the following two research questions:
1. Does Twitter, used as a professional learning network, impact educators' self-efficacy and educators' collaborative experiences? If so, what feelings and experiences create this impact?

2. Do educators' experiences through Twitter as a professional learning network impact classroom practice and pedagogy? If so, what feelings and experiences create this impact?

The researcher postulates that for this research, the term impact means to insinuate a strong effect on something. In this case study, the researcher concludes that Twitter as a professional learning network does have an undeniable positive impact on educators’ self-efficacy, collaborative experiences, classroom practice and pedagogy. To better understand this rationale, the researcher briefly discusses the emergent themes and then will apply this discussion to the research questions.

**Emergent themes**

**Traditional Professional Learning Experiences and Effectiveness.**

By and large the traditional professional learning experiences of the participants in this study mimicked those that the literature suggests in chapter two. Participants’ experiences shadowed those that Kabilan (2005) suggests as standard delivery derived from a mandate that usually take place within the school. The notion of traditional professional learning as a checklist occurrence for educators is a common one. In fact, the researcher adds the finding that the participants were able to only speak very generally about their traditional learning experiences with little detail in regard to content or presentation. In fact, several participants admitted forgetting some of the traditional professional learning experiences completely because of the lack of effectiveness. The researcher submits that this is definitely a perpetuating theme that needs to be addressed.
Twitter as a Professional Learning Network Experiences and Effectiveness.

In complete antithesis, are the experiences and effectiveness the participants shared with Twitter as a professional learning network. Each experience was overwhelmingly positive. The participants’ use of Twitter hinted at the suggestion of Reich, Levinson & Johnston (2011) that professional development should allow educators to learn from each other as they interact in both reflection and action. The educators that participated in this research all appreciated the platform that Twitter provided. With the lens of ubiquitous learning (Cope & Kalantzis, 2009), it is Twitter that is shaping communities of practice for educators that is changing learning; the very impetus of ubiquity in learning.

Educator self-efficacy.

Bandura (1994) shares his belief on self-efficacy by stating that there are sources of influence on one’s self-efficacy. Twitter as a vessel where participants use social persuasion (Bandura, 1994) as a way of strengthening their belief in one’s self is one source of influence for the educators in this study. This simply means that through the encouraging commentary and positive persuasion, the educators who use Twitter are likely to believe those affirmative notions about themselves and experience a boost in self-efficacy. Another source of influence afforded by Twitter that Bandura (1994) suggests is the “vicarious modeling of success” (p. 72). Educators that interact on Twitter as a professional learning network are witnessing successes by like professionals. The idea is, then, that if someone of like ilk can be successful, so can I. While the sources of self-efficacy were not specifically suggested by the participants, the researcher attributes the admission that the participants feel less isolated because of their use of Twitter as the manifestation of these self-efficacy influences.

Educator collaborative experiences.

Flanigan (2011) describes professional learning networks as teacher-driven, global support networks that diminish teacher isolation and encourage teacher independence. This
definition is at odds with what educators reported as their experiences with traditional professional learning within this body of research. Ironically, not a single participant referred to his or her professional learning network as a source of learning in their specific context. However, Twitter as a professional learning network is teacher driven; teachers elect to participate or not. Twitter as a professional learning network is global; teachers from all over the world participate in the interactions. Lastly, this research has directly illustrated that Twitter has the ability to moderate teacher isolation through the collaborative experiences.

**Classroom practice.**

Furthering the collaborative experiences on Twitter is the sharing of specific educational ideas that impact classroom practice. For the participants in this study, they each shared personal anecdotes illustrating instances where an idea or resource on Twitter had a direct impact on something they attempted in their own classroom. This affirms that Twitter has an impact on classroom practice, whether it is planning or methodology or practice. The researcher suggests that while educators who use Twitter as a professional learning network are utilizing the ideas gleaned from the collaborative experiences, they are fostering their own professional learning. It is important to note that in this case, the learning is relevant to each educator and the educator is then afforded the opportunity to assess his or her own learning based on the reflective practice after implementing the idea.

**Pedagogy.**

Pedagogy is the voice of teaching. The intricacies of teaching are the arteries that flow into one’s personal pedagogy. While each of the participants struggled somewhat with defining their “pre-Twitter” pedagogy, they all affirmed that because of Twitter, they are more comfortable with their teacher presence and they are more defined in their teaching presence. If one dissects pedagogy, it is safe to suggest that collaboration, classroom climate, and self-efficacy all have a role in establishing one’s pedagogy. While there is limited
research on the impact Twitter has on educator’s pedagogy, there is research surrounding Twitter as a higher education learning tool. In fact, Junco, Heiberger & Lokan (2010) state that college students that utilize Twitter as a learning tool show increased engagement and higher achieved grades as well as increased participation by students, including those who would not be comfortable participating in a large learning setting. While this is not pedagogy with regard to an educator’s voice, it can be likened to a learner’s pedagogy; how he/she interacts with a learning context and the attributes attained.

**Research Question One**

The first research question the researcher explored in this study, was, does Twitter, used as a professional learning network, impact educators' self-efficacy and educators' collaborative experiences? While the researcher discussed teacher isolation within the body of literature as a part of the topical framework for this research, the theme of isolation was consistently evident with each of the study participants as well as with random member checking. Surprisingly, each educator shared intimate vignettes illustrating their feelings of isolation with such intimations of being the only teacher ascribing to a particular pedagogy or method, or simply having no place of support or help. It is Flinders (1998) who suggests that, “isolation has direct bearing on professional development” (p. 19). The researcher concurs and furthers that the feelings of isolation that teachers experience impact their self-efficacy. Therefore, while the data overwhelmingly suggest that Twitter quashes the feelings of isolation, the researcher submits that Twitter has a positive impact on educators’ self-efficacy. Similarly, the consistent reference of Twitter as a positive, supportive context for all educators furthers the researcher’s affirmation that Twitter does, in fact, positively impact an educator’s belief and value in one’s self. While there was discussion of these positive feelings perhaps being virtual and not transferable to a real context in a school building, the researcher
still puts forward that the positive impact on self-efficacy translates to a more positive feeling of value in an educator’s teaching context, exclusive of the “virtualness” of the experience.

The nature of Twitter as a professional learning network demands collaboration. While all of the participants suggest Twitter is a positive collaborative experience, the researcher suggests that the notion of collaboration through Twitter requires that the idea or definition of collaboration morphs when applied to a virtual learning network such as Twitter. This does not, however, hamper the positive experiences with collaboration. From the standpoint of requiring and gaining support, Twitter’s collaborative efforts are encouraging. Similarly, the sharing of ideas, successes and challenges is an often experienced collaborative competency through Twitter. It appears, however, that lengthier, more process tasks that involve educators implementing a collaborative project, while can happen, are not the norm for users of Twitter. The researcher attributes this to the distance between educators within the professional learning network that Twitter can promote. This is not to argue that Twitter impacts educator partnerships negatively. Instead, this research provokes a shift in educators to understand what collaboration is and how, possibly, a simple, direct, focused, collaborative conversation can have a positive impact. Ultimately, the researcher states affirmatively that Twitter impacts collaboration of educators positively.

A concept that came to light during this research was the notion that educators who are using Twitter are less likely to collaborate with people in their local context. The researcher agrees that educators’ use of Twitter can perpetuate the isolation derived from avoiding collaborative experiences in one’s building, but also asserts that the educators that are turning to Twitter as a professional learning network were already avoiding collaborative experiences in their personal education contexts. Using Twitter for collaborative experiences and to quash the notion of isolation, can perpetuate what is in existence with regard to these ideas. It is not causal that Twitter creates an isolative, non-collaborative experience with
educators in their professional context. It is the researcher’s belief that the educators in this study who use Twitter as a professional learning network are there to amplify their learning as educators, whereby the educators within the informants’ physical learning context may not have the same impetus to do so.

Research Question Two

The second question the researcher explored in this study was, do educators' experiences through Twitter as a professional learning network impact classroom practice and pedagogy? The research establishes that Twitter is a repository where a plethora of educational information is shared. This research highlights the abundance of knowledge and experiences that directly relate to educators methodologies. Through this research, the educators’ shared learnedness in the areas of lesson planning, technology integration and classroom management as well as a myriad of specific experiences around content teaching. The learning occurred through a sharing of ideas, philosophies and photographic and video captures within the 140 character micro-blog responses, known as tweets. In addition, many of the tweets directed educators to additional resources including trade books, blogs, materials and lesson plans to further the knowledge that was being captured. The researcher credits these specific experiences as having a positive impact on pedagogy. While the interactions on Twitter did little to address pedagogy as a specific topic, the opinion of the researcher is that an educator’s pedagogy is the masterpiece created by all of the intricate details of an educator’s experiences. Thus, while Twitter has a positive effect on participants’ methodologies and, as discussed above, an educator’s self-efficacy and collaboration, the researcher asserts that the impact of Twitter on an educator’s pedagogy is a positive one.

With regard to classroom climate, the researcher affirms that Twitter has a positive impact on an educator’s classroom climate. The researcher has discussed the positive self-efficacy derived from educators’ experiences with Twitter as a professional learning network
and associates a positive self-efficacy with having remnants of positivity in the educational context of the educators. Furthermore, each of the participants suggested that Twitter has a direct positive effect to the classroom climate. Examples included specific ideas that impact a classroom environment physically and cognitively. Research participants shared specific ideas learned such as flexible seating options for a classroom, opting for more problem based learning over lecture as a methodological shift and offering learners more choice in the classroom. These are just a few of the classroom climate changers that research suggests creates more engaged learners (Bucholz & Sheffler, 2009). The researcher also emphasizes that due to the overwhelming positive allure with Twitter and the participants sharing very few, or at the least, easily managed, negatives to using Twitter as a professional learning network, it is again fair to suggest that Twitter is an overall positive contributing factor to educator pedagogy.

**Researcher comments**

The researcher frankly shares that the entire research process was a fruitful experience. Throughout the approach, the researcher noted personal commentary to reflect on. Below, the researcher briefly shares considerations on the methodology, the bias associated when a researcher is close to the research topic being investigated, the impact on participants and the personal impact on the researcher.

The researcher set out to conduct a qualitative case study. The methodology, while emphasized by Cresswell (2007) is a flowing process from assumptions to worldview to the application of a theoretical lens and then onto the procedures to extract the data. The methodology was fluid with regard to the researcher’s interaction with the participants. While protocols were established, the researcher recognized early that using a responsive interview model was necessary. Through this, the researcher was able to obtain specific, rich descriptions that at times went beyond the scope of the research questions. This was an initial
challenge for the researcher; simply maintaining focus on what the study was investigating. There was a cumbersome amount of data collected through the reflections, interviews and subsequent content analysis. At times the researcher was overwhelmed with the detail to which the data was expressed, while at the same time was only able to categorize and theme the data because of the richness and volume of data collected.

While a qualitative study does need to consider the possible bias of participants, the researcher shares that throughout the entire study, bracketing the researcher’s bias was paramount to the success of this research process. The researcher is the instrument for analysis across all phases of a qualitative research project (Starks and Trinidad, 2007). The interest in this study stemmed directly from the researcher’s personal observations and experiences while creating and interacting within a Twitter professional learning network. While the researcher began this study, a purposeful sideline role was established with regard to the researcher’s own interactions with Twitter. For the period of the research, the researcher dismissed preconceived ideas and emotions with regard to Twitter and disengaged from the established professional learning network. While the research revealed overwhelmingly positive experiences with Twitter as a professional learning network, the researcher was keenly interested in the negative attributes of Twitter as a professional learning network and strived to delve into these, although they were limited based on the participants’ responses.

Interestingly, this research became a talking point outside of the bound case. While the commentary was not used, except as noted as member checking as discussed within the methodology, there were beneficial conversations around the topic of Twitter as a professional learning network observed by the researcher. This had a positive impact on the informants as throughout the research process it was evident that all four participants are consistent advocates of using Twitter as a professional learning network. The focus group
revealed many overlapping successes with Twitter that each participant now feels charged with inculcating this tool into their school or district as an expected part of professional learning. For the researcher, it was novel that one part of the research process actually utilized the professional learning network to acquire corroborating and/or differing responses to the collected data. While the researcher was exploring Twitter as a professional learning network, the researcher was also using Twitter as a data collection point. As the entire study was exploratory in nature, the researcher was challenged by not “proving” something, while at the same time is confident that the positive effects of Twitter have been substantiated.

**Relationship of findings to previous literature**

The conclusions based on this case study are directly supported by the literature introduced in chapter two of this study. While there is limited research already present to substantiate the discrete findings of this study, the theoretical and content basis discussed thoroughly in chapter two confirm the themes represented in the findings.

Both Bandura (1962) and Vygotsky (1978) purport that learning occurs in a social context. Twitter, by its very nature is a social learning context. Participants convene in a setting that provides the opportunity for educators to learn between observation and collaborations with others (Bandura, 1962). Vygotsky (1978) emphasizes the connections between people and the cultural environment in which they act and interact in shared experiences are where learning occurs. Thus, when educators use Twitter for professional learning, they are involved in a social learning setting.

Androgogy, or the pedagogy of adult learning theory (Knowles, 1980) asserts that adults are more self-directed, refer to life experiences when sharing, desire quick application of new learning and have a fundamental motivation to learn. This study confirms educators that are choosing to learn via Twitter, are sharing their personal experiences through asynchronous and synchronous conversations and trying out what they are disseminating as
important to their context. Twitter as a professional learning network is a prime context for adult learners, given Knowles’ (1980) taxonomy of adult learners. This taxonomy includes adults as self-directed learners; have a reservoir of experiences to share; are eager to learn; experience a perspective shift in learning; and are motivated to learn (Knowles, 1980). This is illustrated in Table 2, for reference. With these attributes in mind, this study had a nuance of educators’ self-directed learning process. Each of the participants were involved in taking the initiative for their own learning, sharing their experiences, were motivated to learn and share and by evaluating the merit of their experiences did undergo a shift in their approach to teaching; all merits of Knowles’ qualities of adult learners.

Through a connective, ubiquitous experience, educators are sharing information that is impacting how they see themselves as well as impacting actions in their teaching context. Siemens (2005) describes the notion of Connectivism as a learning theory that focuses on connections. Because Twitter affords educators the opportunity to create professional learning networks, the very idea of Connectivism is an underpinning of Twitter use. In fact, the participants in this study felt such an allegiance to the people in their professional learning network formed on Twitter, they were exhibiting many of the basic principles suggested by Siemens (2005). Siemens (2005) shares that it is the differing opinions of others that create a course of learning. This is evidenced in this research as the participants all shared examples of new learning that was a shift in prior thinking. Siemens (2005) also suggests that it is important to nurture connections in order to maintain learning. The participants in this study all explained a strong allegiance to the people in their learning network to the point of their involvement on Twitter having a null or sometimes a negative impact on their traditional educational relationships.

While Twitter as a professional learning network provides sufficient support for social and adult learning theories and connectivism, it also is a player with regard to ubiquitous
learning. Quite simply, educators now have a constant opportunity to learn. This is one of the highlights suggested in this research. Participants agreed that the idea of Twitter being available at any time of day, anywhere in the world, is alluring. While Twitter provides a strong ubiquitous platform encompassing social learning theory, adult learning theory and the theory of connectivism, it also furthers the ability for researchers to investigate self-efficacy, pedagogy, classroom climate or collaboration, the very ideas this study explored.

While not expected, it was through understanding the phenomena of teacher isolation, this study addressed the details of the impact Twitter has on an educator’s self-efficacy. It was the consistent, collaborative experiences of educators who use Twitter as a professional learning network that eliminated the feeling of teacher isolation. By and large this enhanced the social interaction that Guskey (2000) suggest is an important characteristic of professional development. Similarly, the consistent positive messages shared between professionals in each network signified a general motivation to want to learn. While some of the participants’ experiences were specific to classroom management or classroom methodology, they all echoed positive beliefs and motivation.

Twitter is not a cure-all for all educator professional learning, however, the prior literature suggests educator disenchantment with traditional professional learning that Twitter can combat. The limited effect on increase in teacher knowledge or changes in classroom pedagogy is just one poor effect of traditional professional learning (Desimone, 2009). Twitter as a positive force in classroom climate and pedagogy, therefore has merit. Traditional professional learning is expensive, offers participants no choice and lack follow through (Darling-Hammond, 2013). Twitter as a professional learning network is free and offers an abundance of choice, from topic to participation involvement. Similarly, participants are in charge of their own follow through and as a participant in a Twitter chat, can expect the consistency of learning each week.
Limitations of findings

While the researcher was thorough with probing each participant about the individual and shared experiences with Twitter as a professional learning network, the researcher does recognize there are limitations to the findings. In a qualitative, case study, the findings are limited by the participants’ experiences. Since these participants were selected as exemplar users of Twitter, their experiences are only gauged within their specific taxonomy. The researcher suggests that the educators interviewed for this study are motivated, eager and knowledgeable and care about wanting to learn more about their profession. In short, these educators are positively poised to interact with Twitter in a more affirmative manner. This claim may not be true of all educators utilizing Twitter. Similarly, the participants of this study shared traditional learning experiences that may be limited in scope. Moreover, with this study, the researcher relied completely on self-reported data. As such, the information shared through the personal reflections, one-on-one interviews, focus interviews and content of tweets, had to be taken at face value. There was no ability to verify these independent thoughts. While bias can be a limitation in studies such as this, the researcher stresses that the structure of the data collection alleviated bias as much as possible. The researcher relied on member checking as a means of respondent validation in which participants were continually able to read through the data and analysis and provide feedback on the researchers’ interpretations of their responses.

Implications for future practice

It is evident that there needs to be a shift in professional learning for educators. While professional learning networks and professional learning communities are often thought of as innovative delivery models of professional learning, the most favorable suggestion for future practice is for stakeholders that make decisions about professional learning for educators, consider Twitter as a focus for professional learning. More simply, schools can establish a
collegial presence on Twitter, initially, and then educators can reach beyond the local school to create a professional learning network. While some schools are utilizing webinars and SKYPE trainings for professional learning, Twitter is easily accessible, differentiated and capable of affording all educators some type of professional learning. As with any professional learning that is subject to evaluation, Twitter experiences, too, can be measured for effectiveness.

While this research focus was not on teacher isolation, the researcher suggests that there is an alarming reality, based on the conversations with these research participants, that teacher isolation is not only present in our educational contexts, but it is the elephant in the room, as such. Administrators, teacher leaders and colleagues need to address the topic of isolation so that it does not manifest in negative ways. As seen in this research, educators are utilizing a virtual context for professional learning that ultimately is masking the feelings of isolation created within their native contexts and having an ill-effect on local educator collaboration. In short, teachers are feeling less isolated through the use of Twitter as a professional learning network but to the detriment of their face to face collaborative experiences within their local contexts.

**Implications for future research**

The idea of online, virtual professional learning via Twitter is a new one. Future research can continue investigating the experiences of educators with Twitter in the same manner as this research. While there are many educators who are using Twitter as a professional learning network, there is still a mass of educators who are not. More research in this vein can only prove to promote Twitter as a positive professional learning support. Alongside this, the researcher finds the taxonomy of educators who utilize Twitter as a professional learning network very discrete; a culture of sorts. Research could uncover the professional habits, experiences and characteristics of educators who use Twitter.
An additional area of future research is to research a focus purely on teacher isolation and how a virtual context encourages or eliminates this idea. This notion could also afford a researcher to look at Twitter use in pre-professional contexts. The suggestion being that if pre-professional educators establish a professional learning network early on, they are already on the spectrum of having a support system and selecting their own learning.

Another area of research could focus on the effectiveness of Twitter as a professional learning network. In this research, participants could self-evaluate experiences on Twitter with a developed evaluative tool and compare the effectiveness with the prior researched effectiveness of traditional professional learning. Ultimately, the effectiveness would open a window to determining if educators using Twitter as a professional learning network actually impacts student achievement.

From a theoretical perspective, future research can focus on social presence. Social presence is “the degree to which a person is perceived as a ‘real person’ in mediated communication” (Gunawardena, 1995). There could be an implication of educators possibly identifying a Twitter professional learning community as ‘real’ to the point that it impedes professional collaborative growth in a traditional setting.

Conclusion

While educators experience a multitude of professional learning contexts, it is no secret that the current models of delivery are not having their full impact on educator learning. This study reveals that Twitter, as a professional learning network, has the potential to support educator learning in an innovative way. Through interactions on Twitter, educators are finding a niche of like-minded educators that are motivated to perfect and amplify their craft. Through these dedicated asynchronous and synchronous conversations, educators are finding their voices, receiving affective and cognitive support and nudging themselves to do
better in their educational context. For the educators in this research, professional learning prior to discovering Twitter was an enigma for them. They felt the learning was irrelevant, disconnected and a time waster. Although there is still much to be learned about the impact of Twitter and the evolution of professional learning networks through this modality, the capacity of this tool to engage, energize and create formidable learning in today’s educators is promising.
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Appendix A

The term ‘professional development’ means activities that—

(A) are an integral part of school and local educational agency strategies for providing educators (including teachers, principals, other school leaders, specialized instructional support personnel, paraprofessionals, and, as applicable, early childhood educators) with the knowledge and skills necessary to enable students to succeed in a well-rounded education and to meet the challenging State academic standards; and

(B) are sustained (not stand-alone, 1-day, or short term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused, and may include activities that—

(i) improve and increase teachers’—

(I) knowledge of the academic subjects the teachers teach;

(II) understanding of how students learn; and

(III) ability to analyze student work and achievement from multiple sources, including how to adjust instructional strategies, assessments, and materials based on such analysis;

(ii) are an integral part of broad school-wide and district-wide educational improvement plans;

(iii) allow personalized plans for each educator to address the educator’s specific needs identified in observation or other feedback;

(iv) improve classroom management skills;

(v) support the recruitment, hiring, and training of effective teachers, including teachers who became certified through State and local alternative routes to certification;

(vi) advance teacher understanding of—
(I) effective instructional strategies that are evidence-based; and

(II) strategies for improving student academic achievement or substantially increasing the knowledge and teaching skills of teachers;

(vii) are aligned with, and directly related to, academic goals of the school or local educational agency;

(viii) are developed with extensive participation of teachers, principals, other school leaders, parents, representatives of Indian tribes (as applicable), and administrators of schools to be served under this Act;

(ix) are designed to give teachers of English learners, and other teachers and instructional staff, the knowledge and skills to provide instruction and appropriate language and academic support services to those children, including the appropriate use of curricula and assessments;

(x) to the extent appropriate, provide training for teachers, principals, and other school leaders in the use of technology (including education about the harms of copyright piracy), so that technology and technology applications are effectively used in the classroom to improve teaching and learning in the curricula and academic subjects in which the teachers teach;

(xi) as a whole, are regularly evaluated for their impact on increased teacher effectiveness and improved student academic achievement, with the findings of the evaluations used to improve the quality of professional development;

(xii) are designed to give teachers of children with disabilities or children with developmental delays, and other teachers and instructional staff, the knowledge and skills to provide instruction and academic support services, to those children, including positive behavioral interventions and supports, multi-tier system of supports, and use of accommodations;
(xiii) include instruction in the use of data and assessments to inform and instruct classroom practice;

(xiv) include instruction in ways that teachers, principals, other school leaders, specialized instructional support personnel, and school administrators may work more effectively with parents and families;

(xv) involve the forming of partnerships with institutions of higher education, including, as applicable, Tribal Colleges and Universities as defined in section 316(b) of the Higher Education Act of 1965 (20 U.S.C. 1059c(b)), to establish school-based teacher, principal, and other prospective teachers, novice teachers, principals, and other school leaders with an opportunity to work under the guidance of experienced teachers, principals, other school leaders, and faculty of such institutions;

(xvi) create programs to enable paraprofessionals (assisting teachers employed by a local educational agency receiving assistance under part A of title I) to obtain the education necessary for those paraprofessionals to become certified and licensed teachers;

(xvii) provide follow-up training to teachers who have participated in activities described in this paragraph that are designed to ensure that the knowledge and skills learned by the teachers are implemented in the classroom; and

(xviii) where practicable, provide jointly for school staff and other early childhood education program providers, to address the transition to elementary school, including issues related to school readiness.
Appendix B

Call for Participants

Are you a user of Twitter for educator professional learning? Your voice is needed! Take a few minutes to fill out this interest survey and you may be asked to be a part of a qualitative study that is looking at educators' experiences with Twitter as a professional learning network.

1. What is your first name?

2. What is your last name?

3. What is your gender?
   - Female
   - Male

4. How long have you been teaching?

5. Describe your teaching role.

6. Do you participate in Twitter Chats?
   - Yes
   - No

7. Select which Twitter Chats you participate in.
   - #ap
   - #mathchat
   - #oschat
   - I do not participate in Twitter Chats
   - Other (please specify)

8. How frequently do you participate in Twitter Chats?

9. Are you willing to participate in a 30-45 minute online one-on-one interview and a follow up 30-45 minute online focus group to share your experiences with Twitter?
   - Yes
   - No
   - Maybe, Contact me with More Information
Appendix C
Reflective Journal Protocol

Hi! Thank you so much for participating today. As you know, my name is Valerie King and I am a graduate student at Kennesaw State University. I am completing my dissertation and appreciate your input during the in-depth interview. Prior to meeting, I wanted you to have some time to reflect on your experiences so that you can be prepared for the interview. Your participation is voluntary through this entire process. Answering the prompt below implies your consent to participate. If at any time you wish to withdraw from participation, you may do so. If you have any questions or need clarification with this reflective journal, please contact me. Responses will remain confidential and will only be used for educational purposes.

Purpose
The purpose of the written reflection is to provide assistance to you in recording your thoughts in preparation for the interview and to capture your feelings and thoughts, as they were experienced. Please use the link provided to submit your document.

Prompt
Please write a short narrative that reflects on your interaction with Twitter as a professional learning network. Briefly describe your experiences with Twitter, focusing on Twitter Chats, but also indicate other ways in which you may interact with Twitter. Please share positive and negative experiences. Reflect on reasons you utilize Twitter, the things you like and the things you don’t like about the interaction. Also reflect on whether Twitter influences you as an educator.
Appendix D

Interview #________________

Interview Protocol

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Hi! Thank you so much for participating today. As you know, my name is Valerie King and I am a graduate student at Kennesaw State University. I am completing my dissertation and appreciate your input during the following interview. The interview will take about 30-45 minutes and will include some focused questions, but I want you to feel free to share any information you feel may be relevant to the questions I ask. I would like your permission to audio record this interview so I can transcribe your information accurately. If at any time during the interview you want to discontinue the recording, please let me know and I will stop. All of your responses are confidential and will remain confidential. I intend on using the responses for educational purposes. Before we proceed, I will need your verbal consent to conduct the interview. Your consent is implied by participating in this interview. I also need to let you know that your participation is completely voluntary. If at any time you need to stop or take a break, please let me know. You may decide to extract yourself from participation at any time and there will not be any consequence. Before we begin, do you have any questions or concerns? Then with your permission we will begin the interview.

Interview Questions: (Note: Due to the nature of the study, these questions are a starting point. The responses of the participants could prompt further probing questions.

Prompt

1. Do you participate in traditional professional learning?
2. Describe the specific activities or tasks or learning you have been exposed to with traditional professional learning.

3. How do you feel about the effectiveness of traditional professional learning? Why do you feel that way?

You indicated in the initial survey that you interact with Twitter for professional learning. The following questions will be based on your Twitter use.

4. How often do you interact with Twitter?

5. Do you participate in any of the following?
   a. Posting Tweets ______
   b. Synchronous Twitter Interaction ______
   c. Asynchronous Twitter Interaction ______
   d. Lurk and read information but do not interact ______
   e. Twitter Chats ______

6. What prompts you to use Twitter for professional learning?

7. Describe your experiences on Twitter (based on the indicated participation.)
   Follow up may include questions about frequency and specific questions dealing with the stated interactions.

8. Describe the frequency and context of the Twitter Chats that you participate in.

9. Describe your professional learning network established through Twitter.

10. What do you like about Twitter Chats?

11. What do you not like about Twitter Chats?

12. Does Twitter influence your teaching pedagogy? If yes, explain how.

13. Does Twitter influence your relationships within your school building? If yes, explain how.


15. Does Twitter influence your classroom methodologies? If yes, explain how.
16. Does Twitter influence your motivation to learn as an educator? If yes, explain how.

17. Does Twitter influence your capacity to learn more as an educator? If yes, explain how.

18. How do you feel about the effectiveness of Twitter as a professional learning network? What makes you feel that way?

19. How do you determine when and how you should interact with Twitter?

20. Do you consider Twitter to be a collaborative effort? If yes, explain the similarities and/or differences to traditional collaborative efforts.

21. Is there anything else you want to share regarding your experiences with Twitter as a professional learning network?

Thank you so much for sharing your thoughts and feelings during this interview. I can’t wait to share the results of my study when it is complete. Should I feel we need to talk again, or if I need any clarifying information, I will contact you, if that is okay. Thanks again!
Appendix E
Focus Group Protocol

Purpose
The purpose of the follow-on focus group interview is to provide an opportunity for all participants to share and validate the emergent experiences with Twitter as a professional learning network. Additionally, this follow-on focus group interview brings together potentially different perspectives of teachers in order to produce a discussion of other aspects of the phenomenon under study, which were not originally considered during the interviews or on-line reflective journal postings.

Script
I am appreciative of your participation today. As before, I would like your consent to audio record our focus group conversation today. This will help me be as precise as possible with the transcript for later analysis. Your participation in today’s focus group is considered implied consent. If at any time during the focus group you need a break or want to stop, please let me know. Similarly, if at any time during the focus group or any other time during this study you want to withdraw your participation, you may do so without consequence. I am going to ask the questions to the whole group and moderate the conversations to ensure everyone participates equally and we stay on task and time. If I have everyone’s consent, let’s get started!

1. Briefly share your teaching experience with regard to location, grade level, and time teaching with your group.
2. One at a time, what experiences and feelings did you share during the one-on-one interview that highlight your experiences with Twitter as a professional learning network?
3. One at a time, of your Twitter chat experiences, which experiences stand out that
   illustrate the power of a Twitter chat?

4. One at a time, of your experiences with Twitter, what kinds of contributions do you
   find the most useful?

5. One at a time, please share what do you feel are the most important reasons educators
   use Twitter as a professional learning network?

Thank you all for your participation. If I need any more clarification or have further
questions, I will contact you. I will be excited to share the results of my study when it is
complete. Should you need anything else from me, please contact me!
Appendix F

Follow the Hashtag Analytics Sample of Participant

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total tweets</td>
<td>267</td>
</tr>
<tr>
<td>Contributors</td>
<td>120</td>
</tr>
<tr>
<td>Total impressions</td>
<td>990.128</td>
</tr>
<tr>
<td>Tweets / Contributor</td>
<td>2,23</td>
</tr>
<tr>
<td>Total audience</td>
<td>465.359</td>
</tr>
<tr>
<td>Measured time</td>
<td>28d</td>
</tr>
<tr>
<td>Impressions/Audience</td>
<td>2,13</td>
</tr>
<tr>
<td>Frequency</td>
<td>9.42</td>
</tr>
</tbody>
</table>
Appendix G
Questions Formulated for Additional Member Checking

Q1: WHAT EXPERIENCES AND FEELINGS CAN YOU SHARE THAT HIGHLIGHT YOUR EXPERIENCES WITH TWITTER AS A PLN? #TEACHLEARNTWEET

Q2: OF YOUR TWITTER EXPERIENCES, WHAT CONTRIBUTIONS DO YOU FIND MOST USEFUL? #TEACHLEARNTWEET

Q3: WHAT DO YOU FEEL ARE THE MOST IMPORTANT REASONS EDUCATORS USE TWITTER AS A PLN? #TEACHLEARNTWEET

Q4: OF YOUR TWITTER EXPERIENCES, WHICH EXPERIENCE STANDS OUT THAT ILLUSTRATES THE POWER OF A TWITTER CHAT? #TEACHLEARNTWEET
## Appendix H
Examples of Content Analysis of Tweets by Theme

<table>
<thead>
<tr>
<th>Research Theme</th>
<th>Tweet Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Climate</td>
<td>Twitter and having a global network is a nonnegotiable. Our kids deserve every possible nugget we can offer, so we mustn’t limit ourselves.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Classroom Methodology</td>
<td>Twitter will empower you to make connections and try things you couldn’t on your own. Makes you a better resource and planner for your Ls.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration</td>
<td>Build a strong PLN of Like-minded educators &amp; the sky’s the limit-your growth will be exponential b/c the world will become your classroom.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Isolation</td>
<td>Anytime you’re feeling low, Twitter teachers can cheer you up!</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedagogy</td>
<td>Twitter crushes ALL boundaries. It’s where you find your EDUtribe (PLN) who share similar interests, encourage + challenge you to @EDUtribe</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive Reactions to Twitter</td>
<td>If I could go back in time, I’d have been on Twitter years ago. Get on for the PD, parent connections, etc. also READ a lot!!</td>
</tr>
</tbody>
</table>
Appendix I
Sample Twitter Chat

9:36 pm
Q1: What strategies do you use to DISCOVER what your students are interested in during your classroom time together? #MakeItReal

9:39 pm
A1: talking with them on there comfort zone, playground, lunch, before/after school #MakeItReal

9:36 pm
Q1: What strategies do you use to DISCOVER what your students are interested in during your classroom time together? #MakeItReal

9:39 pm
A1 I use Morning Meetings and I have a "Cheer" box full of crazy questions to prompt if someone doesn’t feel like talking-write! #makeitreal

Q2: What strategies do you use to LEARN MORE about what your students are passionate about? #MakeItReal

9:45 pm
A2: Making assignments in Google Slides where students can collaborate all on same doc about their personal interests. #makeitreal

@ 9:49 pm
A2: Genius Hour (personal projects), Seesaw at home... (Hi! I teach in Quebec and just caught your #makeitreal discussion! Great questions!)

@ 9:43 pm
Q2: What strategies do you use to LEARN MORE about what your students are passionate about? #MakeItReal