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Pepperdine University
Graduate School of Education and Psychology

FACTORS AFFECTING EDUCATOR PARTICIPATION IN PROFESSIONAL
DEVELOPMENT ACTIVITIES THROUGH THE USE OF A MICROBLOG

A dissertation submitted in partial satisfaction
of the requirements for the degree of
Doctor of Education in Learning Technologies

by

Angela Larson

September, 2016

Judith Fusco Kledzik, Ph.D. – Dissertation Chairperson

This dissertation, written by

Angela Larson

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION

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VITA

SUMMARY OF QUALIFICATIONS

- Innovative educator excited to follow research, try new teaching methods, and share with peers
- Successful classroom teacher receiving high satisfaction ratings on teaching evaluations
- Passionate about utilizing instructional technology to enhance pedagogical technique
- Skilled in creating interactive presentations, appealing to diverse learning styles
- Over ten years of experience teaching middle school science

EDUCATION

Pepperdine University, Graduate School of Education and Psychology; Los Angeles, CA
EdD Learning Technologies Expected 2016

University of Central Missouri; Warrensburg, MO
Master of Arts in Teaching 2006

University of Kansas; Lawrence, KS
Communication Studies 2001

CREDENTIALS AND CERTIFICATIONS

Certified Teacher Science Grades 5-9
Certified Teacher Language Arts Grades 5-9

PROFESSIONAL EXPERIENCE

Bernard C. Campbell Middle School, Lee's Summit, MO

Teacher, Middle School Science 2006-present

- Differentiate lessons to all levels of student development including special education students
- Integrate multi-media tools to enhance learning
- Design lesson plans based on Missouri State3 Standards and Curriculum frameworks
- Participated in development of district middle school science curriculum
- Develop and update classroom webpage
- Promote and participate in professional development
- Work with individual students to help them to achieve their goals
- Explore instructional technology tools and implement when beneficial to student learning

Pepperdine University, Los Angeles, CA

Graduate Assistant, Learning Technologies Cadre 17 Assistant 2010-2012

- Acted as liaison between program director, professors, and cadre members
- Developed and maintained a group wiki
- Created and maintained shared calendar of events and assignments
- Planned and orchestrated group meetings
- Led summer 2012 and 2013 Techcamp for new incoming graduate students
- Collaborated with program director to implement an after school Minecraft club

Holt Science

Textbook Reviewer

2011

- Provided feedback on content of middle school science textbooks
- Provided lesson ideas and formative assessment options

Bernard C. Campbell Middle School, Lee's Summit, MO

Science Olympiad Assistant Coach

2006-2011

- Created study materials and provided coaching support
- Organized practice times and logistics for team participation in scheduled meets
- Promoted the program and worked to instill excitement for science

ADDITIONAL PROFESSIONAL ACTIVITIES

- District Science Curriculum Team
- BCMS Technology Committee
- BCMS Project Success Teacher

ABSTRACT

Examining teacher participation in collaborative microblogging activities may offer insight into creating alternative options for effective professional development. In this sequential explanatory mixed methods study, educators' opinions of their use of a microblogging tool, Twitter, will be examined to determine what factors affect their participation in professional development activities using the microblogging tool, Twitter. The overall guiding question for this study will be, *Why do educators participate in voluntary professional development opportunities, specifically in Twitter-supported professional learning networks?*

This study will contribute to the existing body of research in the areas of professional development, professional learning networks, educator's motivation to learn, informal learning, online learning, and social media. Social media, specifically the microblogging tool Twitter, will be examined for its potential to act as an alternative mode of dissemination for educator professional development, as well as its potential for creating informal professional learning networks. Data sources for this study will include: surveys and interview questions. This information may be useful for future creation of more effective professional development opportunities. Findings from this study may be useful for researchers, educators, administrators, and developers of professional development opportunities.

Chapter 1: Background of the Study

This dissertation will examine why K-12 educators use the microblogging tool, Twitter, in order to glean information for creating more effective future teacher professional development. Many educators are using the microblogging site, Twitter, for a variety of professional development opportunities (Beach, 2012; Carpenter & Krutka, 2014a, 2014b; Visser, Evering, & Barrett, 2014). Educators use the site to find and share work related resources, to ask work related questions, and to connect with other educators. Some of the more specific activities related to professional development, which teachers are currently participating in via Twitter include: resource sharing and/or acquiring, collaboration with other educators, networking, and participation in organized Twitter chats (Carpenter & Krutka, 2014a, 2014b). Existing literature supports that this tool is also being used by educators to create effective professional learning networks (Forte, Humphries, & Park, 2012; Gao, Luo, & Zhang, 2012).

Educators working in K-12, who are users of the microblogging tool, Twitter, will be surveyed and interviewed to gather information on why they use the tool for professional development purposes. The findings from this study may lead to a stronger understanding of what motivates educators to learn and develop professionally using a tool like Twitter. For the purpose of this study, an educator will be defined as anyone involved in classroom instruction or administration in an educational setting encompassing any grade kindergarten through twelfth grade.

Twitter is a microblogging application that allows users to send and receive messages consisting of 140 characters or less. Microblogging allows for quick communication, by encouraging short posts, in turn lowering users' overall time investment per interaction. As a form of self-expression, microblogging has gained momentum in recent years, with Twitter

leading as one of the more popular microblogging options available (Java, Song, Fining, & Tseng, 2007; Wright, 2010). While some users post and share information that may be described as trivial, such as pictures of what they had for lunch, others are choosing to use the tool as a way to grow professionally. Educators are one set of professionals that are currently exploring the potential of this tool for professional learning. More specifically they are completing activities that have been declared effective professional development.

Effective professional development gives teachers opportunities to acquire new methods for their teaching, helps them to stay current in their field, introduces them to new tools and technologies for teaching, and provides them with tools that may be helpful for adapting their teaching to diverse student populations (Lawless & Pellegrino, 2007). Professional development (PD) for educators in America should be continuous, provide teachers with learning opportunities, and be part of a school's improvement plan (Hofman & Dijkstra, 2010). Rutherford (2010) describes effective PD as collaborative, sustainable, ongoing, intensive, and explains that it must be directly related to classroom practice. Effective PD is defined as sustained and intense collaboration; possessing substantial contact hours, combined efforts to examine personal practices and student performance, while engaging in active learning and transformation on the teacher's part (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009).

Current research of educator Twitter use is showing that at least some of these users are completing activities that would fit into these definitions of effective PD. What makes this occurrence most interesting for study, is the fact that the work educators do in Twitter is not assigned or prescribed professional development (PD); instead they are participating completely by choice, most often in their free time. Twitter's popularity has been increasing among

educators, making it important to understand how and why educators are using the microblogging tool.

Much of what educators do on Twitter corresponds to what research has declared as self-selected professional development (Carpenter & Krutka, 2014a, 2014b; Visser et al., 2014). Self-selected or self-directed professional development includes any PD activity sought and chosen by educators to meet their own learning needs. Examples of these include, but are not limited to, online learning communities, microblogs, and learning networks. The opportunities that online learning networks give teachers to integrate their learning experiences, as both learners and teachers, gives this medium considerable potential to support professional learning (Mackey & Evans, 2011). Examining Twitter's potential as an outlet for professional development may, in time, give educators a simple and personal way to develop a learning network and gain professional development opportunities. It may also provide schools and professional developers with insight into what drives educators to pursue self-directed learning opportunities, and guide developers in the creation of more effective PD opportunities.

Unlike many other social media outlets, such as Facebook and Myspace, Twitter gained its initial popularity among adults in their thirties or older, who may or may not have used other social sites. During its infancy the majority of its users consisted of adults, 35 and older, with most of these users coming from business and news settings (Dijck, 2011). Twitter's uniqueness in this area is one reason why studying how educators use the tool is important, as it may offer a more user friendly entry level social media experience for first time users. In addition, Twitter's ambiguity, ranging from a tool for general conversation to news information, gives it potential for a multitude of uses by educators.

In addition, many topics are discussed on Twitter before they reach the more traditional news outlets, “Microblogging is where things happen first” (Dijck, 2011, p. 340). “Its brevity, immediacy, and openness can empower educators and students to interact with a variety of people in new ways” (Carpenter & Krutka, 2014b, p. 415). Twitter’s ability to offer this sense of immediacy, may increase educators’ interest, investment, and chances of acquiring information that will help them grow professionally.

Professional development is a key focus in American education reform (Birman, Desimone, Porter, & Garet, 2000; Lawless & Pellegrino, 2007). Improving professional learning for educators is a crucial step toward improving schools and academic achievement (Borko, 2004; Darling-Hammond et al., 2009; Guskey, 2002). As of the year 2009, professional development for educators had been adopted by more than 40 states, and billions of dollars have been spent to fund this process (Darling-Hammond et al., 2009). All educators in the United States are required to complete professional development activities in order to maintain their teaching certification, with specific requirements varying per state. Yet, in a status report on teacher development in the United States, researchers found that 57% of teachers in the United States reported that they were receiving no more than sixteen hours of professional development per year (Darling-Hammond et al., 2009).

It’s estimated that the average cost of high-quality professional development would exceed over five hundred dollars per teacher each year, but most districts spend less than half that amount (Birman et al., 2000). Although educator professional development has been shown to improve both educator effectiveness as well as student success in multiple studies (Boyle, While, & Boyle, 2004; Darling-Hammond et al., 2009; Darling-Hammond & McLaughlin, 2011), it has been a difficult initiative to functionally and effectively put into place. Workplace

schedules do not allow enough time for teachers to engage in meaningful professional development (Wei, Darling-Hammond, & Adamson, 2010). In addition, finding the time for teachers to participate in PD activities can be costly in other ways, because these activities are usually planned during the school year, which means that teachers will have to leave their classrooms for the activities, in turn, creating a disruption in student learning (Wayne, Yoon, Zhu, Cronen, & Garet, 2008). Due to these obstacles, many schools are unable to provide teachers with necessary PD or scheduled time for collaboration during the school day.

Web 2.0 tools, such as weblogs, may provide a more affordable option in both realms for educators to collaborate and learn, possibly combating some of the many issues associated with PD in its current state. According to emerging literature, many educators are using Twitter to create professional learning networks (PLNs), and to acquire and share information related to their own professional development (PD; Carpenter & Krutka, 2014a, 2014b; Forte et al., 2012; Lu, 2011; Visser et al., 2014). A PLN, in its simplest form, consists of a group of educators collaborating together in order to acquire knowledge and skills to be used in an effort to benefit student learning. This form of professional development has been shown to produce positive outcomes for learners, and has proven to be beneficial to teacher growth (Darling-Hammond et al., 2009; Lieberman, 2000; Trust, 2012).

Exploring what motivates educators to use Twitter for self-directed professional learning, may provide insight into how social networking tools could be used to create more effective and more appealing professional development.

Problem Statement

Professional development in the form that it currently exists, is not working in American schools. Many educators are voluntarily taking part in collaboration and professional

development activities through Twitter (Carpenter & Krutka, 2014a, 2014b; Forte et al., 2012; Lu, 2011; Visser et al., 2014). Determining why educators are using this tool, and what motivates them to use it for professional learning purposes, could provide insight for creating more effective professional development in the future.

Purpose of the Study

The purpose of this study will be to explore the use of social media, specifically the microblogging tool Twitter, by K-12 educators as a way to obtain professional development opportunities as well as a way to potentially create professional learning networks (PLNs). This study will investigate what motivates educators to seek out and continue professional learning opportunities with this self-directed tool. Characteristics pertaining to educator Twitter users will also be examined. Professional development, in the United States, is required, but is not effective in the condition that it currently exists. Finding alternative, cost effective, functional, and beneficial methods is necessary.

Providing effective professional development opportunities for educators can be time consuming and expensive. With budget and time constraints it is difficult to meet educators' needs in this area. Professional development is necessary and if done well can have an impact on educator success. Finding alternative methods for educators to grow and develop professionally could greatly impact the effectiveness of our educational system.

Research Questions

The primary research question for the study is *Why do educators participate in voluntary professional development opportunities, in Twitter-supported professional learning networks?*

The study includes the following sub-questions:

1. What kind of activities are educators participating in when using the microblogging tool, Twitter?
2. What are some of the characteristics of educators who participate in professional learning using Twitter?
3. Could Twitter potentially be used to enhance professional development?

Significance

Findings from this study may prove beneficial to educators, school administration, and educational policy makers. These findings may provide practitioners with evidence as to why educators use Twitter for professional development, and provide insight into understanding how to create more effective PD opportunities and PLNs. The research will also provide evidence of what motivates educators to seek out alternative methods for professional learning and collaboration. Research has shown that professional development has a strong correlation with teacher effectiveness, but time and budget constraints make it nearly impossible for educators to receive the required experiences (Darling-Hammond et al., 2009, 2011; Desimone, 2011).

It may be possible to change the way that PD is dispensed or acquired by teachers to a more effective as well as time and cost effective method. These changes could possibly be through the use of microblogs or other social media, or through the creation of PD opportunities that contain the characteristics that draw educators to these tools. Traditional professional development has often consisted of someone else disseminating information, rather than finding ways to help teachers make changes and gather the information they need to grow professionally (Easton, 2008). Determining factors that drive educators to seek out personal self-motivated PD, may lead to creating more inviting alternative options for educator PD. The information from this study may provide insight to policy makers and school districts on how to promote and

support teacher collaboration and professional growth. Finding out what motivates educators to seek out self-directed professional development and learning communities may uncover how to motivate more educators to do the same, or help to find ways to better develop traditional PD.

Assumptions, Limitations, and Delimitations

Assumptions. The researcher assumes that participants will provide honest and candid feedback over their experiences. The research participants will be recruited on Twitter, so it is an assumption that if they see the message asking for participants they are in fact users of Twitter. It is an assumption that if the participants move from the invitation for participation (which requests that they not move to the survey if they do not use Twitter for professional learning), to the survey they are using Twitter for professional purposes.

Limitations. The researcher currently has a Twitter account and has participated in informal professional development using this medium. While the researcher's participation is inconsistent and sporadic, this participation may introduce a level of bias into the study. The researcher believes in the potential value of social media participation and its potential for supporting learning, most specifically professional development. To mitigate potential bias, the researcher will not participate in Twitter conversations during the research process.

Another concern is that the qualitative data collected in this study could potentially be interpreted differently by different observers. This occurrence is due to the general nature of qualitative research, but it may allow for the introduction of bias by the researcher.

A convenience sampling was used for all phases of data collection, therefore this sample will most likely not be representative of the overall population (Marshall, 1996). The research subjects were self-reporting; therefore, the results may reflect personal opinions that may not be demonstrative of all educators using Twitter. It was not the researcher's intention to generalize

the findings to a larger population, the findings were instead used to better understand some of the ways that educators use Twitter for professional development activities. The results section indicates that the findings may not be generalizable. This study will add to an existing body of research on social media use, professional development, self-directed learning, and the creation of professional learning networks by educators.

Delimitations. All participants in this study will be K-12 educators that currently use Twitter, their participation will be completely voluntary. Educators who do not use the microblogging tool will not be surveyed.

Definitions of Terms

- Chat – Scheduled discussions that occur in Twitter, these are organized with the use of hashtags. One popular chat used by educators is edchat. Users can follow the discussion by searching the hashtag #edchat. Users may follow what has been discussed at a later time by searching for the hashtag #edchat.
- Followers – Twitter members who choose to receive notifications about a specific users' tweets. If you are a follower of someone, tweets posted by that member will show in your twitter feed to make it easier to see what the other member is tweeting.
- Hashtag – Are a way of categorizing tweets and allow Twitter users to search for and follow topics. The # symbol is added by the person sending the tweet to the beginning of the message. Using the hashtag is a way for Twitter users to participate in conversations on specific topics. Hashtags are a way for users with similar interests or goals to communicate. They are also used in chats (see earlier definition).
- Informal Learning - Unofficial, often impromptu way of learning, usually without a set objective. Generally how most people learn to do their jobs.

- Microblog - Form of blogging that allows for smaller exchanges of content, such as short sentences, pictures, or links to sources. Twitter is the most popular microblog available at this time (Dijck, 2011).
- Professional Development (PD) - Ongoing learning, designed to provide teachers with resources, support, and knowledge that will help them to increase their effectiveness in the classroom.
- Professional Learning Communities (PLCs) - The focus of a professional learning community is on working collaboratively to learn together (Dufour, 2011). PLCs are often used in schools in an attempt to organize teachers into groups to work together on PD, in the hope that they will develop into a community that improves together continuously.
- Professional Learning Network (PLN) - A network of professionals with similar goals. These groups of people can be self-selected or predetermined based on individual school buildings, districts, content area, or any individual learning need. PLNs can form in face-to-face situations as well as virtually.
- Social Media – Any form of virtual service, which allows users to interact by sharing text, pictures, or video while connecting with other online users.
- Tweet - A short message shared on Twitter, with a maximum of 140 characters.
- Twitter - A microblogging, social media site used to post short blogs (140 characters or less). Users may select to follow other members' posts as well as sharing their own.
- Twitter Feed – A feed or listing of other members that are being followed and their recent tweets, shown after you login to Twitter.

Summary

American public school teachers are not being provided sustained, meaningful professional development opportunities (Darling-Hammond et al., 2011; Desimone, 2011; Wei et al., 2010). Informal, collaborative activities may be effective ways for teachers to learn (Lavenberg & Caspi, 2010). Finding ways for educators to communicate socially is important, as learning takes place in a context where social interactions lead to higher cognitive processing (Vygotsky, 1978). Exchanging knowledge and experiences in order to explore ideas, practice, and evidence of student learning within a virtual community may provide necessary professional development in areas that are currently lacking.

Researching how educators currently use Twitter for professional development and collaboration, through professional learning networks, will help to provide details over possible deficiencies and successes in the processes. Educators are using virtual communities and tools such as Twitter to fulfill their learning needs, by choice, with no prompting from school administration. Schools need to consider what motivates educators in regards to PD, in order to better develop PD opportunities that will interest educators and meet their desired learning needs. Studying educators that use Twitter may provide information pertaining to what motivates them to find and develop their own PD opportunities, as participation in PD activities on Twitter are completely voluntary and have no monetary reward. Research related to microblogging and PD may provide educators, administrators, and policy makers with alternative professional development solutions.

The findings from this study could be used in the future to provide information for developing a more effective model for educator professional development. This information could lead to the design of tools and/or opportunities for educator collaboration, communication,

and learning. Areas that this study may help to improve: develop relationships with colleagues, reduce feelings of isolation, improve professional development, provide ways for educators to act as transformational leaders, identify lifelong learners in the hiring process, and creating PLNs.

Chapter 2: Literature Review

To gain a better understanding of what we currently know about why educators use micro-blogging sites, such as Twitter, for professional development needs and creating professional learning networks, the existing related literature must be reviewed. In this chapter, research on how Twitter is used to create professional learning networks, and how it offers an alternative conceptualization of professional development related opportunities is reviewed. The review also covers literature on the topics of professional development (PD), professional learning communities (PLCs), professional learning networks (PLNs) and their overall effectiveness/importance in the field of education, and the use of technology to develop professional learning networks. A discussion of related frameworks of learning including: informal learning, social constructivism, connectivism, situated learning and communities of practice, will inform the research about how educators may be learning in Twitter. Finally, the research review will consider related research in the area of micro-blogging as a form of PD and PLN development, and what motivates teachers to participate in professional development activities in general.

Professional Development

A basis for this study is the current state of professional development, and the need for more effective professional development. When teacher professional development is effective it allows educators to become familiar with new methods for teaching their content area, helps teachers to stay current with ever changing performance standards, allows them to stay aware of new technologies for teaching, and provides them with tools for adapting their teaching to a diverse student population (Lawless & Pellegrino, 2007). Professional development activities in American schools struggle to meet these requirements. Professional development encompasses

all of the tasks a person attempts and/or completes in order to improve their ability, knowledge, skill set, or overall practice within their profession. The purpose of this section is to define professional development, explore what researchers have determined equates to effective PD, and identify its benefits, as well as its general shortcomings. Professional development, specifically centered on educators, will be examined, as it is a foundational area for this study.

Professional development for educators in America strives for teacher learning; should be a continuous or life-long learning process, and is essential in permanent school improvement processes (Hofman & Dijkstra, 2010). There are three major goals for most professional development programs including: changing teacher's classroom practices, changing teacher attitudes and beliefs, and changing student outcomes for the better (Guskey, 2002).

Elements of effective professional development. Many education experts have studied what constitutes effective professional development, and their findings are relatively similar. Effective professional development is defined as sustained and intense collaboration; possessing substantial contact hours, combined efforts to examine personal practices and student performance while engaging in active learning and transformation on the teacher's part (Darling-Hammond et al., 2009).

Rutherford (2010) describes four characteristics of effective professional development:

1. It is sustainable, ongoing, and intensive.
2. It is directly related to classroom practice and student learning.
3. It involves knowledge sharing in a collaborative manner.
4. It is essentially constructivist and is driven by the participants.

In a study conducted by Birman, Desimone, Porter, and Garet (2000) surveying a sample of 1000 teachers, who were participating in professional development partially provided by the

federal government, it was discovered that professional development that was seen as effective by educators included; longer durations of time, active learning opportunities, coherence, and is content focused. Birman et al. (2000) found that PD activities that allowed for collective participation, working with other individuals who teach in the same department, content area, or grade resulted in teachers reporting an increase in knowledge or skills after their participation. “As research deepens our understanding of how teachers learn, many scholars have begun to place greater emphasis on job-embedded and collaborative teacher learning” (Darling-Hammond et al., 2009, p. 9). Collaboration is present and is a key ingredient in most of the literature regarding effective professional development.

In addition, teacher professional development, which provides coherent connections between individual activities and creates connections to a wider set of PD opportunities is more likely to increase teacher knowledge and skills. This coherence is important, education experts frequently criticize its absence in traditional professional development activities; it’s argued that many PD activities are disconnected from one another. A PD activity is more likely to be effective in improving teacher knowledge and skills if it fits into a wider set of learning opportunities, it is continuous or related to future learning opportunities (Birman et al., 2000). While this study provided data over what constitutes good professional development the researchers also added that “the number of teachers who experience professional development containing all characteristics of high quality professional development is very small” (Birman et al., 2000, p. 32). Over the past 20 years, there has been a shift in teacher professional development from knowledge and skill acquisition to a model adopted from that of business organizations, requiring learners to collaborate and develop culture rich learning communities (Vescio, Ross, & Adams, 2008). This concept calls for teachers to work together while creating a

community with shared goals for learning. This model emphasizes collaboration and calls for teachers to actively participate in professional learning communities (PLCs), with a common goal of increasing both knowledge and improving student learning; this will be discussed in more depth in the section over professional learning communities.

Flaws and shortcomings in existing professional development. There are many reasons why professional development is a necessity for teachers. Yoon, Duncan, Lee, Scarloss, and Shapley (2007) reviewed evidence from 1,300 studies identified as addressing the effect of teacher PD on student achievement; they found that teachers receiving an average of 49 hours of substantial PD can boost their students' achievement by 21 percentile points. Teachers participating in 5-14 hours of PD time did not have an effect on student academic achievement. Teachers in high achieving European and Asian countries spend 11 hours weekly participating in planning activities, in contrast, most of the American teacher's work week is spent on direct classroom instruction and very little on planning (Wei, Darling-Hammond, & Adamson, 2010).

Creating learning experiences that transform teaching has been difficult for teacher educators, teachers often complain that planned learning experiences, including workshops and conferences, are too far removed from their practice and have little impact (Duncan-Howell, 2010; Putnam & Borko, 2000). Teachers have reported that little professional development time has been given to sharing practices and collaboration, as well as stating that the PD received tended to be weak and not useful in their area of teaching (Darling-Hammond et al., 2009; Lawless & Pellegrino, 2007).

There are numerous existing barriers present in schools with regards to providing beneficial professional development and effectively implementing a PLN, including continuing only traditional methods of teacher development. "In the view of traditional staff development,

workshops and conferences count, but authentic opportunities to learn from and with colleagues do not” (Lieberman, 1995, p. 67). Past tendencies in traditional PD have been to bring in outside experts to meet teacher needs or requirements (Hofman & Dijkstra, 2010). The individuals that are generally in charge of dictating the content and format of PD opportunities are rarely the teachers that these activities are aimed at reaching, making it difficult for the developer and the teacher to relate (Jones & Dexter, 2014).

As stated, rather than choosing and participating in their own development, teachers have often been expected to be *developed* by outside experts (Lieberman, 2000), because “professional development activity is often based on the premise that knowledge and expertise are best generated by university researchers outside of the day-to-day work of teaching” (Vescio et al., 2008, p. 89). These workshops and methods generally do not encourage the development of new skills nor do they have lasting effects (Duncan-Howell, 2010; Guskey, 2002). Instead of following these more traditional prescriptions for success, teachers may find additional resources and increase career satisfaction through self-directed learning and/or participating in networks that support knowledge exchange between practitioners. Teachers may need to take the initiative to become active learners instead of waiting to be trained (Easton, 2008). The use of Twitter for professional learning, may be one viable option for this.

The one-size-fits-all solutions mentioned above do not allow for any differentiation in regards to each educator’s learning needs. Relevancy and applicability have often been the criticism of existing programs (Guskey, 2002), developing programs that offer everything that everyone needs would be impossible (Duncan-Howell, 2010). Professional development needs to focus on both the individual needs of the teacher (Duncan-Howell, 2010), as well as social and collaborative activities, aiming to develop teachers that are adaptive learners that are able to

attain the information they need as the need arises rather than everyone learning the same thing (Marx, Blumenfeld, Krajik, & Soloway, 1998). Knowledge in relation to teaching practices cannot be learned independently of the situation in which it will be used, which will be echoed in the discussion of situated learning, teachers need to plan and teach to adjust what they have learned to fit their unique classroom needs (Marx et al., 1998).

While educators desire professional development that relates to their personal needs, they are often disappointed in the amount and/or substance of the PD they are given from their building or their school district. Many past staff development activities offered to teachers have been formal, supplying abstract ideas without attention being given to ongoing support for continuous learning and actual changes in practice (Lieberman, 1995). Research shows that the most popular long-term PD activities, among teachers, include observation of colleagues (72%), and sharing practices (62%; Boyle et al., 2004). Collaboration has been widely identified by teachers as an encouraging option for teacher learning (Duncan-Howell, 2010).

Teachers' feedback in this area is important, as the voice of teachers is a useful indicator in determining the effectiveness of professional development and teacher networks (Hofman & Dijkstra, 2010). Professional development is not only regarded as important by state and local educational entities, but is recognized by individual teachers as being an important aspect of their overall effectiveness and growth as educators. Highly effective teachers are continually learning through collaboration, finding ways to gain PD, studying new pedagogical techniques, as well as best practices (Commission on Effective Teachers and Teaching, 2011).

According to Riel and Fulton (2001),

The concept of continuous professional development, in which teachers are given time to collaborate with colleagues and are expected to assume much of the responsibility for

their professional growth, has been identified by teachers as a critical element in school reform. (p. 522)

Self-direction is recognized as one of the major ingredients for professional development to be successful (Mushayikwa & Lubben, 2009). Professional learning must engage ongoing learning that occurs over longer more sustained periods of time (Duncan-Howell, 2010; Rutherford, 2010; Wei et al., 2010).

Educators, not unlike members of any other profession, must grow and change in order to stay current in their profession. In order to stay relevant and keep classroom lessons aligned with the needs of their students, they must constantly be learning. Sometimes this learning comes from structured sessions provided by the building they work in or the district they belong to, but these opportunities are often offered minimally and can be considered ineffective by teachers. More often than not, learning takes place in a real time manner, where the teacher finds himself/herself presented with an immediate need for a classroom activity, advice on classroom management, or guidance on how best to teach a specific subject (Lieberman, 1995). Waiting for a school organized meeting or an area or nationwide conference to solve these problems doesn't offer immediate or continuous solutions.

The above presented issues and shortcomings have initiated some changes in the way that professional development occurs. The inadequacies created from a lack of connection to real problems, and timely interactions mentioned previously, in relation to traditional PD are leading to the consideration of more alternative methods such as using emerging technologies for PD opportunities (Dede, Ketelhut, Whitehouse, Breit, & McCloskey, 2009; Jones & Dexter, 2014).

One major way technology is being used for PD purposes is in the creation of online teacher communities. Online teacher professional development allows for ongoing, real-time,

reflective, global PD, as well as creating less intimidating opportunities for all teachers to interact openly (Dede et al., 2009). Schlager and Fusco (2004) stated, “It would be rare to find a professional development project of any magnitude and duration that does not use at least some generic Internet technologies to foster dialogue and/or information sharing” (p. 9). While there have been studies examining research driven online communities of teachers (Schlager & Fusco, 2004), there is still a need for more thorough examinations of self-generated teacher networks. These approaches to professional development have been experimented with, and some professional developers are taking more interest in encouraging teachers to be empowered to identify and act on their own needs, as well as to seek out collaborative opportunities (Mushayikwa & Lubben, 2009). Studying these alternative methods may lead to improvements in the PD that is offered to educators.

Theoretical Foundations

There are multiple learning theories to consider when discussing teacher PD, what motivates educators to seek professional development, what drives them to create professional learning networks, and how they learn in networks. The following theories of how people learn, should be considered as we examine educators using Twitter for professional learning purposes.

Social constructivism. The origins of social constructivism are generally attributed to Lev Vygotsky. Vygotsky (1978) introduced the idea that an individual’s learning takes place through their interactions with others, human’s social understanding is central to their overall learning. Constructivist ideas stem from the theory that learning is not something that is done passively while being instructed by a teacher, instead it is actively constructed by the learner and is based on prior knowledge (Bruner, 1996). Constructivists place emphasis on teaching and

learning being learner-centered (Huang, 2002). Learning is dynamic, and requires problem solving and free discovery (Dewey, 1916/2004).

Social constructivist views stress that learning occurs through social experiences, as the learner attempts to understand their experiences (Bruner, 1996; Dewey, 1916/2004; Huang, 2002; Siemens, 2005). Constructivist principles suggest that “learners can select and pursue their own learning,” and “real-life learning is messy and complex” (Siemens, 2005, p. 2).

Constructivist learning stresses the importance of social groups in regards to human learning.

Brown, Collins, and Duquid (1989) stressed four necessary factors for group learning: collective problem solving, displaying multiple roles, confronting ineffective strategies and misconceptions, and providing collaborative work skills.

Professional development, with a constructivist approach, may potentially exist within virtual communities such as Twitter. When teachers are given the opportunity to actively be involved as a learner and participant in their professional development opportunities, their learning can be varied and engaging in turn helping them to produce new knowledge (Lieberman, 1995).

Situated learning. Brown et al. (1989), state that learning is situated in the activity or context of what the learner is doing and occurs through practices of enculturation. They argue that learning is always situated and developed through activity, stating that knowing and doing are the same thing (Brown et al., 1989). Barab and Duffy (2000) further describe this concept stating that knowing something refers to an activity, it is not a thing and “knowing is also reciprocally constructed within the individual-environment interaction” (p. 5).

Situated learning emphasizes contextualization, much of what is learned is connected to the situation in which it was learned (Anderson, Reder, & Simon, 1996; Barab & Duffy, 2000;

Lave & Wenger, 1998). Lave and Wenger (1991) characterized situated learning as learning in a practice, and asserted that learners create their learning from experiences and socialization as they explore real life situations, and as they then attempt to create understanding they do so from the situation in which they are participating. Meaning is produced through interactions with the world, as this occurs, identities are created and change; individuals are constituted by their relations with the world. Creating identity as part of a community of practice and building knowledge or a skill is one in the same with identity shaping knowledge and knowledge also shaping the individual's identity.

An essential piece of CoP is legitimate peripheral participation, which describes how newcomers to the community become experienced members, and with time and participation they eventually become old timers, all levels of membership are important to the community as a whole, newcomers participate in lower risk tasks, and in order to move toward mastery of knowledge and skill they must become full participants in the sociocultural practices of a community (Lave & Wenger, 1991).

CoPs are an essential piece of learning, providing benefits in large formal groups or smaller groups with shared goals, allowing members to progress through roles and times of participation as well as observing from the periphery (Lave & Wenger, 1991). According to Wenger (2011), a community of practice is a group of people, sharing specific interests or working toward a common goal, through ongoing interactions. Learning in a community occurs with shared leadership and collective responsibility, and accountability for reaching common goals (Menard & Olivier, 2014). CoPs can naturally exist, but they can also emerge due to a particular purpose, as a result of a collective group of individuals working together to achieve pre-determined goals (Barab & Duffy, 2000).

Professional development and staff collaboration is strengthened by the support that learning communities create (Hord, 1997). Not all communities contain the traits described above, therefore not all communities are communities of practice. Many schools make an attempt to create professional learning communities; these can be CoPs if they meet all of the required characteristics. CoPs can exist in virtual environments as well as face-to-face. An online community of practice is defined by membership, the intent of the group members, and the degree of interest by members (Henri & Pudelko, 2003). Completing this research study may lead to a better understanding of whether or not microblogs, such as Twitter, can develop into CoPs.

Informal learning. Formal education is no longer the main way in which people learn, at work, informal learning now plays a significant part in our learning experiences (Siemens, 2005). Informal learning is the spontaneous, unintentional style of learning that is often the way that humans learn to work (Livingstone, 2001). This form of learning can be social or independent, and is the exact opposite of formal education, which functions with the use of planned curriculum or set goals for learning. Informal learning places a significant emphasis on the individual and their choice in the direction their learning takes. The study of the concept of informal learning in adult learning has been more prevalent as the theory allows for more flexibility and freedom for learning and can take place anywhere (Eraut, 2004).

In an exploratory study conducted by Stevenson (2004) to determine “what the nature of informal collaboration is among teachers regarding technology use” (p. 129) was, elementary school teachers reported that informal collaboration was a more effective method for professional development than organizationally planned activities. The informal collaboration they were referring to in this study consisted of teachers’ face-to-face daily conversations about

technology use. Many conversations like these occur between teachers using online virtual resources in order to converse.

Educators participating in Twitter activities are informally learning, as there is no set expectation for how or what they learn, and their learning often occurs through social conversations and the experience itself. Informal learning can occur in PLNs, a system of interpersonal connections and resources created by the learner (Trust, 2012). Informal learning exists in each of the following learning theory considerations.

Connectivism. According to connectivist views learning is the process of creating connections, and these connections enable us to learn more, some connections hold more importance than others. These connections may exist in the communities that Twitter users create, and their existence could play a role in why educators use the tool. Knowledge is constantly changing, exists as pieces that can be connected, nurturing and maintaining connections is needed for continual learning, and technology can potentially help with this process (Siemens, 2005). In the connectivist model, learning takes place in communities and networks, and is described as knowledge creation as opposed to knowledge consumption (Kop & Hill, 2008). Learning is considered cyclical in that learners become part of a network, share and gain new knowledge and adjust their beliefs based on this new learning, from there the learner may connect to a new network and repeat the same process (Kop & Hill, 2008). Some learning activities in Twitter reflect the connectivist model, as learners are part of a network that creates knowledge through their tweets and virtual human connections.

Online Communities and Learning in Teacher Professional Development

Many elements of the aforementioned learning theories and frameworks are present in online communities for teacher professional development. Humans are increasingly turning to

social interaction on the Internet to satisfy both personal and professional needs (Duncan-Howell, 2010). It is possible that Web 2.0 may be creating a different way of learning, possibly changing how people are seeking information as well as how they are perceiving their own “information reality” in comparison to more traditional forms of collaboration (Hicks & Graber, 2010). Self-motivated learners from all walks of life seek information by taking advantage of digital and networked technologies to create personal learning networks to serve as platforms for participating in collective knowledge generation and managing their own meaning making (Dabbagh & Kitsantas, 2012). Web 2.0 technologies give users access to a vast array of ideas and representations (McLoughlin & Lee, 2010), while placing learners at the center of creation, collaboration, and consumption (Selwyn, 2007).

According to the 2010 National Educational Technology Plan (NETP), human learning has to occur outside of the hours spent in schools, and instead take place on demand, continuously, in the form of lifelong learning (Office of Educational Technology, 2010). In addition NETP also specifically calls for teachers to improve their learning through creating connections in online communities (Office of Educational Technology, 2010). Virtual communities are not an ideal to strive for, but are instead a reality (Henri & Pudelko, 2003). Wenger (2011) describes communities as “social configurations in which our enterprises are defined as worth pursuing and our participation is recognizable as competence” (p. 5). Henri & Pudelko (2003) explain that all online communities are in fact learning communities as long as member participation is followed by learning, but they stress that all learning communities are not communities of practice.

One potential key to successful PD, as supported by research, is the promotion of ongoing interaction between teachers (Lieberman, 2000). The internet gives teachers the

opportunity to acquire knowledge and resources while interacting in a social atmosphere (Duncan-Howell, 2010). Teachers are using online communities to gain professional support and inspiration (Duncan-Howell, 2010); this collaboration and information sharing is enhanced by technology, as it allows for the creation of learning environments and learning communities (Menard & Olivier, 2014). As technology provides teachers with options for sharing and collaborating, it offers solutions for ways to build learning communities that can be accessed at any time. Beach (2012) argues that, educational professional development will have to change in order to help teachers become accustomed to digital learning tools, which will in turn help them to teach students who are usually experienced with digital learning tools. District organized professional development can sometimes feel forced by time and budget constraints, and can seem untimely as well as irrelevant to many educators. The potential for creating online professional development opportunities and learning communities lies in self-selecting the time to learn, the place, the content, and the human network.

According to past U.S. Secretary of Education, Arne Duncan, teachers are still the most important aspect of a student's learning process and the Department of Education is "leveraging the power of social media and other technology to create Connected Online Communities of Practice" (Office of Educational Technology, 2010, p. 12). Through this effort they plan to create online communities that allow teachers to "share practices, access experts, and solve problems" (Office of Educational Technology, 2010, p. 13). "It would appear that online communities present as a source of professional learning for teachers" (Duncan-Howell, 2010).

Benefits of Online Professional Development

Duncan-Howell (2010) surveyed 98 members of three different online teacher communities, and found that the majority of the respondents (86.73%) agreed that participating in an online community equated to meaningful PD. These participants were also found to be committing 1-3 hour per week of time on professional learning in their chosen community. This investment of time indicates that participation in their online community, for PD purposes, is worthwhile and necessary to the individual's professional lives.

In a randomized experiment examining the difference between teacher and student learning, from two styles of professional development, online and face-to-face, researchers found that there was no significant difference between the two and that significant gains were found with both modalities (Fishman et al., 2013). The study examined teacher knowledge and belief, classroom practice, and student learning outcomes, in relation to the style of professional development used.

Online professional development opportunities can provide access to a much larger audience of potential collaborators, than is available in traditional district provided PD. Online options allow educators quick and easy access to experts in their field, and give them a medium from which to comfortably ask questions and act as a novice or an expert depending on the topic at hand (Dede et al., 2009). Informal PD is almost always available through online professional learning communities, making it easier for educators to embed in their daily routines, which could potentially lead to positive transformation in their practice (Beach, 2012; Dede et al., 2009). These opportunities allow users to tailor their experiences to fit their personal needs, creating personalized learning that is driven by each educator's interests and personal classroom

needs. Educators can take ownership for their development as an educator, setting their own goals and finding ways to attain them.

Putnam and Borko (2000) recommend that teacher learning take place in multiple learning settings, especially in areas where the teacher can play an important role. Many teachers take on leadership roles in online communities allowing them to feel empowered by helping others. When creating online communities or learning networks teachers are given authority in deciding the processes of their learning community, and are allowed a leadership role in order to self-select their development path to address their own concerns, interests, and questions (Vescio et al., 2008).

Traditional PD is often generalized and requires teachers to adjust the received content in order to make it usable in their own classroom (Fishman et al., 2013), making the learning process challenging and occasionally ineffective. Determining the most appropriate way to acquire professional development should be based on the specific learning goals of the teacher (Putnam & Borko, 2000). Traditional professional development is generally one size fits all. However, online, teachers can tweak the tools they are already using in their daily lives, such as blogging and social media sites, to meet professional development needs (Forte et al., 2012). Online learning experiences are active and driven by the learners' personal interests (McLoughlin & Lee, 2010). Learning in online networks promotes autonomy, reduces isolation, and inspires educators because networks offer support and information (Menard & Olivier, 2014). Technology is capable of enhancing collaboration and increasing information sharing among learners (Menard & Olivier, 2014).

Online PD allows educators from all geographical areas to meet without travel. Many educators have become involved on Twitter, ranging from simply *lurking* for classroom ideas to

participating heavily in weekly Edchat discussions, as well as posting and sharing ideas daily. Teachers involved in using Twitter described the process as a way to implement ideas gained from distant peers into their own local communities of practice. This activity is not only helpful for the individual teacher's career development, but could also play a role in affecting educational reform, as like-minded professionals bond together (Forte et al., 2012). One potential key to successful PD, as indicated by research, is the promotion of ongoing interaction between teachers (Lieberman, 2000).

Online settings, such as Twitter, allow users to openly communicate in a manner, which fits their own personal needs, without the inhibitor of time. In addition, online communities create a sense of belonging that reduces feelings of disconnectedness and loneliness. Online communities may offer teachers a preferred method for sharing work related issues and negative feelings, allowing them the opportunity to confide in other professionals in a virtual location (Duncan-Howell, 2010). Theoretically, online professional development can provide increased flexibility and reach more individualized educator needs (Vrasidas & Zembylas, 2004). Some online communities develop into groups that have very distinct goals similar to those participating in a professional learning community.

Professional Learning Communities

Essentially, a professional learning community (PLC) consists of a group of educators working together, but there are more distinct attributes required to be defined as PLC. Dufour (2004) argues that PLCs have become difficult to identify, because the term itself has been misused in the past to describe any and all groups of educators. Unfortunately, the concept has started to lose its meaning due to this, the actual necessities for being a true PLC include a common alliance among members to increase student learning, a common culture of

collaboration toward school improvement, and a focus on assessment results to determine success and future actions.

Through further review of the existing literature, on successful professional learning communities, five necessary requirements were identified including; participation of existing administrators and staff input in decision making, shared vision and commitment of staff to student success, continuous collective staff learning, gain review and feedback from peers as well as assistance in relation to community improvement, and conditions which support the community (Hord, 1997).

In looking at the definition of community provided by Riel and Polin (2004) a community is defined as containing a group of multi-generational members developing identities based on the development of norms, roles, rules, shared artifacts, and routines in order to construct a shared culture. This shared culture is what plays an intricate part in the collaboration and reciprocal learning of the group. A culture of this depth does not develop simply by assigning teachers to groups within their school, which has been the method used by some K-12 schools when creating PLCs. These so called PLCs are often created based on convenience of scheduling and assignment by administration, requiring teachers to participate without choice or regard for the individual member's needs. There is a common misconception among existing institutions that they can simply call themselves a PLC- due to the fact that they assign teachers to work together within a group. Riel and Polin accentuate the importance of community with the following quote, "labeling a group of people as a 'community' neither ensures that it functions as one, nor that it is a beneficial, cohesive unit" (p. 5).

Professional Learning Networks

Professional learning networks (PLNs) are similar to PLCs, but differ in that their formation allows users more choice in who they work with and what the topic is. Networks consist of teachers from the same school or various schools developing groups in which they can share common interests or goals and exchange daily experiences (Hofman & Dijkstra, 2010). Some PLNs are created in more local settings, bringing teachers together with their own building members or other district teachers. But, many more are being created in less geographically restricting environments on the internet (Trust, 2012; Visser et al., 2014). PLNs are systems of interpersonal connections and resources that connect teachers worldwide, creating an outlet for collaboration, feedback, and support (Trust, 2012). According to Lieberman (2000), educational networks are developed around the professional needs of teachers, creating partnerships, and loose collaborations that have no borders and can be flexible to individual needs. Networks allow for easy change and more responsive participant activities.

Developing a good PLN requires teachers to share publicly what works well and what they have done that needs improvement. “When teachers rely on each other to complete a task, it forces them to bare their practice publicly; this interaction provides opportunities to create a shared technical language and to agree upon sound practice” (Wei et al., 2010, p. 11). Brown, Collins, and Duguid (1989) emphasize the importance of conversation as well as observing from the periphery in order to become part of the culture. Brown et al. describe learning as taking place both through direct conversations in a community as well as from the outer edges; new teachers who are currently not part of the existing culture learn how to speak and behave in the culture in this very way. If this is the case then new teachers as well as veterans can benefit from participating in networks comprised of other educators. According to Trust (2012), PLNs can

transform the experience of once isolated teachers, who, in the past, had grown minimally in their professional development goals, but with PLNs have turned into motivated perpetual learners. New professional development methods, such as online PLNs, may also play a beneficial role in teacher retention, possibly providing teachers with the learning they require in order to stay in the profession (Hofman & Dijkstra, 2010). In addition, sharing globally via social networking may offer a more comfortable route for sharing both classroom success and failure publically.

Many teachers are now developing their own PLNs using various online tools. The number of teachers taking part in online communities and discussions is rapidly expanding. The instant access to information and connections provided by online PLNs are changing the way teachers acquire learning opportunities and professional development (Trust, 2012). Learning networks that are hosted online “utilize the PLC concept and offer supportive conditions that strengthen communication, purposeful learning, collective knowledge, and sense of community” (Menard & Olivier, 2014, p. 114). A PLN can also potentially function as a community of practice, if it meets the requirements discussed earlier in the COP section. However, most PLNs are not COPs because they are not bound by a common practice, they allow for the interaction of multiple members with multiple interests, and participants in a true CoP must have a shared repertoire and be encouraged to share their practices (Lave & Wenger, 1998; Wenger, 2011).

The influx of participation on social media sites such as Facebook and Twitter has increased interest in professional learning networks (Jones & Dexter, 2014). Many teachers are now developing their own PLNs using various online tools. Developing professional learning networks may offer an alternate method for PD, which could prove to be more effective and in turn indirectly enhance student performance. Professional learning networks have been well

researched, have shown positive gains for educators, and may provide anytime and anywhere learning if they are virtual. “Participation in learning networks facilitates professional development that is driven by the needs of teachers as they are naturally engaged in efforts to accomplish their goals” (Vescio et al., 2008, p. 86).

Virtual professional learning networks make professional development opportunities more readily accessible, giving teachers multiple options for collaborating and communicating with tools such as wikis, podcasts, videos, social media sites, blogs, social media, and by subscribing to professional learning sites to make connections (Beach, 2012). There are many open source applications available online that allow educators to acquire ideas from people they would never have had access to prior to the internet; this allows them the opportunity to meet their own learning needs (Warlick, 2009).

According to Trust (2012) there are two types of PLNs, information aggregation and social media connections. Information aggregation allows users to stay up to date on new information by following multiple sites, an example of this would be an RSS (Really Simple Syndication) feed (Trust, 2012). Twitter is a social media connection PLN, teachers use the tool to connect with teachers worldwide, most often to participate in asynchronous learning, posting questions, answers and shared resources (Trust, 2012).

Research shows that teachers have pre-determined views when it comes to a teacher network, generally believing that teacher networks are more successful than traditional PD (Boyle et al., 2004). One reason for this might be related to the fact that although PLN members don’t necessarily know one another in the traditional definition, interpersonal relationships do develop, creating collaborations in knowledge sharing, experiences, as well as classroom strategies (Kabilan, Adilna, & Embi, 2011; Putnam & Borko, 2000). Another reason PLNs

develop is because of the lack of time and school budgets, educators are not given the resources they need to develop PLNs within their individual schools. “American teachers spend much more time teaching students and have significantly less time to plan and learn together, and to develop high quality curriculum and instruction than teachers in other nations” (Darling-Hammond et al., 2009, p. 6). According to Dufour (2011) teachers work in isolation, and “their schools offer no infrastructure to support collaboration or continuous improvement” (pp. 57-58). Social media connection PLNs are less demanding of teacher’s time, allowing teachers to participate when their schedules allow, and they generally give support from large groups of individuals (Trust, 2012). The development of activities in virtual PLNs has little or no wait time (Jones & Dexter, 2014).

In reviewing the literature many requirements for what equates to a good PLN were noted, and many misconceptions as well as disparities have surfaced (Wei et al., 2010). While many U.S. schools recognize the benefits of PLCs and PLNs as well as the importance of effective PD; budget constraints, traditional school day structures, and a lack of understanding on how to implement and nurture the process have made this a difficult goal to obtain. Few articles have been written on the possibilities that virtual communities or social networking may offer as alternative routes to establishing a PLN. These observations have led to the development of this study to explore the potential role of social networking, specifically Twitter, and the creation of PLNs for PD purposes.

There are many aspects of a learning community that are either not being met, or are not possible to meet due to the current structure and atmosphere of K-12 schools (Hord, 1997; Vescio et al., 2008). Taking these issues into account along with the increasing number of social networking users, a potential solution for real time interactive community building may be

possible by intertwining the known attributes of effective PD and PLNs with social networking. Creating virtual professional learning networks is free and allows teachers to seek information and grow professionally when it is most convenient for them.

While the process of PLNs has been studied and found to be an effective form of PD for educators; time constraints, budget issues, and lack of contributors within a school building make it difficult to use in a continuous manner. These issues might be better dealt with if existing technology, in the form of social networking among educators, was utilized to develop teacher PLNs. Many educators use networks such as Twitter to connect and build a community with other users with similar goals and needs for improvement in their teaching.

In virtual communities, norms, rules, roles, and routines need to develop as well as processes for the sharing of artifacts, while adding the integral piece of self-selecting the members of your PLN. Educators have the freedom to choose other members of their community based on their own needs, and desires in relation to developing professionally and growing as an educator. By researching social networks as a method for teachers to develop professionally while experiencing a community of educators offers options for possibly creating more effective PLNs.

An effective professional learning system requires educators to collaborate with experts, mentors, and their peers to better understand the needs of their learners (Darling-Hammond et al., 2009). While this should be the case, many educators are working in an environment that does not provide the time or the necessary support to develop a true PLN. Institutions are answering their current budget shortcomings by restructuring staff and cutting scheduled collaboration periods. Due to these cuts the time to potentially spend sharing resources, creating learning experiences, and monitoring both personal learning growth as well as student growth

has decreased or become nonexistent. Using a social network to create connections is free, and also allows the teacher to communicate and share on their own time. When a question arises or a great lesson is completed the teacher could share immediately, getting support when it's both forefront in their minds and most needed. "In general, the research tells us that successful collaborative efforts include strategies that open practice in ways that encourage sharing, reflecting, and taking the risks necessary to change" (Vescio et al., 2008, p. 84). Working with others in a collaborative effort has the potential to sustain momentum in challenging situations and members may gain more energy to persist with innovations or initiatives rather than abandon them (Butler, Lauscher, Jarvis-Selinger, & Beckingham, 2004).

According to Riel and Fulton, "the internet provides a rich format for the larger community to participate in the education of the next generation" (2001, p. 520). Technology can be used as a way to develop communities, grow socioculturally and intellectually, as well as offer a foundation for working and learning together from a distance (Riel & Fulton, 2001). Using social networking such as Twitter, which is readily available and easily accessible to teachers, could be one way to reap these benefits. There are many options for collaborating using technology. Teachers have to construct their own knowledge and direct their own learning, therefore they must be supported in this acquisition and attention must be paid to helping them to acquire this information in different domains (Kwakman, 2003). The rise in popularity of self-generated online communities makes further examining what motivates users and the settings potential for PD a recognizable reason for further study (Hur & Brush, 2009). One such technology teachers are using to develop online communities is Twitter; it will be discussed first in general and then specifically to PLNs.

Microblogs and Learning

Twitter is a web-based microblogging platform, which allows users to post messages of up to 140 characters. Although, there are other microblogging products available, Twitter is the largest, boasting close to 310 million monthly active users (Twitter, n.d.). According to Pew Research, 23% of American adults use Twitter (Duggen, Ellison, Lampe, Lenhart, & Madden, 2015). While Twitter was originally created as a medium to share what you are doing in a short message to followers, it has been adapted by users to fit needs that expand far beyond that.

Researchers Java et al. (2007) found that the main uses people have for Twitter include: conversations, reporting news, and sharing resources. Twitter's uses have expanded into areas that weren't originally intended when it was created, it has been harnessed into a political organizing tool, an emergency means of communication in natural disasters, as well as a platform for breaking news (Tanner, Hartsell, & Starrett, 2013).

Just as Twitter has grown rapidly, microblogging in general has as well. This success can be contributed to three factors: usability, collaboration, and personality. There are no special skills to learn in order to contribute to microblogging sites, creating usability. The collaboration is fun because people discuss topics that interest them, and microblogging allows users to write freely about their thoughts and feelings (Ebner & Schiefner, 2008).

In an analysis of existing research over microblogging in education from the years 2008 to 2011, Gao et al. (2012) found that microblogging changes participation in regards to learning, due to its creation of immediacy and simple access to inclusion. It allows for wider participation, encouraging worldwide virtual participation as well as increased participation on local levels such as event or conference interaction. Gao et al. also found recurring themes that suggest that activities with educational goals in microblogging change the four dimensions of learning

including: who participates, when to learn, what to learn and how to learn. Since microblogging is flexible and allows the user to participate at their own convenience there is no “when to learn,” learning can occur at any time. Microblogging also lends itself well to sustained interaction and communication, as users can continue their online relationships even if they experience life changes such as moving or changing jobs (Gao et al., 2012).

Researchers Dunlap & Lowenthal (2009) incorporated Twitter into their online instructional design and technology courses in an effort to determine if the microblogging tool would enhance social connections and interactions between their students. They hypothesized that Twitter would encourage “free-flowing just-in-time interactions” (p. 129) that were not occurring in their learning management system (Dunlap & Lowenthal, 2009). They discovered that Twitter acted as a powerful tool for creating free-flowing collaboration, brainstorming, problem solving, and creation within the context between students, faculty, and the larger professional community (Dunlap & Lowenthal, 2009).

While the aforementioned study was completed with higher education students, its results can still be applied to educator learning. There is generally more research on the use of Twitter in higher education than among K-12. In fact there is no published data showing the rate of usage by K-12 educators (Carpenter & Krutka, 2014b). Twitter usage in K-12 is an understudied area in K12. Practitioner journals, websites, blogs, tutorials, and testimonials are abundant in regard to how and why teachers should use Twitter, but there is little scholarly literature on its use in K-12 and teacher education (Visser et al., 2014).

Educators have developed many useful ways to learn while interacting with the tool. In an exploratory study of teacher’s use of Twitter, Forte, Humphreys, and Park (2012) used surveys, interviews and content analysis of tweets to examine how the tool is used for

professional development. They found that teachers use Twitter to share classroom practices and practical information with like-minded educators, as well as to voice ideas and disseminate this new information to their local community of practitioners (Forte et al., 2012).

While Twitter has become increasingly popular with educators, offering multiple affordances for learning, it has suffered a somewhat volatile relationship with formal education systems, facing issues with teachers who are less than interested in learning a new technology as well as policies that deny its use in school (Carpenter & Krutka, 2014b). In addition, initially adapting to the limit of 140 characters in Twitter can be difficult and limiting for teachers, but this challenge lends itself well to honing users' reflective thinking skills (Wright, 2010).

According to a study by Carpenter and Krutka (2014a), educator users of Twitter tend to participate in one of three ways including: communication, classroom activities, and professional development. Out of the 755 educators surveyed in a study by Carpenter and Krutka (2014a), ninety-six participants explicitly described how Twitter created connections with other educators that helped them to facilitate their learning. They created connections that allowed them to share ideas and resources that they would not have otherwise found on their own (Carpenter & Krutka, 2014a). Respondents reported that they used Twitter for professional development purposes more than other activities such as interacting with students or parents. Ninety-six percent of the respondents in this study reported that they used Twitter to share or acquire some form of educational resource, with the data indicating that K-12 teachers most prefer Twitter over other forms of professional development (Carpenter & Krutka, 2014a). Overall findings showed that participants appreciated the personalization, efficiency, accessibility, and immediacy of PD that Twitter interactions offered. Many respondents preferred professional development via Twitter over all other forms they have experienced, and they described how they use Twitter to help

overcome isolation through making connections with positive and creative leaders (Carpenter & Krutka, 2014a). Teachers also shared their feelings over cost of traditional professional development in comparison to Twitter driven PD, stating that Twitter offers an option that is free to anyone with internet access (Carpenter & Krutka, 2014a, 2014b). Traditional PD can be very costly, often requiring outside speakers or consultants.

In a similar study, Visser et al. (2014) surveyed 542 educators that were current Twitter users. These respondents reported that they highly value Twitter as an option for professional development and most used the tool for professional development purposes more than for personal uses. Forte, Humphreys, and Park (2012) found that Twitter offered a place for teachers to discuss their practice, share practical information, and to connect with like-minded educators. Many of the participants in this study described themselves as early adopters who used Twitter to gain new ideas to impart into their own local community.

Studies involving higher education students using Twitter in connection with their education have also shown potential for value in the medium. After surveying several classes of marketing students, analyzing participant tweets, and conducting focus groups Rinaldo, Tapp, and Laverie (2011) found that the tool had potential for engaging students, increasing interaction between professors and students, and extended access to course related materials. In a study involving preservice teachers, Carpenter and Krutka (2014a) involved the future teachers in an attempt to discover pedagogical possibilities for social media use in middle and high school. The group found Twitter to be the most beneficial social media they utilized due to its flexibility and ability to be used in many ways. The participants in this study also commented that this medium gave them a feel of community with other practicing educators who use Twitter.

Possible Motivators for Educator Participation in Online Communities and Learning

As educators continue to use Twitter for professional learning purposes, determining why they are using this tool and what motivates their use could provide insight into more effective options for PD and PLNs. What is it that drives these users to participate? Teachers are attracted to professional development, in any format, because it may contribute to their growth and in turn impact the success of their students (Guskey, 2002). One way that teachers can grow and learn on their own is through self-directed learning.

Self-directed learning. Professional development taking place in microblogging formats, such as Twitter, are informal and completely self-directed. Professional development that is considered self-directed is initiated and determined by the individual learner (Van Eekelen, Vermut, & Boshuizen (2006). Adult learners are often actively participating learners; they usually have strong self-direction in their learning (Garrison, 1997; Huang, 2002). In a self-directed learning situation, the learner exercises independence in deciding what they determine to be worthwhile to learn, as well as how to approach the learning task. Self-directed learning is viewed from a constructivist perspective, specifically collaborative constructivist, and describes this learning process as giving the individual the responsibility to construct meaning, while participating with others to confirm the value of the knowledge (Garrison, 1997).

Determining what drives adult educators to self-select PD opportunities and PLNs could have positive outcomes if applied to more formal PD options, such as those hosted by individual schools or districts. Maximizing the self-direction drive could help to develop PD programs that participants would be more invested in and therefore be more likely to sustain over longer periods of time (Mushayikwa & Lubben, 2009). According to Stevenson's (2004) study of elementary school teachers, the primary influence for informal collaboration is time and

perceived potential for having individual information needs met. But, she goes on to say that “informal collaboration, by its very nature, is a spontaneously occurring phenomenon that is as unique as the people who are engaging in it” (Stevenson, 2004, p. 141).

Potential motivators for educator learning. In reviewing the literature, related studies have offered possible motivators for self-directed learning and community participation, which should be covered as they may emerge in this study. Mushayikwa and Lubben (2009) identified seven factors that drive teachers toward self-directed professional development.

These factors, or attractors are: their perceived professional identity, their need for career development, their need for networking, their need to improve subject content knowledge, the need to adapt and integrate materials so as to teach for understanding, the need to acquire more practical knowledge and skills for the subject discipline and the perceived benefits which they derive from satisfying needs. (p. 382)

According to Hew and Hara (2007) there are four motivators for educators to share knowledge online: (a) reciprocity: a feeling of mutual sharing, wanting to give back in return for information received; (b) collectivism: sharing knowledge to add to the well-being of the group; (c) personal gain: providing information equates to potential for more personal knowledge received in return; and (d) altruism: educators want to help others because they can empathize with them. Motivators for teachers to participate in PLNs include: gaining help and support, demonstrating their own knowledge by providing info to others, and the sense of community while exchanging information and feedback (Trust, 2012).

Batson, Ahmed, & Tsang (2002) offer a conceptual analysis differentiating four types of motivation for community involvement including: egoism, altruism, collectivism, and principilism. These motivators are described as follows: (a) egoism - increasing one's own

welfare, (b) altruism - increase the welfare of others, (c) collectivism - increase the welfare of a group, and (d) principlism - to uphold one or more moral principles.

Another factor that plays a role in predicting if teachers will adopt an innovation is the concept of *the will to learn*, which is described as possessing ambition to discover new practices, experience new things, act proactively, attribute success and failure to internal causes, and recognizing the process of learning (VanEekelen, Vurmunt, & Boshuizen, 2006). Having a desire to learn, experiment, and see or do something new is a psychological state defined as a will to learn by VanEekelen et al. (2006). This concept might be one of the most necessary factors for teachers to learn from professional development activities. Teachers lacking this desire may not seek out their own learning opportunities.

Hur and Brush (2009) conducted a case study to examine the *how* and *why* of teacher users in teacher communities such as *Teacher focus*, *WeTheTeachers*, and *Teaching community in LiveJournal* and found five major reasons for participation including: (a) sharing emotions, (b) utilizing the advantage of online environments—teachers felt they could safely share issues that could not be as easily addressed with local school teachers, (c) combating teacher isolation, (d) exploring ideas—regardless of the participants years of experience they felt comfortable sharing ideas, and (e) experiencing a sense of camaraderie.

Educators' overall willingness to learn may also play a role in their participation in self-directed PD opportunities on Twitter. According to a study by VanEekelen et al. (2006), the 28 teacher participants' will to learn manifested in one of three ways, including: (a) not seeing why there is a need to learn, (b) wondering how to learn, and (c) eager to learn. There were teachers that had characteristics from more than one manifestation. Educators who are participating in PLNs online and seeking their own PD opportunities using tools such as Twitter, may fall into

only the *eager to learn* category. This group consists of educators that are aware of the strong and weak points as a teacher, they want to improve, they learn, and they take action in order to improve.

When looking at the existing literature, it becomes clear that there are a variety of potential reasons that teachers might be driven to participate in online communities or networks. The findings from the studies discussed above, related to motivation to learn and why educators use social media and communities for learning, will be used in the creation of the survey for this study. Examining these potential motivators may lead to a better understanding of why educators seek these connections and potentially lead to ways to motivate teachers to seek and continue participating in informal as well as formal PD opportunities.

Summary

Professional development has been identified as a key focus in reforming American education, improving educators' professional learning can improve schools and student achievement (Birman et al., 2000; Borko, 2004; Darling-Hammond et al., 2009; Guskey, 2002; Lawless & Pellegrino, 2007; Wei et al., 2010). In reviewing the literature pertaining to effective PD, the following recurring characteristics were identified: effective PD is content focused, collaborative, ongoing, coherent, participant driven, and requires substantial contact hours (Birman et al., 2000; Darling-Hammond et al., 2009; Rutherford, 2010). The implementation of each of these characteristics is faced with multiple difficulties including: monetary constraints, poorly planned PD that does not meet teacher needs, and teacher time constraints. Educators desire strong PD, but they are often disappointed with their options which often contain formal PD consisting of workshops with outside experts.

Many changes will be needed to correct the current state of PD, including finding alternative methods for providing PD activities, and also offering ways for teachers to seek PD that meets their individual learning needs. Web tools may hold potential for solving some of the problems related to PD, by giving teachers the opportunity to interact in networks or communities. Research has shown that these methods of PD can be effective;

- Online PD was found to be as beneficial as face-to-face (Fishman et al., 2013).
- Ninety-eight percent of respondents in a study by Duncan-Howell (2010) identified participating in an online community as meaningful PD.
- Online professional learning communities make it easier for educators to embed in their daily lives (Beach, 2012).

Investigating how one popular web tool, Twitter, is used may provide insight into online PD. It is already being used by many educators to create professional learning networks (PLNs), and to acquire and share information related to their own professional development (PD; Carpenter & Krutka, 2014a, 2014b; Forte et al., 2012; Lu, 2011; Visser et al., 2014). Studying this tool by surveying and interviewing active users, who are educators, may provide insight into what motivates teachers to participate in these self-selected learning opportunities. This information could be used to develop more effective PD in the future.

This study will attempt to determine why K-12 educators use Twitter for PD purposes, the results from the study may contribute to what motivates educators to learn and participate in PLNs. The existing literature shows much variety in what motivates educators. Mushayikwa and Lubben (2009) found that identity, career development, networking, and improved skills and knowledge were the most common motivators for educators. Hew and Hara (2007) explained four motivators for educators to share knowledge online including: reciprocity, collectivism,

sharing knowledge, personal gain, and altruism. Batson, Ahmed, & Tsang (2002) had similar findings regarding motivation for community involvement including: egoism, altruism, collectivism, and principlism. Hur and Brush (2009) conducted a case study to examine teacher participation in online communities and found the following motivators; sharing emotions safely, combating teacher isolation, exploring ideas, and experiencing a sense of camaraderie.

Chapter 2 included a review of the literature on related learning theories, professional development, online community learning, professional learning networks, and potential motivators for learning. The methodology for the study will be discussed in chapter 3, including research design, sampling process, data gathering procedures, validity, reliability, ethical considerations, and data analysis.

Chapter 3: Methodology

Purpose of the Proposed Study

This study employed a sequential explanatory mixed methods design, which is a two-step process that begins with the collection and analysis of quantitative data, and is then followed by qualitative data collection and analysis to increase understanding of the data (Creswell & Plano Clark, 2007). The purpose of this sequential explanatory mixed methods study was to examine how and why K-12 educators use microblogging sites, specifically Twitter, to participate in professional development activities. It's possible that Twitter may offer an alternative method for activities related to educator professional development.

Overview

Professional development opportunities can be difficult for educators to take part in due to budget and time constraints. Even when these opportunities are offered by school districts they often don't fit the individual needs of all teachers involved. Educators are exploring options for ways to grow professionally on their own time, through social media sites such as Twitter. They exchange resources, take part in discussions, share ideas, and offer/seek advice. Exploring what teachers are doing on sites, such as Twitter, may offer a model for creating more inviting and effective professional development opportunities. Participation in professional development through social networking could offer schools an alternative way for educators to acquire information and form professional relationships. This study could provide administrators with empirical evidence to support the use of free social networking sites, by teachers, for learning. Information pertaining to why educators seek self-directed professional development activities will also be gained from this study.

A sequential explanatory mixed methods approach was used to gather quantitative data through a survey followed by the collection of qualitative data through the use of an interview process. Descriptive quantitative data was gathered by surveying a sample of educators currently using Twitter. Survey respondents were completely anonymous. Following the survey completion, a qualitative approach was used. After participants completed the survey they were asked if they would be willing to take part in the interview. Participants that were willing to take part in the survey provided a contact email address, which was used to set up the interview date and time. The email addresses were the only identifying information collected. Participants did not give their name or any personal information. The results from the interviews helped to explore the topic in more depth.

Research Questions

The primary research question for the study is *Why do educators participate in voluntary professional development opportunities, in Twitter-supported professional learning networks?*

The study included the following sub-questions:

1. What kind of activities are educators participating in when using the microblogging tool, Twitter?
2. What are the characteristics of educators who participate in professional learning using Twitter?
3. Could Twitter potentially be used to enhance professional development?

Research Design

This study used a sequential explanatory mixed methods approach. Quantitative and qualitative approaches were combined in order to maximize the benefits of both, while leading to a greater understanding of this issue (Johnson & Onwuegbuzie, 2004). In this design,

quantitative data is collected and analyzed first, and then the qualitative data is collected and analyzed in order to help explain or elaborate on the quantitative results (Ivankova, Creswell, & Sticks, 2006). The first phase of this study included a survey, which gathered quantitative data that was analyzed in order to acquire an overview of educator uses and experiences with Twitter. Participants' experience with other professional development opportunities and their personal characteristics in regard to learning preferences and motivators was also examined. Qualitative research was used for the second phase of the study, which consisted of interview questions used to gather more in depth information about participants' experiences and views of Twitter as a professional development tool. The qualitative data helps to explain the quantitative results in more depth, mixed methods research draws from the strengths of both quantitative and qualitative methods, and also minimizes the weakness of each type of data (Johnson & Onwuegbuzie, 2004).

Sample and Sampling Process

The study focused on current Twitter users, who identified themselves as educators in the K-12 field, who believe that they are using the microblogging tool for professional learning purposes. In order to complete this study a convenience sampling was used. Educators in grades kindergarten through twelfth grade were recruited to participate directly through Twitter. The targeted group represented only a fraction of the population of educators and Twitter users, as well as educators who are using Twitter. The sample was non-random, the researcher does not claim that results are representative of all educators who use Twitter. However, there is little to no existing data available regarding how many Twitter users are educators, thus it was not possible to determine how representative the sample in this study was of the overall population being examined.

An invitation to a web-based survey was disseminated to educators via Twitter, with the help of two prominent educators on Twitter, who have over 50,000 combined followers. These Twitter users sent out the original requests for participation. They each sent out a tweet asking for participants; in the tweet there was a link describing the study in detail, followed by the information sheet required for IRB, and then the survey. The two users tweeting about the survey, and requesting participation, usually tweet about education related topics and participate in organized chats such as edchat, therefore most of their followers on Twitter work in or have some interest in education.

In some of the tweets asking for participants, readers were asked to retweet the recruiting request. It is assumed that some of the educators who participated in the survey retweeted the request for participants, in turn reaching larger numbers of educators. This method for gaining participants was similar to chain-referral, or snowball sampling as it relied on participants to find other potential participants with the characteristics that meet the requirements of the study (Creswell & Plano Clark, 2007). Unlike chain-referral and snowball sampling, participants were not asked to provide information about other potential participants, they were only asked to retweet the invitation for participation. Based on a study with similar methods for survey dissemination, respondents could have reached over 500 (Visser et al., 2014). Another similar study received only 37 completed surveys (Forte et al., 2012).

Due to this form of non-probability sampling, it was not possible to estimate a response rate or representation of the abstract population. It was impossible to know how many times the request for participation was tweeted or retweeted. Since there is also no data that describes the number of teachers currently using Twitter, there was no way to know what percentage of teacher-Twitter users had been reached in the studies sampling process.

The request for participation was sent out via Twitter once a day for 2 weeks. The request included a link containing directions for participation, information regarding the study, an information sheet, the survey, and a request for participation in an interview. For the purpose of this study, four pieces of criteria were required for a potential participant to be considered for the sample. These are as follows;

- They are current K-12 educators
- They use Twitter
- They have used Twitter to obtain work related information, more specifically for activities that could be described as professional development.
- They are willing to take a survey about their experiences in Twitter in relation to education

In the 2-week period, 101 potential participants entered the link containing the request for participation, the request can be seen in Appendix A. Of those potential participants, 91 read the request and chose to continue by clicking on the link to move forward to the information sheet. The complete information sheet for exempt research can be seen in Appendix F. Of these potential participants only 72 chose to read the information sheet and continue on the survey, these 72 participants completed the survey. At the completion of the survey there was a question asking participants if they would be willing to take part in a short interview. At the end of the survey there was a link to click in order to finish the survey, this link led to a completely separate Qualtrics survey which contained a message thanking participants for their time and also contained the request for participation in the interview. Participants could enter their email address if they were interested in the interview or they could exit to finish their participation. These were created as separate surveys so that the survey results would never be connected in

any way to the provided email addresses. Participant names were never gathered, as the survey was anonymous. These addresses were only used to set up the interview time. In order to protect confidentiality, names were never collected and therefore never connected to the email addresses. Interview participants were assigned an identification code consisting of a letter, the first interviewee was assigned the letter A, and then they were assigned alphabetically based on when they completed the survey. Anonymity and ethical considerations will be described in my detail below. The researcher hoped to have at least five participants take part in the interview portion of the study.

Instrument

The researcher was unable to find a survey instrument that would answer the questions pertaining to this study. Most of the research related to Twitter or teacher networks, described in Chapter 2, was conducted using only interviews. The survey questions were written based on findings from these studies, as well as areas identified in reviewing the related literature. This process of using previous work helps increase construct validity (Bagozzi, Yi, & Phillips, 1991), which will be discussed further in the validity and reliability section below. The process of creating the questions for both the survey and the interview will be described further in the sections below titled survey and interview development process.

Data Gathering Procedures

In the first phase of this sequential explanatory mixed methods study, data was gathered using a survey administered with the Qualtrics online survey tool. The questionnaire included both open-ended, multiple-choice, and Likert questions. General demographic information was gathered for each participant as well. This study does not attempt to draw generalized

conclusions about demographic groups from the sample. Demographic data is used to describe the sample, and to discuss potential bias and limitations of the study.

The survey questions addressed perceptions about PD related activities in Twitter, time spent developing connections, motivators for continuing participation, and educator opinions of why they participate. The researcher also inquired about amount of time spent weekly participating in PD related activities, including face-to-face collaboration. While this is not the focus of the study it provided insight into each participant's overall PD activities, in order to help determine the impact of their Twitter PD activities. See Appendix D for survey questions. The survey was administered online using Qualtrics.

Phase two involved participant interviews. While the survey questions provided data that was beneficial in understanding why educators use Twitter for PD purposes, the interview process allowed educators to describe their personal motives and opinions of Twitter and professional development more thoroughly. See Appendix E for interview questions.

Survey Development Process

The data collection instrument for the quantitative portion of the study was a questionnaire developed by the researcher, with the exception of a few questions used from an existing survey that was developed to determine the implications of twitter as a self-directed professional development tool for k-12 teachers (Visser et al., 2014). The researcher obtained permission to use questions from the existing survey from the authors. See Appendix I. The questions used from the existing instrument were related to demographics and how teachers use Twitter. The researcher found no surveys in the literature that adequately addressed the research questions. Additional questions were written to discover how educators use the tool, how the tool

fits into their overall professional development opportunities, and what motivates their use of Twitter.

Responses for the survey consisted of Likert items, yes or no response questions, select all that apply questions, as well as open-ended items. The survey was disseminated via Twitter. The tweet sent to request participation contained a link to an explanation of the study, an information sheet, and the survey. The survey questions consisted of questions related to five areas of interest including: demographics, general Twitter usage, other PD activities experienced by the participant, characteristics of the participant, and potential motivators for Twitter usage. The survey questions can be seen in Appendix D. The survey was distributed and conducted via the internet. There are advantages to using the internet for surveys including; lowering or removing all financial cost, and they can be administered more quickly while reaching larger potential participants (Czaja & Blair, 2005).

Survey Validity and Reliability

Questions for the survey were developed to obtain information pertaining to the research questions. The survey questions are written based on findings from previous studies (Forte et al., 2012; Visser et al., 2014), as well as areas identified in reviewing the related literature. This process helped to improve content validity, the extent to which the survey instrument, in this case, measures the concept that it was intended to be measure (Bagozzi et al., 1991). To further improve content validity, experts from the education community reviewed the survey content and made recommendations for strengthening. They were asked to evaluate each question and classify it as relevant, relevant with suggestions for revising, or not relevant and should be removed from the survey. Revisions based on their feedback were made prior to sending requests for participation in the study.

To help establish reliability, once the validated survey was created within the Qualtrics environment, a pilot process with individuals representing the target population was conducted. The pilot test participants were asked to complete the survey online to confirm that all aspects of the survey were functional, and to determine the average amount of time the survey would take to complete. The pilot test participants also checked for issues with formatting, readability, and overall ease of use. These pilot results were used to improve and finalize survey questions.

Interview Protocol

The final set of data was collected through interviews. Survey participants were asked to supply their email address if they would be willing to conduct an interview related to the study. Seventeen volunteered their email address showing interest in participating in the interview. When contacted, only seven responded. These seven volunteers participated in a single phone interview. Interview questions can be seen in Appendix E. The email address was used to contact the participants in order to arrange a date and time for the phone interview. Email addresses were never used to identify the participant. The addresses were deleted and never connected to any identifying information for the participant. Interviewees were identified by an assigned letter given to them based on the order in which they completed the interview. The interviews were used to gain more in depth information over the subject's use of Twitter and professional development that may not have been covered in the survey.

The interviews took place after the quantitative data from the survey portion of the study had been analyzed. As this is a sequential explanatory study, the quantitative data had the potential to guide changes in the interview questions, therefore waiting until after the quantitative data was beneficial (Ivankova et al., 2006). The interview questions were slightly altered after the survey data was analyzed in order to better understand areas that were not covered in the

survey that had appeared in the data. The interview questions can be seen in Appendix E. The interview questions consisted of open-ended questions written to acquire more in depth responses regarding how and why the participant uses Twitter for PD purposes.

Interviews took place via telephone conversations and were recorded using the application NoNotes. This application is password protected and can only be accessed by the researcher. The researcher transcribed the interview recordings. After the transcription process, the researcher read the responses several times in order to identify existing themes based on the literature described in Chapter 2. The transcriptions were then imported to the Hyperresearch program. A code list was developed after reading the interviews, the code list can be seen in Appendix H. Codes were analyzed for occurrences using Hyperresearch.

Interview Validity and Reliability

Questions for the interview were developed in order to better understand the survey answers relating to the research questions, including how the users participate, what PD related activities they participate in, and what characteristics do the users have. The interview questions were written based on findings from previous studies (Forte et al., 2012; Visser et al., 2014), as well as areas identified in reviewing the related literature. To establish content validity, experts from the education community reviewed the interview questions. They were asked to review for content, make recommendations for strengthening, and provide feedback as to the amount of time the interview may last. To determine reliability, once the validated interview questions were created, a pilot process with individuals representing the target population was conducted. Three K-12 Twitter users were asked the questions and provided feedback for improvement.

Ethical Considerations

Precautions were taken to minimize any risk to study participants. All participants in this study participated on a voluntary basis. Participants were asked to complete a survey and to take part in a short interview. They were welcome to complete the survey and not the interview. Participants were directed to an information sheet for exempt research, containing information based on their ethical treatment (See Appendix F), they were required to select that they understood this information before they could move on to the survey. There was no risk of harm involved in this study. Participants were required to give approximately ten minutes of their time to complete the survey. If they elected to participate in the interview they invested approximately 15 additional minutes of their time. Questions in both the survey and the interview were non-threatening and presented minimal to no chance of inducing mental distress.

If a person elected to only participate in the survey, they were completely anonymous. Use of a third party tool to collect participant information helped to protect the anonymity of the participants. Through the use of Qualtrics, all responses were tagged with coded identifiers, IP addresses were stripped, and all participant responses were kept under password protection. The use of Qualtrics also ensured that the researcher would not be able to connect responses to participants or identify individual participants. Access to the data belongs only to the researcher; no one else had any level of access. All data will be erased after the completion of the study and the three-year required time frame has passed for keeping the data.

In order to set up the interviews the participant had to provide an email address, no further identifying information was gathered. The email address was gathered in a separate Qualtrics survey that was not connected in any way to the participant's survey responses. The participants were assured that their contact information would not be used in the write up of the

study or any future publications. Disclosure of participant's anonymous responses in both the survey and the interview will not cause them risk of criminal or civil liability, damage to financial standing, employability, or reputation.

The interviews were recorded; those recordings do not contain any identifying information. The interviews were recorded using an iPhone application for recording conversations called Nonotes.com, this application is password protected. The recordings were then transcribed by the researcher and coded using Hyperresearch. No one else had access to the interview recordings. The interviews were stored in the application NoNotes. This application is password protected and can only be accessed by the researcher. The only copy of the interview transcriptions are stored on the researchers password locked home computer. Emerging themes were discovered in the interviews and are described in the results using fictional names and the only identifying information gathered, their email address, was stripped and is not included in the analysis of the data. Participants' contact information was destroyed after the transcription of their interviews and is in no way connected to their interview. All recordings are stored in a password protected application, the same that was used to create the recordings. These recordings contain no identifying information; names were not shared, nor were places of work or residence. All data collected from surveys and interviews will be destroyed after the three-year wait period.

All requirements provided through Pepperdine University and the Internal Review Board was followed to insure fair and ethical treatment of the study participants. Permission for conducting human research was obtained from Pepperdine University's Internal Review Board (see Appendix G). Permission for Consent for the use of each participant's responses was

obtained at the beginning of the survey. Participants taking part in the interview had to provide an email address. This information was stripped from the interview results prior to analysis.

Data Analysis

Survey results were collected in Qualtrics. Descriptive statistics were used to analyze the results. The survey and interview questions were linked to the correlating research questions. Qualtrics compiled the participant responses for each question, provided descriptive statistics including frequencies, averages, and ranges. The information provided from these descriptive statistics enabled the researcher to analyze the data for emerging themes and patterns. Frequency distribution was used for the Likert items, yes/no responses, and the demographics. Frequency distribution was conducted and shown in Qualtrics, the distributions for each question was examined and data tables were created to easily see the distribution of participant responses. Open-ended questions in the survey were analyzed using topical analysis, and then frequency distribution was used for responses. The data gathered through the qualitative method of interviews was transcribed, coded, and analyzed in Hyperresearch for common themes. The coding process allowed the researcher to reduce the interview data into smaller more meaningful segments that were then given an identifying name (Creswell & Plano Clark, 2007). Emergent methodology was used to analyze the open-ended responses. “An emergent methodology approach to data analysis seeks to understand the situation and discover a theory implicit in the data itself” (Suter, 2011, p. 362).

Summary

The purpose of this sequential explanatory mixed methods study was to examine how educators use microblogging sites for professional learning purposes, specifically the site Twitter. This study was conducted by collecting information, via a survey and interview, from

K-12 educators that use Twitter for professional learning purposes. Survey participants were invited to complete the survey via Twitter messages or tweets. The invitation asked for only participants that met the requirements for invitation to the study. There were 72 participants that completed the survey. These survey participants were asked to participate in the interview portion of the study at the completion of the survey. Of these respondents, 7 completed the phone interview portion of the study.

Participants received full disclosure regarding the study. The survey was open for a 2-week period. Interviews were conducted after the survey data had been analyzed; interviews took approximately 2 weeks to complete. Survey results were collected and analyzed in Qualtrics. Hyperresearch was used to analyze the qualitative data results. Results were analyzed in order to answer the study's research questions.

Chapter 4: Findings

The purpose of this sequential explanatory mixed methods study was to examine how and why educators use Twitter, and to examine the potential Twitter may have for enhancing traditional PD and/or offering alternative professional development opportunities. The primary research question for the study is *Why do educators participate in voluntary professional development opportunities, in Twitter-supported professional learning networks?* The study includes the following sub-questions:

1. What kind of activities are educators participating in when using the microblogging tool, Twitter?
2. What are the characteristics of educators who participate in professional learning using Twitter?
3. Could Twitter potentially be used to enhance professional development?

Data collection and analysis was organized into two phases. Phase 1 involved the collection of quantitative data with an online survey. Phase 2 involved conducting qualitative interviews.

Quantitative Results

Sample size. The target population for this study focused on educators working with grades K-12 who use Twitter for professional learning purposes. Participants' role as a K-12 educator was verified through three survey questions, the first asked "are you a teacher," the second asked "are you an administrator," and the third asked "what grade level(s) do you currently work with?" Seventy-two educators met the requirements for participation. Each participant completed the survey portion of the study. Seven participants completed the interview portion of the study.

Demographics of study participants. Quantitative data from an online survey was used to determine the characteristics of study participants. Participation for the study was requested through tweets in Twitter. The survey was hosted in Qualtrics. The tweets invited educators in grades K-12, who feel that they currently use Twitter for professional learning purposes, to complete the survey. The initial questions were designed to obtain the demographic characteristics of the respondents and general information about their Twitter usage. As discussed above, a total of 72 respondents completed the survey.

The initial survey questions were designed to obtain demographic characteristics of the respondents, and general information about their Twitter usage. Most survey participants were female: 60 (86 %) of the survey responses were from female participants, 10 (14 %) were from male participants, and two respondents did not answer this question. The majority of the responses came from the age group of 36-45 (47 %), followed by the age group 46-55 (25 %). The age range of participants can be seen in more detail in Table 1.

Table 1

Age of Participants

Age	Frequency	Percentage
Under 25	2	3%
25-35	15	21%
36-45	34	47%
46-55	18	25%
56 or older	3	4%

Note. n = 72.

Respondents' educational background. In order to gauge participant's educational experience, the survey included questions to identify personal education level, years of experience in education, and the grade level of the students they work with. Participants were asked their personal level of education and most selected that they have completed a Master's

degree (71%), followed by Doctoral degree (21%). Only 8% of participants selected undergraduate degree as their highest level of education. Forty-two respondents (58%) reported currently working with grades K-5, 35 respondents (49%) work with grades 6-8, and 31 respondents (43%) reported working with grades 9-12. Respondents were able to select more than one grade level for this question. Some participants marked more than one answer on this question; this explains why the numbers above total more than 100%.

Relatively few of the respondents had five years or less, or 30 or more years of experience in education; for the middle categories (6-10, 11-15, 16-20, 21-25, or 26-30) there were a similar number of respondents across all categories. Table 2 provides details pertaining to years of experience in education.

Table 2

Respondents' Years of Experience in Education

Years of Experience	Frequency	Percentage
1-5	6	8%
6-10	15	21%
11-15	15	21%
16-20	14	19%
21-25	11	15%
26-30	8	11%
30 or more	3	4%

Note. $n = 72$.

Respondents' Twitter usage. Survey questions were used to inquire into the frequency of respondent's Twitter use. Respondents were asked to select how long they have had a Twitter account. Most of the respondents (87%) have had a Twitter account for 1 year or longer. A quarter of respondents had a Twitter account for more than five years. Respondents' total time with a Twitter account can be seen in Table 3.

Table 3

Amount of Time Respondents Had a Twitter Account

Time Owning Twitter Account	Frequency	Percentage
1 month or less	0	0%
2-6 months	3	4%
7-12 months	6	8%
1-2 years	21	29%
3-4 years	24	33%
5 or more years	18	25%

Note. n = 72.

Many participants frequently use Twitter for tweeting their own messages (48%). Only one respondent reported never tweeting messages. When asked how difficult it was to learn to use Twitter, no respondents selected very difficult or difficult. Most respondents (86%) believe the tool was at least somewhat easy to use. Respondent's opinions of how difficult Twitter was to learn can be seen in Table 4.

Table 4

Twitter's Level of Difficulty

Difficulty	Frequency	Percentage
Very difficult	0	0%
Difficult	0	0%
Somewhat difficult	5	7%
Neutral	5	7%
Somewhat easy	15	21%
Easy	28	39%
Very Easy	19	26%

Note. n = 72.

Respondents were asked how often they use Twitter for professional learning purposes. Thirty-five respondents (49%) reported using Twitter on a daily basis for professional purposes. Only nine respondents (13%) reported using Twitter for professional purposes once a week or less. Respondents' frequency of using Twitter for professional learning can be seen in Table 5.

Table 5

Frequency of Twitter Use for Professional Learning Purposes

Frequency of Use	Frequency	Percentage
Less than once a month	3	4%
2-3 times a month	2	3%
Once a week	4	6%
2-6 times a week	28	39%
Daily	35	49%

Note. n = 72.

Most participants (94%) use Twitter at least once a week for professional learning purposes. When asked to describe how frequently they use the tool weekly for professional learning activities 15 (21%) reported using it less than 1 hour a week. One-third of respondents reported spending between 2-5 hours a week using the tool for professional learning activities. Participants' frequency of weekly use for professional learning activities can be seen in Table 6.

Table 6

Weekly Time in Twitter Completing Professional Learning Activities

Amount of Use	Frequency	Percentage
Less than 1 hour	15	21%
Between 1-2 hours	23	32%
Between 2-5 hours	24	33%
Between 5-10 hours	9	13%
More than 10 hours	1	1%

Note. n = 72.

How respondents use Twitter. When participants were asked how they most use Twitter, four (6%) selected that they most use it for news, three (4%) reported that they most use it for entertainment purposes, and 65 (90%) reported that they most use it for professional learning purposes. Sixty-six respondents (93%) reported that they consider some of what they do on Twitter to be professional development, while only five (7%) reported no to this question. When asked to select from a list of more specific ways that they use Twitter almost all

participants selected the options: to follow other educators (96%) and to follow leading educators and experts in education (97%). Very few use Twitter to collaborate with students, only 13% selected this option. Also, most do not use Twitter to follow celebrities and famous athletes, with only 11% selecting this option. The respondents most frequently use Twitter to follow other educators in order to acquire professional resources, ideas, opportunities to collaborate, and to stay current in their profession. Table 7 shows all responses describing how educators use Twitter.

Table 7

How Educators Use Twitter

Twitter Function	Frequency	Percentage
To follow leading educators and experts in education	70	97%
To follow other educators	69	96%
To find new ideas for use in my profession	64	89%
To find resources useful for education	63	88%
To stay current in my practice	59	82%
To share resources useful to education professionals	58	81%
To get information about teaching techniques	57	79%
To collaborate with other education professionals	56	78%
To create a learning network or community	54	75%
To take part in organized discussions for education professionals such as Edchat	48	67%
To seek answers to education related questions	43	58%
To act as a mentor to other educators	32	44%
To collaborate with other classrooms	29	40%
To share my personal views on topics not related to education	16	22%
To collaborate with parents of students	14	19%
To share lesson plans	12	17%
To collaborate with students	9	13%
To follow celebrities and famous athletes	8	11%

Note. n = 72.

Respondent motivators for Twitter use. When asked to select motivators for their use of Twitter, the most frequently selected options were related to collaboration. Sixty-one participants (85%) selected that Twitter provides them with opportunities to collaborate with

others, and 62 (86%) selected that Twitter allows them to find like-minded educators to collaborate with. Respondents were also motivated by technology as, 59 (82%) selected that they have a personal interest in technology use. Many participants were also motivated to use the tool because it allows them to share and find professional resources. Forty-three (60%) selected that Twitter allows them to share education related research, such as professional journals and 43(60%) selected that they use the tool to discover new lesson materials. Very few participants are motivated to use the tool in order to vent their educator frustrations, only three (4%) selected this potential motivator. Response rates for motivators for educators to use Twitter for professional learning purposes can be seen in Table 8.

Table 8

Motivators for Educators to Use Twitter for Professional Learning

Motivators	Frequency	Percentage
Allows me to find like-minded educators to collaborate with	62	86%
Provides me with opportunities to collaborate with others	61	85%
I have a personal interest in technology use	46	6%
Allows me to share education related research, such as professional journals	43	60%
To discover new lesson materials	40	56%
Allows me to discuss my ideas about education	38	53%
Using Twitter provides an intellectual challenge	36	50%
Gives me the opportunity to contribute advice	34	47%
Gives me the opportunity to contribute answers and lesson materials	27	38%
I feel valued in my Twitter community	26	36%
Gives me an outlet for receiving coaching or guidance	25	35%
Allows me to share my opinions	25	35%
Participating has offered me an opportunity for playing a leadership role	22	31%
Allows me to discuss educational policy	23	32%
Allows me the opportunity to be a trendsetter or early adopter	21	29%
Provides me with peer recognition	19	26%
Provides me with prestige or status	8	11%
Gives a venue for venting educator frustrations	3	4%

Note. n = 72.

Respondents’ professional development experiences. Respondents were asked with whom they feel most comfortable asking questions related to education, and almost half (48%) selected Twitter users; while 23% selected teachers in their building. Frequency of responses for each option can be seen in Table 9.

Table 9

Who Participants Feel Most Comfortable Asking for Advice or Questions Related to Education

Responses	Frequency	Percentage
Twitter users in your network	35	48%
Administrators in your district	8	11%
Teachers in your building	16	23%
Administrators in your building	8	11%
Teachers in your district	3	4%
Administrators in your district	10	14%

Note. n = 72.

Participants were asked where they feel they experience the most beneficial professional learning, and 40% selected Twitter. Response rates for this question can be seen in Table 10.

Table 10

Where Participants Report Experiencing the Most Beneficial Professional Learning

Responses	Frequency	Percentage
Twitter	29	40%
Conferences	20	28%
At their school or building	11	15%
Other	9	13%
Classes they are taking	3	4%

Note. n = 72.

Respondents selecting other were asked to explain where they experience their most beneficial professional learning. Responses included: reading, collaboration with peers, and Edcamps. Four of the nine respondents writing in an “other” mentioned EdCamps.

Most participants (94%) know of other educators using Twitter for professional development purposes. Forty-seven respondents (65%) reported having asked at least one work

related question on Twitter, and 45 (85%) of those reported receiving one or more useful answer from someone on Twitter. Out of those who received an answer, 77% received an answer within 10 minutes or less. Sixty-five (90%) participants feel that they have a professional learning network in Twitter, while 58 (81%) feel like they have a professional learning network at work with the people they work with face-to-face.

When asked to select how effective they believe their Twitter network is for helping to find professional resources, most believe it is at least somewhat effective, with 15 (21%) reporting it as somewhat effective, 24 (33%) reporting it as effective, and 31 (43%) reporting it to be very effective. When asked how effective their Twitter network is for helping their professional learning, half of the participants reported that it was very effective with most (76%) indicating the tool is effective or very effective for professional learning.

While most participants are using Twitter for professional development purposes, only three (4%) reported receiving professional development credit as a result of being on Twitter. When asked to describe how and why they received credit, only one participant responded stating that they had taken an introduction to Twitter continuing education course, and had received credit for participation in Twitter chats.

An open-ended question was used to ask participants how much time they spend a week collaborating in a face-to-face manner. Four respondents wrote daily, so their responses couldn't be used to show an exact amount of time. The remaining responses were as follows in Table 11.

Table 11

Time Spent Weekly Collaborating Face-to-Face with Colleagues

Responses	Frequency	Percentage
Zero minutes or no time	4	6%
20 minutes to 1 hour	13	18%
1-2 hours	18	25%
4-5 hours	12	17%
7-8 hours	3	4%
10 hours	3	4%
20 hours	4	6%

Note. $n = 72$.

Respondents were asked if they thought Twitter could be used by more teachers to improve the overall effectiveness of professional development. Only one respondent selected no, with 71 (99%) selecting yes.

Respondents' characteristics related to learning. Seven Likert-scale questions were asked relating to the respondents personal characteristics in relation to their learning. When asked if they are eager to learn, all but one respondent selected "to a great extent." All but one respondent also selected "to a great extent" when asked if they believe in the importance of professional development. Most (96%) see a need to learn more about their practice to a great extent, and most (83%) also feel that it is important to manage their own learning. Many of the respondents (72%) reported having an affinity for technology, this may also reflect on what motivates them to use Twitter as well. Table 12 shows responses for the Likert questions about characteristics related to learning.

Table 12

Respondents' Characteristics Related to Learning

Question	To a Great Extent	Somewhat	Very Little	Not at All
I'm eager to learn	71	1	0	0
I believe in the importance of professional development	71	1	0	0
I see a need to learn more about my practice	63	7	2	0
It is important to me that I manage my own learning	60	11	1	0
I have an affinity for technology	52	19	1	0
I prefer that someone else determine how and what I should learn for PD	3	5	24	40

Note. n = 72.

Qualitative Findings

Seven participants completed the interview portion of the study. Interviews were recorded and transcribed. Themes from the transcribed interviews emerged from commonly used phrases, words, and/or concepts shared by the participants. Many of the participants discussed similar themes. These themes were used to create codes for analyzing the transcriptions. Using Hyperresearch software, study participants' interviews transcriptions were imported and coded, using the code list developed from emerging themes found in the interviews. The code list can be seen in Appendix H.

Table 13

Study Themes and Occurrences

Theme	Total Occurrences in Interviews
Connections	19
Customization	10
Convenience	9
Learn	8
Professional Development	8
Current Information	6
Inspiration	6

(continued)

Theme	Total Occurrences in Interviews
Resources	6
Backchanneling	4
Simplicity	2

Interview Themes

Theme 1: Connections. The most frequently discussed theme in the interviews was how Twitter helped create connections with other educators. There were 19 occurrences of the theme “connections” coded in the interviews. Responses ranged from creating connections with other educators with similar expertise, that they don’t have the ability to connect with in their own buildings, to finding experts in areas that they would like to grow. Participant C stated that she, “only has one other teacher in her district who teaches the same thing.” She further explained by stating that, “Twitter helps me reach out to teachers from all over our nation, and even around the world, that I wouldn’t otherwise be able to connect with.” Participant A stated that, “if I didn’t connect with others and additional content via social media, I feel I would be missing the world outside my office and district.” She also stated that, “we say that dialog improves learning, we can’t just provide students a worksheet and expect rigor and relevance to emerge, but through dialog, learners may progress to deeper understanding, the same is true for adults.”

Theme 2: Customization. Customization included participants’ discussions of how they find the tool Twitter capable of creating more customized learning and PD experiences. Participant A stated, “for me, Twitter provides a great opportunity to review current conversations around topics that I’m interested in for my work with curriculum, instruction and STEM growth for kids. I love that I can customize my feeds by following those in the field who are generating the resources/publishing on the topics.”

Theme 3: Convenience. Convenience included any discussion of how Twitter provided convenient opportunity for learning, PD, resource gathering, and/or connections with other

educators. Participant A stated that, “the part about learning through Twitter I like the most is I can learn when I have the time to learn and I am able to pick and choose what I want to learn much easier than face-to-face.” Respondent D further supported this concept stating, “Twitter provides me the flexibility to learn at my own pace, using my own professional research methods and only with topics of my interest.” She also stated that, “using Twitter for professional learning provides me with the opportunity to utilize the resource at my own pace and on my own time.”

Theme 4. Learn. The theme “learn” included any participant responses that discussed learning while using the tool Twitter. Participant B stated that, “what motivates me to use Twitter is the interaction and learning that takes place in chats and with my PLN.” Participant B also stated that they, “firmly believe their (teacher) educational knowledge and their (teacher) teaching and student learning would increase immensely if they would get on Twitter for their professional development.” Participants spoke often about the resources they gained will using Twitter that helped them learn more about their profession. They also explained how they created connections with people that they learned new resources and information from.

Theme 5. Professional development. Professional development included participant responses that directly mentioned PD. Participant C stated, “I think that using Twitter or any form of social media will become commonplace in professional development over the next few years.” Participant D, explained that, “if traditional professional development provided a platform that users could identify their interests, regulate the flow of information, retweet or share and emphasize or like tweets, it would be seen as a tool that could be personalized on the individual’s interests and needs.”

Theme 6. Current information. Current information included discussions of how participants use Twitter to gain, what they believe to be, more current information in their

profession, than they are finding elsewhere. Participant E stated that, “usually on Twitter it seems like you’re learning things quite a bit ahead of time, before it makes it to the schools.” He further described this when stating that, “it seems that with Twitter you get things instantly and hear about the newest things right then and there.”

Theme 7. Inspiration. Inspiration included participant responses that shared any way that their experiences using Twitter have inspired them in their profession. Participant F described how Twitter inspires him when stating, “I know that if I login to there and sift through some things, I’m probably going to be inspired by someone’s post, tweet, a picture that I see that might change something that I do with my job and my district and what I’m doing for our kids here.” Participant E stated that, “it’s changed the way that I teach, just because it was neat to be on there and see all the amazing things that are going on across the world and it just makes you feel good about your profession....it can really improve people’s outlooks on their career.”

Theme 8. Resources. Resources included participant responses that related to the sharing of or finding of resources that are useful for the educators’ profession. Participant D stated that, “I am motivated to use Twitter to find what technologies, such as websites or apps, that individuals I include in my personal professional learning network are promoting in classrooms.”

Theme 9. Backchanneling. Backchanneling includes creating a source to discuss an event such as a conference or any meeting further, using Twitter as the resource for creating these ongoing conversations during as well as after the meeting. Multiple participants reported using Twitter for backchanneling purposes. Participant A stated, “During our district level professional learning dates, we’ve set hashtags to follow so that we can all continue the conversations in a larger context and remain connected, which is a challenge otherwise in a district of over 2000 teachers.” She went on to add that, “Twitter allows for dialog to continue

beyond the date on the calendar.” Participant A stated that, “it was amazing to post my thoughts and learning with a common hashtag that promoted a deeper connection with others who were right there with me, it really deepened my conference experience and allowed the conversation to continue beyond the conference.”

Theme 10. Simplicity. The theme “simplicity” refers to any discussion of how the participants find their use of Twitter for professional learning to be simple. Participant E described Twitter as, “simple as just scrolling through and finding something that catches your eye.”

It should be noted that while the participants in the study commonly discussed simplicity of use when discussing Twitter, one did make mention of how other teachers might not see the tool with the same perspective. Participant B stated that, “as a principal, what I see from my teachers is they are so caught up in how learning for them is face-to-face that when I suggest they get on Twitter to learn, there is pushback, I believe much of it is due to them not being familiar enough with Twitter that they don’t understand how you can learn when something is not face-to-face.” While this concept was not a common theme, it may provide insight into how non-Twitter users view the tool and how it might be received by some, as a PD tool.

Summary

This mixed methods study explored how and why educators are using Twitter. Data findings supported themes that addressed the main research question and three related sub-questions. The main research question was *Why do educators participate in voluntary professional development opportunities, in Twitter-supported professional learning networks?* The three related questions were:

1. What kind of activities are educators participating in when using the microblogging tool, Twitter?
2. What are the characteristics of educators who participate in professional learning using Twitter?
3. Could Twitter potentially be used to enhance professional development?

Research question 1—What kind of activities are educators participating in when using the microblogging tool, Twitter?—was addressed through several questions within the survey. The findings from these questions reveal that 82% of participants use Twitter for tweeting their own messages. When participants were asked in the survey, “how do you use Twitter?” 97% selected “to follow leading educators and experts in education, 96% selected “to follow other educators,” 89% selected “to find new ideas for use in my profession, 88% selected “to find resources useful for education professionals,” 82% selected “to stay current in my practice, and 78% selected “to collaborate with other educators.” Most participants are actively participating in Twitter to create connections with educators and experts in order to gain insight in the form of ideas and resources that will help them to stay current in their practice.

Research question 2—What are the characteristics of educators who participate in professional learning using Twitter?—was also addressed through multiple survey questions. Results for demographic questions revealed that 47% of participants were between the ages of 36 and 45, 86% are females, 76% are teachers and 30% identified themselves as administrators (some participants must identify themselves as both), and 92% of participants have a master’s degree or higher. When asked a series of Likert scale questions pertaining to participant characteristics, the following percentages of participants selected “to a great extent;” 99% selected “I’m eager to learn,” 99% selected “I believe in the importance of professional

development,” 88% selected “I see a need to learn more about my practice, 83% selected “It is important to me that I manage my own learning,” 81% selected “I appreciate opportunities to play a leadership role in my school,” 72% selected “I have an affinity for technology, and < 1% selected “I prefer that someone else determine how and what I learn for professional development.” These results suggest that the participants in this study were very motivated possibly by learning, professional success, and/or education.

Research question 3—Could Twitter potentially be used to enhance professional development?—was addressed through survey questions and the interview questions. When asked, “do you consider some of what you do on Twitter to be professional development?” 93% of respondents selected “yes.” Participants were asked, “what do you most use Twitter for?” and 90% selected “professional learning.” In addition they were asked if they had ever asked a work related question on Twitter, 65% responded “yes” and in the follow-up question 85% of those respondents selected “yes” indicating that they had received a useful answer via Twitter. When asked “How effective do you feel your Twitter network is for helping you find professional resources?” 76% of participants selected “effective” or “very effective.” When asked, “How effective do you feel your Twitter network is for professional learning?” 83% of respondents selected “effective” or “very effective.” When asked “How much time do you spend collaborating face-to-face with colleagues,” 40% responded with an answer ranging from one to five hours. When asked “How much time do you spend, per week, using Twitter, to complete activities that you would consider to be professional development?” 66% selected a response between one and five hours, and an additional 14% selected five or more hours. When asked “Do you feel like you have a professional learning network in Twitter?” 90% of participants selected “yes.” When asked the same question, but regarding their place of work rather than Twitter, 81%

selected “yes.” When asked, “Where do you feel you experience your most beneficial professional learning?” the largest number of responses was for Twitter, with 40% of participants selecting it. Almost all respondents (99%) selected “yes” when asked, “Do you Think Twitter could be used by more teachers to increase the overall effectiveness of professional development.” In addition, 48% of participants selected “Twitter users in your network” when asked, “Who do you feel most comfortable asking for advice or questions related to education.”

The most common themes that emerged from the interview questions were all related to characteristics of good professional development. The interview participants were asked “What most motivates you to use Twitter,” “How does your professional learning on Twitter compare to your face-to-face learning at your place of work,” and “How, if at all, might Twitter or the aspects of Twitter that motivate you, be used to improve traditional required professional development?” When answers making reference to Twitter were coded there were 19 occurrences of “connections,” 10 occurrences of “customization,” and 9 occurrences of “convenience.”

The main research question, “Why do educators participate in voluntary professional development opportunities, in Twitter-supported professional learning networks?” as addressed through each of the above supporting questions and the gathered data previously discussed. According to the 72 participants who completed the online survey, most are using the tool to follow other educators in order to find new ideas and resources for their profession. Almost all of the participants use Twitter for professional development purposes, and 83% of them believe it is effective or very effective for professional learning purposes. When asked where they feel they experience the most beneficial professional learning 40% selected Twitter, and the second most frequently selected option was conferences. Forty-eight percent of participants feel most

comfortable asking for advice or answers to questions related to education on Twitter. All but one participant believed that Twitter could be used by more teachers to increase the overall effectiveness of professional development. Common themes discussed by the six interviewees included: how Twitter inspires them, how valuable resources found through Twitter are, how simple it is to use, and the importance of the connections they make and keep with Twitter.

Chapter 5 presents the researcher's interpretations of these findings, conclusions, and offers recommendations for further study of the topic. The chapter also includes the interpretations of results in relation to the research questions.

Chapter 5: Discussion of Findings

The purpose of this sequential mixed methods study was to investigate how and why educators are using the microblogging application, Twitter, for professional learning purposes. The mixed methods approach helped to gain a deeper understanding of educators' perceptions of their personal use of the microblogging tool, Twitter. Past research over Twitter and professional learning shows that many educators are using Twitter for purposes related to self-directed informal professional development (Carpenter & Krutka, 2014a, 2014b; Forte et al., 2012; Lu, 2011; Visser et al., 2014). Examining how and why these educators are taking PD into their own hands without any urging of administrators or policy makers, during their own personal time, may provide insight into ways to create better planned PD opportunities.

To explore this topic further, a mixed methods design was used. For this mixed methods study, 72 participants completed an online survey in the quantitative portion of the study, and 7 also took part in the qualitative interview portion of the study. The study results revealed that educators that are currently using Twitter are experiencing what they deem to be individualized, inspiring, continuous, resource sharing, and connection building. This study is significant as it adds to the body of knowledge concerning social media, informal learning, self-directed learning, professional learning networks, and professional development.

Brief Literature Review

In order to construct a more in depth understanding of why educators use micro-blogging sites, such as Twitter, for PD, the existing literature needed to be reviewed. In this section existing research will be discussed to provide an understanding of why educators on Twitter might be using the tool for professional learning purposes. It is likely that at least some of what they do on Twitter is related to PD, examining what effective PD equates to may offer insight

into why they use the tool. Research regarding PLNs and informal learning will also be examined, in order to better understand educators' Twitter use.

According to Rutherford (2010), effective professional development has four common characteristics including:

1. It is sustainable, ongoing, and intensive.
2. It is directly related to classroom practice and student learning.
3. It involves knowledge sharing in a collaborative manner.
4. It is essentially constructivist and is driven by the participants.

Birman et al. (2000) surveyed a sample of 1,000 teachers participating in PD and discovered that what they considered to be valuable PD included: longer durations of time, active learning opportunities, coherence, and content focus. In addition, activities that allowed for collective participation, working with other individuals who teach in the same department, content area, or grade resulted in teachers reporting an increase in knowledge or skills after their participation (Birman et al., 2000).

Defining PD seems to be less difficult than actually implementing it, as traditional PD approaches are often described as ineffective throughout the literature (Darling-Hammond et al., 2009; Duncan-Howell, 2010; Lawless & Pellegrino, 2007; Putnam & Borko, 2000). Many teachers have reported that the PD they receive is weak, generally not useful in their content area, and that they are given little time to share their practices and collaborate (Darling-Hammond et al., 2009; Lawless & Pellegrino, 2007). Traditional professional development is generally one size fits all. It often requires teachers to adjust the content they receive during planned meetings, in order to make it usable in their own classrooms (Fishman et al., 2013).

Instead of taking the ineffective *standard* approach, a teacher's specific learning goals should be used to determine the most appropriate focus and approach for PD (Putnam & Borko, 2000).

Past tendencies in traditional PD have been to bring in outside experts to meet teacher needs or requirements (Hofman & Dijkstra, 2010). These individuals are generally in charge of dictating the content and format of PD opportunities, and the teachers are rarely given a choice in what or how they learn, making it difficult for the developer and the teacher to relate (Jones & Dexter, 2014; Lieberman, 2000). These workshops and methods generally do not encourage the development of new skills and thus what is shared usually doesn't continue past the in-service PD session; these sessions have little or no lasting effects (Duncan-Howell, 2010; Guskey, 2002).

Educator professional development can also be very expensive, and in a time of budget reductions, providing effective PD may be difficult. Most districts spend less than half the estimated average cost of high-quality PD, which would exceed \$500 per teacher yearly (Birman et al., 2000). Not only is the budget an issue, but finding the time for teachers to participate is difficult because planned PD occurs during student instructional time, meaning that teachers are absent from the classroom, creating disruptions in student learning (Wayne et al., 2008). Typical workplace schedules for teachers do not contain time for teachers to engage in meaningful professional development (Wei et al., 2010). An effective professional learning system requires time for educators to collaborate with experts, mentors, and their peers to better understand the needs of their learners (Darling-Hammond et al., 2009).

Professional development providers have looked at online tools to provide a more effective option for educators to collaborate and learn, possibly to combat some of the many issues with PD in its current state. The opportunities that online learning networks give teachers

to integrate their learning experiences, as both learners and teachers, gives this medium considerable potential to support professional learning (Mackey & Evans, 2011). In this study the focus is on microblogging, specifically, Twitter.

According to emerging literature, many educators are using Twitter for self-directed PD by creating a lasting professional learning network (PLN; Carpenter & Krutka, 2014a, 2014b; Forte et al., 2012; Lu, 2011; Visser et al., 2014). Professional development that is self-directed is initiated and determined by the individual learner (Van Eekelen et al., 2006). Adult learners are often actively participating learners; they usually have strong self-direction in their learning (Garrison, 1997; Huang, 2002). In a self-directed learning situation, the learner exercises independence in deciding what they determine to be worthwhile to learn, as well as how to approach the learning task (Garrison, 1997). A PLN, in its simplest form, consists of a group of educators who meet on their own (through technology or face-to-face) collaborating together in order to acquire knowledge and skills to be used in an effort to benefit student learning. Informal learning can occur in PLNs, a system of interpersonal connections and resources created by the learner (Trust, 2012). Informal learning and PLNs have been shown to produce positive outcomes for learners, and teacher growth (Darling-Hammond et al., 2009; Lieberman, 2000; Trust, 2012). Social media tools have enabled PLNs to be formed, with relative ease, online.

Educators participating in Twitter activities are informally learning, as there is no set expectation for how or what they learn, and their learning often occurs through social conversations and the experience itself. Gao et al. (2012) found that microblogging changes participation in regards to learning, due to its creation of immediacy, simple access to inclusion, wider participation, and sustained interaction. Creating opportunities for collaboration has the potential for creating more sustained and increased effort, as it creates momentum and energy for

challenging situations, causing users to persist with innovations or initiatives rather than abandoning them (Butler et al., 2004).

Educators are drawn to Twitter for a multitude of reasons. The tool offers immediate access to conversations and insights that educators may not experience in their building PD; many topics are discussed first in microblogs such as Twitter (Dijick, 2011). Immediacy is not the only characteristic of Twitter that appeals to educators; they are also drawn to its brevity and openness and the tool's ability to help them connect with other educators and students (Carpenter & Krutka, 2014b).

In past studies related to Twitter, researchers have found that much of what educators do on Twitter corresponds to what research describes as effective professional development (Carpenter & Krutka, 2014a, 2014b; Visser et al., 2014). As discussed above, effective professional development is sustained, involves collaborative knowledge sharing, is driven by participants, consists of substantial contact hours, allows for active learning opportunities, is coherent, and if the PD is related to future learning opportunities (Birman et al., 2000; Darling-Hammond et al., 2009; Rutherford, 2010). The number of teachers who actually experience all of the elements of good PD through traditional PD methods, is very small (Birman et al., 2000).

Educators who use Twitter for professional learning purposes are reporting experiencing many or all of the characteristics of effective PD (Carpenter & Krutka, 2014a, 2014b; Visser et al., 2014). This study was conducted to gather information pertaining to why educators use Twitter for professional learning purposes. The findings from this sequential mixed methods study add support to the idea that Twitter is effective for PD and give additional information about why educators use Twitter and also what characteristics are common among these users. Since the PD that takes place using Twitter is completely voluntary, its use can provide insight

into what might drive educators to seek PD on their own and what characteristics of this form of PD keeps them committed to their participation. This information could provide insight into creating PD that is more effective, more individualized, and generally more inviting to more educators.

Methodology

This sequential explanatory mixed methods study addressed how and why educators are using the microblogging tool, Twitter, in order to examine the potential the tool may have for providing insight into creating more effective future teacher professional development. This method incorporates a two-step process that begins with the collection and analysis of quantitative data, and is then followed by the collection and analysis of qualitative data; both are then used to interpret the data (Creswell & Plano Clark, 2007).

The study focused on four research questions. The primary research question was *Why do educators participate in voluntary professional development opportunities, in Twitter-supported professional learning networks?* The study included the following sub-questions:

1. What kind of activities are educators participating in when using the microblogging tool, Twitter?
2. What are the characteristics of educators who participate in professional learning using Twitter?
3. Could Twitter potentially be used to enhance professional development?

This study's sample focused on current Twitter users who identified themselves as educators (teacher or administrator) in the K-12 field and believe they are using Twitter for professional learning purposes. Nonrandom, convenience sampling was used, as participants were recruited directly through an invitation sent as a tweet in Twitter. The sample represented

only a fraction of the population of educators and Twitter users, as well as educators who use Twitter. The researcher does not claim that results are representative of all educators who use Twitter, nor does it represent all educators.

Over a 2-week period, an invitation to a web-based survey was disseminated to educators via Twitter, as a tweet from two prominent educator Twitter users with over 50,000 combined followers. In addition, Twitter users seeing the tweet were asked to retweet the request. Seventy-two volunteer participants completed the online survey using the web tool, Qualtrics.

The survey questions addressed perceptions about PD related activities, how Twitter is used, motivators for continuing participation, and educator' opinions of why they participate. Participants' professional learning preferences were also gathered in the survey, to offer possible insight into whether or not this tool might be attractive to all educators. The researcher also inquired about amount of time spent weekly participating in PD related activities, including face-to-face collaboration. While this is not the focus of the study it provided insight into each participant's overall PD activities, in order to help determine the impact of their Twitter PD activities. See Appendix D for survey questions.

After the survey was closed and the data was analyzed, phase two of the study began. Phase two consisted of telephone interviews and the analysis of each participant's responses. The interview participants were recruited at the end of the survey through a question asking them to provide an email if they were willing to participate in a short interview. Sixteen participants supplied an email address; each was contacted via email by the researcher and seven responded. These seven participants completed the three-question interview (see Appendix E). The interviews lasted approximately 15 minutes each. Interviews were recorded and transcribed by the researcher. While the survey provided data that was beneficial in understanding why

educators are using Twitter for PD purposes, the interview process allowed educators to describe their personal motives and opinions of Twitter in relation to PD more thoroughly.

Both the survey and interview questions were developed by the researcher and validated by experts in the education field. In order to assure construct validity both the survey and interview questions were developed based on a review of related literature and findings from studies researching Twitter and professional development. To improve reliability, a pilot process of both the survey and interview questions was completed with individuals representing the target population.

Quantitative data included survey results of 72 participants. Descriptive statistics were produced by an analytic tool in Qualtrics. The quantitative data provided the following sources: (a) participant demographic information, (b) participant professional information, (c) participant Twitter usage, (d) details of how and why participants use Twitter, and (e) participant opinions related to how they prefer learn. Frequency distribution was used for the Likert scaled items, multiple choice, yes/no responses, and the demographics.

Responses to questions from the phone interviews were transcribed. To analyze the answers to the open-ended interview questions and responses to the open-ended questions on the survey and in the interviews, a coding scheme was developed to find emerging themes related to participants' experiences, opinions, and activities using Twitter. The research questions provided the guiding framework for this study, and were used to analyze the gathered data and develop the results. Transcriptions were analyzed for emergent themes, these themes were used to create codes, and the data was analyzed using Hyperresearch to count occurrences of the common themes in the conversations.

Key Findings

The findings in this study are significant in their ability to provide deeper insight into how and why educators use Twitter for professional development purposes. Findings from this study may inform educators, administrators, and policy makers in their future development of professional opportunities.

How educators use Twitter. Research sub-question one looked at the activities that educators participate in while using Twitter. Findings from both the survey and the interview show that most respondents in this study use the tool for connection building purposes and activities related to effective PD. Interview results contained 19 occurrences of statements related to creating and maintaining “connections” with Twitter members, this was by far the most discussed theme in all of the interviews. Survey findings showed that 97% of respondents use the tool to follow leading educators and experts in education, 96% of respondents use the tool to follow other educators, 75% use Twitter to create a learning network or community, and 78% of respondents use the tool to collaborate with other education professionals.

Participants also use Twitter for finding and sharing resources that are useful to their profession. The theme “resources” occurred six times throughout the seven interviews. Participant D stated that, “I am motivated to use Twitter to find what technologies, such as websites or apps, that individuals I include in my personal professional learning network are promoting in classrooms.” The survey findings show that 88% of respondents use Twitter to find resources useful for education professionals and 81% use the tool to share resources useful for education professionals.

In addition, 82% use Twitter to stay current in their practice and 89% use the tool to find new ideas for use in their profession. Many respondents (79%) are also using the tool to get

information about teaching techniques. Many of the interview respondents discussed how Twitter could be customized to fit their needs, for finding resources, making connections, or learning. There were ten occurrences of the theme “customization” in the interview statements. Participant A stated. “I love that I can customize my feeds by following those in the field who are generating the resources and publishing on the topics.”

Sixty-seven percent of respondents also use Twitter to take part in organized discussions for education professionals, such as #edchat. Some respondents (58%) use it to seek answers to specific education related questions. Some (44%) use Twitter to act as a mentor to other educators. In the interviews, respondents discussed learning and professional development often, with eight occurrences of the theme “learning” and eight occurrences of the theme “professional development.” One example of participant discussion of the theme “professional development” was by participant B, she stated that she “firmly believes their (teachers) educational knowledge and their (teachers) teaching and student learning would increase immensely if they (teachers) would get on Twitter for their professional development.”

Very few respondents use Twitter to collaborate with students (13%) or to collaborate with parents of students (19%). Few use it for topics unrelated to education, 11% use the site to follow celebrities and famous athletes, and only 22% selected that they use it to share personal views on topics not related to education. Less than half (42%) reported using the site for entertainment purposes.

The findings from this study echo some of those found in existing studies related to Twitter and its use by educators. In a study of 755 educators that were surveyed by Carpenter and Krutka (2014a), many of their participants explicitly described how Twitter created connections with other educators that helped them to facilitate their learning by allowing them to

share ideas and resources that they would not have otherwise found on their own. Their respondents also reported that they used Twitter for professional development purposes more than all other activities. In addition, their data also indicated that most K-12 teachers prefer Twitter over other forms of PD (Carpenter & Krutka, 2014a).

In an exploratory study of teacher's use of Twitter, Forte et al. (2012) used surveys, interviews and content analysis of tweets to examine how the tool is used for professional development, and also found that teachers use Twitter to share resources with like-minded educators, as well as to voice ideas and disseminate this new information to their local community of practitioners. In a similar study, Visser et al. (2014) surveyed 542 educators that were current Twitter users. These respondents also reported highly valuing Twitter as an option for PD, and most also used the tool for professional development purposes more than for personal uses (Visser et al., 2014).

Common characteristics among educators using Twitter. Research sub-question two examined what characteristics might be common among educator Twitter users. Demographic results revealed that 47% of participants were between the ages of 36 and 45, 86% were females, 76% were teachers and 30% identified themselves as administrators (some participants must have identified themselves as both a teacher and administrator). The educators using Twitter who participated in this study are highly educated. Most participants (92%) selected that they have a Master's degree or higher. Although, the study collected demographic information, these are not the characteristics that the researcher was most interested in studying. Questions were asked of the participants that related to what their characteristics are in relation to how and why they tend to learn. Demographic characteristics have been gathered and discussed in past research, the

researcher wanted to add to the body of information regarding characteristics with information that more deeply describes them.

In regards to learning characteristics and preferences, results from a Likert scale question asking participants to select the answer that best reflects how they feel about statements related show that the Twitter users in this study were self-driven learners. Almost all participants (99%) selected that they are eager to learn to “a great extent.” Most (99%) also believe in the importance of professional development to “a great extent.” The Twitter users in this study practice and believe in self-selected, self-driven learning. The majority of participants (83%) strongly believe in managing their own learning to “a great extent.” Most (88%) also believe that they need to learn more about their practice. Only three participants selected that they “prefer that someone else determine how and what I should learn for professional development” to “a great extent.” Educators who are participating in PLNs online and seeking their own PD opportunities using tools such as Twitter, may fall into the “eager to learn” category. Educators who are eager to learn are described as aware of their strong and weak points as a teacher, they want to improve, they learn, and they take action in order to improve (Van Eekelen et al., 2006). This should be further studied in future studies related to Twitter and professional learning.

Many of the Twitter users in this study are also leaders or are striving to experience leadership roles, as most (81%) selected that they appreciate opportunities to play leadership roles in their schools. The Twitter users in this study are also interested in technology. The findings revealed that most participants have an affinity for technology as 72% selected “to a great extent” in relation to how they feel about the statement “I have an affinity for technology.

Opinions of Twitter use for PD purposes. Research sub-question three examined participants’ thoughts regarding Twitter’s potential for possibly enhancing professional

development. When interviewee answers were coded for common themes, several themes emerged which were related to characteristics of good professional development. Many of the activities and motivators identified through the survey were also related to effective PD. In reviewing the literature pertaining to effective PD, the following recurring characteristics were identified: effective PD is content focused, collaborative, ongoing, coherent, participant driven, and requires substantial contact hours (Birman et al., 2000; Darling-Hammond et al., 2009; Rutherford, 2010). The interviewees' responses reflect these elements of effective PD in their descriptions of how they use the tool and what motivated them to continue using it.

There were three interview questions that the researcher asked the participants. These questions included; "What most motivates you to use Twitter," "How does your professional learning on Twitter compare to your face-to-face learning at your place of work," and "How, if at all, might Twitter or the aspects of Twitter that motivate you, be used to improve traditional required professional development?" The most frequent theme that emerged was related to "connections" and was found 19 times in the interviews. Participant C stated, "Twitter helps me reach out to teachers from all over our nation, and even around the world, that I wouldn't otherwise be able to connect with." Participants also discussed two additional benefits of Twitter that can also be related to strong professional development, there were 10 occurrences of the theme "customization" and 9 occurrences of the theme "convenience." Many of the participants discussed how they enjoyed using the tool because they could use it to customize it to their interests and choose what they learn. Many explained how easy it was for them to find helpful information or resources.

In the survey portion of the study, participants were asked, "What do you most use Twitter for?" and 90% selected "professional learning." They were also asked if they had ever

asked a work related question on Twitter, 65% responded “yes,” and in the follow-up question 85% of those respondents selected “yes” indicating that they had received a useful answer via Twitter. In addition, many participants (76%) believe that their Twitter network is helpful for finding professional resources and most (83%) believe it is effective for professional learning. When asked where they feel they experience the most beneficial professional learning, the most selected response was through Twitter (40 of 72 responses). The next closest option selected was conferences (28%).

Several survey responses were also used to examine the amount of time respondents spent using Twitter for professional learning purposes in comparison to the face-to-face collaboration time they have in their buildings. When asked “How much time do you spend collaborating face-to-face with colleagues?” 40% responded with an answer ranging from one to five hours. When asked “How much time do you spend, per week, using Twitter, to complete activities that you would consider to be professional development?” 66% selected a response between one and five hours, and an additional 14% selected five or more hours. It appears that the participants in this study may be completing more PD hours in Twitter than with their local colleagues.

Survey responses were also used to examine how educators feel their Twitter PD compares to their school’s PD. When asked, “Do you feel like you have a professional learning network in Twitter?” 90% of participants selected “yes.” When asked the same question, but regarding their place of work rather than Twitter, 81% selected “yes.” Participants were also asked, “Where do you feel you experience your most beneficial professional learning?” the most frequently given response was for Twitter, with 40% of participants selecting it.

Finally, almost all respondents (99%) selected “yes” when asked, “Do you Think Twitter could be used by more teachers to increase the overall effectiveness of professional development.” In addition, 48% of participants selected “Twitter users in your network” when asked, “Who do you feel most comfortable asking for advice or questions related to education.”

Why educators use Twitter. The main research question of this study encompassed the three sub-questions and asked, “Why do educators participate in voluntary professional development opportunities?” It was examined by looking at results relating to the three questions above. Study participants’ opinions of their experience in Twitter echoed the existing research about what equates as effective PD, by discussing their desire for more individualized and ongoing professional development opportunities. Most participants report experiencing elements of good PD in their own exploration of Twitter as a PLN. Participant F described it as “very personalized” and “the inspiration and the connections” are why he uses Twitter.

Almost all participants (93%) reported that they consider some of what they do on Twitter to be professional development. In fact, professional learning is how the majority (90%) of the participants use the tool. Almost half (49%) of the respondents use Twitter daily for professional learning purposes. Among this sample of educators, Twitter is a PD resource that they are using regularly and are gaining what they see as effective learning opportunities from it. These K-12 educators are using the tool to find opportunities to meet the following PD needs; finding educators to follow in order to find professional resources, ideas, opportunities to collaborate and to stay current in their profession. Seventy-six percent of respondents believe that their Twitter network is either effective or very effective for finding professional learning resources.

Another reason that respondents are using Twitter is to participate in a professional learning network. Some may not have the opportunity to experience this in their own buildings. Ninety percent of participants feel that they have a professional learning network in Twitter; 81% selected that they feel like they have a professional learning network at work with the people they work with face-to-face so they are a very connected group. Of the sample, nearly ten percent have created a PLN on their own without having it modeled at their place of work.

When asked if Twitter could be used by more teachers to increase the overall effectiveness of professional development, Ninety-nine percent responded with yes and only one respondent selected no. This group of educators uses this tool for its value to obtain PD. Common themes discussed by the six interviewees included: how Twitter inspires them, how valuable resources found through Twitter are, how simple it is to use, and the importance of the connections they make and keep with Twitter. Respondent E echoed these reasons for using the tool when he stated,

Usually on Twitter it seems like you're learning quite a bit ahead of time, before it makes it to the schools. So I've been able to try out and experiment with things, many times before it is even offered as PD I would just say being on Twitter and being connected with it is better than the PD we've got.

Limitations

This study examined only one social media site, there are many others (Facebook, Educator PLN, or Pinterest) that educators use that could inform this topic; furthermore, as this study only examines Twitter it is not known if and how educators use multiple social media sites in coordinated ways for PD. For example, do educators turn to Twitter for one kind of support and Facebook for another? This study is also limited by nonrandom sampling, as a convenience

sampling was used for all phases of this study and may not represent the larger population of educator Twitter users. In addition, the Twitter users who participated in the survey may have more of an affinity for technology, 72% of the participants selected “to a great extent” when asked to select how they feel about the statement “I have an affinity for technology.” They could be drawn more to social media supported PD than the larger population of educators in general. The respondents indicated they were self-directed learners and eager to learn. The respondents may be more frequent and involved users than the other educators who use Twitter. Their experiences may not reflect those of educators that infrequently use the site, or have tried the site and not found it conducive to their needs.

Implications for Practice

While this study contains the above-mentioned limitations, the information gathered from the surveys and interviews could still provide insight into creating more effective PD opportunities. These findings may have implications for teachers, administrators, and school policy makers. These stakeholders should consider Twitter as a possible way to enrich and incorporate more individualized and ongoing PD. The majority of the participants were very enthusiastic about the PD opportunities that they experience while using Twitter. Many felt that the tool created connections that they were unable to create in their own school setting and they appreciated Twitter’s customization, access to resources, and the inspiration that tweets gave them. These are all elements of good PD that are difficult to achieve with traditional PD activities.

Educator Twitter users could potentially act as leaders in their schools by sharing how and why they use the tool. As some new users may be hesitant, it may be beneficial to have people they trust and know share and guide them, rather than outside sources. According to the

results from this study, educators using Twitter are willing to perform leadership roles, such as discussed above, in their own buildings. When asked if they appreciate opportunities to play a leadership role in their school, 81% selected “to a great extent.” Further examining these possibilities could help provide more teachers with options for seeking effective PD.

In addition, for educators significantly invested in Twitter there should be thought given to possibly provide recognized PD hours. None of the participants were receiving any kind of official recognition for the time that they spent using Twitter for PD purposes, but many of the participants described completing more hours of PD using Twitter than from more traditional methods available in their buildings. Nearly half, 42%, believe that they experience their most effective professional learning through Twitter; the second most frequently selected option for the most beneficial learning was through attending conferences, but conferences are only offered a few times a year and can be costly to attend. Introducing Twitter to more teachers could potentially provide an avenue of more effective and more affordable PD, but how to recognize their time investment and learning from Twitter is something that will need to be determined.

Recommendations for Future Study

This study only gathered data from educators that are currently using Twitter. Future studies involving other social media sites could provide additional insight into PD and social media outlets. To deepen our understanding of educator Twitter users, more focus on the connections that are created with the tool should be further examined. Connections were an emergent theme in the interviews and the survey. Examining these connections more closely could lead to a deeper understanding of how to create PD that allows and supports the creation of these connections. Looking at social capital and the role plays in Twitter exchanges may also add to the understanding of how and why these connections prove to be so important to the users.

Examining if it is the relationship and connection that is important or what the relationship provides, such as resources, could add to the understanding of Twitter use.

In addition, there is a need to look beyond Twitter-savvy teachers and to learn from educators who are not users of Twitter. Their opinions and experiences may provide insight into whether or not Twitter could act as a tool that teachers would find beneficial and would feel comfortable using. Additional studies regarding who uses the site would add to an understanding of Twitter's potential for all educators, specifically studying if there are personality types that may or may not participate. Most of the participants in this study were well educated and also believed strongly in the value of PD and self-driven learning. Future studies should examine what drives these values in educators. Finally, studies that investigate the impact that educator Twitter use has on student learning and overall teacher effectiveness would be beneficial to understanding the tool's potential role in PD.

Conclusions

While Twitter is by no means the single solution for correcting the problems experienced with the current state of PD, it does offer an outlet that some educators find to be both inspiring and beneficial to their profession. This study provides a start to understanding what motivates educators to use the tool. Twitter offers accessible professional learning options that most teachers from this study believe to be easy to access, inspirational, collaborative, ongoing, and beneficial to their PD. This study provides data from actual users of the tool that shows what some educators do on Twitter is PD. The educator users in the study are an informal, devoted community allows information seeking educators to connect, learn, and collaborate anytime and anywhere over the topic of their choosing. Teachers, administrators, and policy makers who have experienced effective PD using Twitter should seek ways to share what they know, develop ways

to incorporate the tool into traditional PD, and explore options for recognition for the hours they spend learning using Twitter. Teachers, administrators, and policy makers who are not familiar with the tool should attempt to explore and learn more about the options it offers for creating learning networks and gaining/exchanging resources and inspiration. The current method of PD, a group, one size fits all approach, is not working; this study shows that looking more closely at personal informal PD, such as those experienced by using Twitter, may provide more convenient, affordable, and relevant options.

Educators shouldn't be forced to use personal time to for professional development, offering and there are not currently policies or ways to provide support for teachers who use Twitter on their own. Administrators and policy makers should seek to understand educators' use of Twitter and the opportunities it provides them and find ways to support teachers who are currently using the tool for PD purposes.

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APPENDIX A

Initial Participation Request

Hello,

If you are a teacher or an administrator in grades K-12 and you use Twitter for professional learning purposes please read on. If not, thank you for your consideration, but the survey requires participation from K-12 Twitter users that at least occasionally use the tool for professional learning purposes.

My name is Angela Larson and I am a doctoral student at Pepperdine University. I am also a middle school science teacher. I am working on my dissertation researching how educators use microblogs, specifically Twitter, for professional development and creating learning networks. I will be collecting data via a quantitative survey that should take no more than 10-15 of your time.

At the end of the survey, you will be asked if you would be willing to take part in an interview about your experiences using Twitter for informal learning. If you have no interest in the interview that is fine; you can indicate that in the survey and be done after the survey. If you are willing to support my research please complete the survey by November 30th, 2015.

As an educator, I realize that your time is very limited, and asking you to invest time in completing a survey may seem like a big request. However, there is a lack of academic research in this area, and your participation will help to contribute to foundational research that may be used by others to build new solutions in the future.

If you have any questions or concerns, please contact me. Thank you for your time and consideration.

Sincerely,

Angela Larson

[REDACTED], [REDACTED]

7th Grade Science Teacher

Bernard Campbell Middle School

Doctoral Student, Pepperdine University

APPENDIX B

Invitation Tweets

Examples of invitation tweets:

I have a friend that needs help getting some data for her dissertation. Can you help? Please RT!
pepperdinegsep.az1.qualtrics.com/jfe/form/SV_3f... #edchat #edcampkc



21



8



Kyle Pace @kylepace · 17 Nov 2015

Do you use Twitter for your professional learning? One of our fellow edcampers needs your help! goo.gl/XiT5t3 #edcampKC

APPENDIX C

Existing Survey

An exploration into how educators use Twitter

This survey has been closed. Analysis is underway! Please contact Ryan Visser

([REDACTED]) if you have questions or comments. Thank you.

Dear Education Colleagues, Faculty members at Clemson University, Indiana University of Pennsylvania, Pennsylvania State University, and Anderson University are inviting you to take part in a research study that explores how educators on Twitter are actually using it. Your part in the study will be to answer 32 questions related to you and your experiences on Twitter. The duration of this survey is approximately 10-15 minutes. By participating in this unfunded study, you may be helping us to understand the possible benefits received by educators who use Twitter for professional purposes. There are no known risks to those participating in the research and your participation in this data collection is voluntary. Information will be kept confidential and anonymous; the investigators will not retain any information that would enable any person or persons to know who did or did not complete the survey. Results will be presented in summary form only. Should you have any questions or concerns about this study or if any problems arise, please contact Ryan Visser at Clemson University via Twitter (@ryan_visser) or email ([REDACTED]). If you have any questions or concerns about your rights in this research study, please contact the Clemson University Office of Research Compliance (ORC) at 864-656-6460 or the toll-free number at 866-297-3071. Additionally, you can email them at irb@clemson.edu. Once you have completed all of the questions on a page, please use the >> button at the bottom right to go to the next page.

I hereby give my informed consent.

I prefer not to participate

Q2 Age

Q3 What is your gender?

Q4 In which country do you reside?

Q5 In which state do you reside?

Q6 What is your race?

Q7 What is the highest level of education you have completed?

Q8 Which best describes the specific area in which you work?

Curriculum Coach/Coordinator/Facilitator

Elementary

Middle/Junior High

High School

Library/Media Specialist

Special Education/Inclusive Settings

PK-12 Administrator

Instructional Coach/Coordinator/Facilitator

Technology Coach/Coordinator/Facilitator

Home School

Higher Education

Other _____

Pre-Kindergarten

School Counselor

Q9 How many years of professional experience do you have within Education?

1-3

4-6

7-9

10-12

13-15

16-18

19-21

22-24

25-27

28-30

30+

Q10 Generally, how would you describe your proficiency with technology?

Well Below Average

Below Average

Slightly Below Average

Average

Slightly Above Average

Above Average

Well Above Average

Q11 How long have you been on Twitter?

0-1 month

1-2 years

2-3 years

3-4 years

4-5 years

5+ years

1-6 months

6-12 months

Q12 Which device do you primarily use for Twitter-related purposes?

Laptop/Desktop

Cell Phone

Tablet

Other _____

Q13 Describe the frequency with which you use Twitter for professional purposes

Once a month

2-3 times a month

Once a week

2-6 times a week

Daily

Multiple times per day

Less than once a month

Q14 Describe the frequency with which you use Twitter for personal purposes?

Once a month

2-3 Times a month

Once a week

2-6 times a week

Daily

Multiple times per day

Less than once a month

Q15 Which statement best applies to your use of Twitter in your workplace?

My workplace restricts Twitter and I do not use it at work.

My workplace restricts Twitter, but I still use it at work.

There are no restrictions regarding using Twitter in my workplace.

I am not sure if Twitter is restricted or not restricted in my workplace.

Other _____

Q16 Does your workplace have a policy regarding the use of Twitter? If Yes, please briefly describe the policy.

I am not sure

No

Yes _____

Q17 Have you received Professional Development credit as a result of being on Twitter? If yes, please describe.

No

Yes _____

Q18 Which of the following best describes your tweeting habits?

I never use Twitter for tweeting my own messages

I rarely use Twitter for tweeting my own messages

I occasionally use Twitter for tweeting my own messages

I frequently use Twitter for tweeting my own messages

Q19 My Twitter account is

Public

Private

I don't know if it is public or private

Q20 Which best describes the degree to which you interact with your students on Twitter?

Never

Very Infrequently

Occasionally

Frequently

Daily

Infrequently

Very Frequently

Q21 Please answer the next three questions to the best of your ability. If you are using the Twitter Webpage, the answers to these questions can be found at the top of your "Home page" (see the graphic below for an example of what you should see on your Home page). If you are using an app for your phone/tablet, you can most likely find this information in the 'Me' or 'About Me' menu. As of now, how many Tweets do you have?

Q22 How many people are you following?

Q23 How many followers do you have?

Q24 Please describe how you began using Twitter for Professional Purposes:

Q25 Please discuss what you perceive to be the benefits of using Twitter for professional purposes.

Q26 Please discuss what you perceive to be the limitations of using Twitter for professional purposes.

Q27 In what Twitter Chats have you participated, if applicable? (e.g. #edchat, #sschat)

Q28 Please describe some of the best things that you've learned/experienced as a result of being involved in Twitter:

Q29 In your estimation, what percentage of your workplace colleagues use Twitter for professional purposes?

0-10%

11-20%

21-30%

31-40%

41-50%

51-60%

61-70%

71-80%

81-90%

91-100%

Q30 If you were to provide a strategy to educators who are new to Twitter, what would **it be**?

Q31 Additional Comments you would like to make:

Q32 If we need to follow up with other questions, may we contact you via Twitter?

Your Twitter handles will be kept in house and will not be released.

Please do not

Sure, here's my Twitter handle: _____

APPENDIX D

Survey Questions

*Indicates questions used from the Visser, Evering, & Barrett, 2014 survey (see Appendix C)

Demographics

Are you a teacher?

Yes No

Are you an administrator?

Yes No

What grade level(s) do you currently work with?

K-5 6-8 9-12

What is your age?

Under 25 25-35 36-45 46-55 56 or older

What sex are you?

M F

How many years of experience do you have in education?

1-5 6-10 11-15 16-20 21-25 26-30 30 or more

What is your highest level of education?

Bachelor's Degree

Master's Degree

Doctorate Degree

General Twitter Usage

*How long have you had a Twitter account?

0-1 month

1-6 months

6-12 months

1-2 years

2-3 years

3-4 years

4-5 years

5+ years

*Describe the frequency with which you use Twitter for professional purposes

Less than once a month

Once a month

2-3 times a month

Once a week

2-6 times a week

Daily

*Which of the following best describes your twitting habits?

I never use Twitter for tweeting my own messages

I rarely use Twitter for tweeting my own messages

I occasionally use Twitter for tweeting my own messages

I frequently use Twitter for tweeting my own messages

How do you use Twitter? Select all that apply to your usage of Twitter for both personal and professional use:

For entertainment

To follow celebrities and famous athletes

To share my personal views on topics not related to education

To follow other educators

To follow leading educators and experts in education

To get information about teaching techniques

To share resources useful for education professionals

To find resources useful for education professionals

To share lesson plans

To take part in organized discussions for education professionals such as edchat

To seek answers to education related questions

To find new ideas for use in my profession

To act as a mentor to other educators

To stay current in my practice

To create a learning network or community

To collaborate with other classrooms

To collaborate with other education professionals

To collaborate with students

To collaborate with parents of students

Do you consider some of what you do on Twitter to be professional development?

Yes No

*Have you received Professional Development credit as a result of being on Twitter? If yes, please describe.

No

Yes _____

What do you most use Twitter for?

News Entertainment Professional Learning

Have you ever asked a work related question on Twitter?

Yes No

If yes, did you receive one or more useful answers?

Yes No

If you can remember, approximately how long did it take to get a useful response to your question?

How effective do you feel your Twitter network is for helping you find professional resources?

Very ineffective

Ineffective

Somewhat ineffective

Neither effective nor ineffective

Somewhat Effective

Effective

Very Effective

How effective do you feel your Twitter network is for professional learning?

Very ineffective

Ineffective

Somewhat ineffective

Neither effective nor ineffective

Somewhat Effective

Effective

Very Effective

Do you know of other educators using Twitter for PD purposes?

Yes

No

How much time do you spend, per week, using Twitter to complete activities that you would consider to be professional development?

Less than one hour

Between one and two hours

Between two and five hours

Between five and ten hours

More than ten hours

Do you feel like you have a professional learning network in Twitter?

Yes

No

Do you feel like you have a professional learning network at your place of work (face-to-face or other)?

Yes

No

How much time do you spend a week collaborating with colleagues in a face-to-face manner?

Where do you feel you experience your most beneficial professional learning?

At school, where I work

Classes I am taking

Twitter

Conferences

Other

If you selected other, please explain where you experience beneficial professional learning.

Do you think Twitter could be used by more teachers to increase the overall effectiveness of professional development?

Yes No

How difficult was it for you to learn to use Twitter?

Who do you feel most comfortable asking for advice or questions related to education?

Teachers in your building

Teachers in your district

Administrators in your building

Administrators in your district

Twitter users in your network

Select the answer that best reflects how you feel about each statement below

Pertaining to Personal Characteristics

(4 point likert scale on questions below)

• To a Great Extent • Somewhat • Very Little • Not at All

I'm eager to learn

I see a need to learn more about my practice

I appreciate opportunities to play a leadership role in my school

I believe in the importance of professional development

I have an affinity for technology

It's important to me that I manage my own learning

I prefer that someone else determine how and what I should learn for PD

Pertaining to potential motivators

Select reasons from the following that motivate you to use Twitter for professional learning purposes? Check all that apply

Provides me with opportunities to collaborate with others

Allows me to find like-minded educators to collaborate with

Participating has offered me an opportunity for playing a leadership role

Gives a venue for venting educator frustrations

Allows me to share education related research, such as professional journals

Gives me an outlet for receiving coaching or guidance

Gives me an outlet for sharing instructional techniques and receiving feedback over them

To discover new lesson materials

Allows me to share my opinions

Allows me to discuss my ideas about education

Allows me to discuss educational policy

Gives me the opportunity to contribute advice

Gives me the opportunity to contribute answers and lesson materials

Personal interest in technology use

Provides an intellectual challenge

Allows me the opportunity to be a trendsetter or early adopter

Provides me with peer recognition

Provides me with prestige or status

I feel valued in my Twitter community

APPENDIX E

Interview Questions

- Q1 What most motivates you to use Twitter?
- Q2 How does your professional learning on Twitter compare to your face-to-face learning at your place of work?
- Q3 How, if at all, might Twitter or the aspects of Twitter that motivate you, be used to improve traditional required professional development?

APPENDIX F

Information Sheet for Exempt Research

PEPPERDINE UNIVERSITY

Graduate School of Education and Psychology

INFORMATION/FACTS SHEET FOR EXEMPT RESEARCH

FACTORS AFFECTING EDUCATOR PARTICIPATION IN PROFESSIONAL DEVELOPMENT ACTIVITIES THROUGH THE USE OF A MICROBLOG

You are invited to participate in a research study conducted by Angela Larson, MA, doctoral student (principal investigator) and Dr. Judith Fusco Kledzik, PhD (Faculty Advisor) at the Pepperdine University, because you are an educator or administrator working with grades kindergarten to twelfth grade that uses Twitter for professional learning purposes. Your participation is voluntary. You should read the information below, and ask questions about anything that you do not understand, before deciding whether to participate. Please take as much time as you need to read this document. You may also decide to discuss participation with your family or friends.

PURPOSE OF THE STUDY

The purpose of the study is to determine how educators and administrators use Twitter to learn work related skills and information. The researcher would like to study what kinds of activities are being used and how they are related to professional learning for educators and administrators.

PARTICIPANT INVOLVEMENT

If you agree to voluntarily take part in this study, you will be asked to take an electronic survey that will inquire about what kinds of activities you do in Twitter, how often you use the site,

what motivates you to use it, your experiences with professional development, and what kind of professional learning you voluntarily take part in. This survey should take no more than 15 minutes, and will be open for two weeks. You can decline to answer any survey questions by selecting or marking N/A. After you complete the survey you will be asked to take part in a short interview, if you are interested in this your email address will be requested so that the researcher can contact you to set up an interview. You do not have to take part in the interview and you can exit the survey at any time. If you take part in the interview portion of the study it should take no more than 15 minutes to answer the interview questions. The interview will take place over the phone or using Skype, based on your preference. You may decline to answer any questions you do not wish to answer. The interview will be recorded. You may decline to be recorded and still participate with written responses. Your responses will be confidential and identifying information such as name, address, and IP address will not be collected. You may withdraw from the study at any time. Participation in this study is strictly voluntary.

PARTICIPATION AND WITHDRAWAL

Your participation is voluntary. Your refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights, or remedies because of your participation in this research study.

ALTERNATIVES TO FULL PARTICIPATION

The alternative to participation in the study is not participating or completing only the items which you feel comfortable.

CONFIDENTIALITY

I will keep your records for this study confidential as far as permitted by law. However, if I am required to do so by law, I may be required to disclose information collected about you.

Examples of the types of issues that would require me to break confidentiality are if you tell me about instances of child abuse and elder abuse. Pepperdine's University's Human Subjects Protection Program (HSPP) may also access the data collected. The HSPP occasionally reviews and monitors research studies to protect the rights and welfare of research subjects.

Any identifiable information obtained in connection with this study will remain confidential.

Your responses will be coded with a pseudonym and transcript data will be maintained separately. The recordings will be destroyed once they have been transcribed. The data will be stored on a password-protected computer in the principal investigators place of residence. The data will be stored for a minimum of three years. The data will be coded, transcribed, and de-identified. Interviews will be recorded, those recordings will not contain any identifying information. The recordings will be transcribed. Each interview will be described in the results using fictional names and any identifying information, such as phone number or email, will be stripped and not included in the analysis of the data. Participant's contact information will be destroyed after the transcription of their interviews and will in no way be connected to their interview. All recordings and transcription related to the interviews will be stored in a password-protected file on the researcher's computer at her place of residence. All data collected from surveys and interviews will be stored in a password-protected file for three years and will then be destroyed.

INVESTIGATOR'S CONTACT INFORMATION

I understand that the investigator is willing to answer any inquiries I may have concerning the research herein described. Angela Larson can be reached at [REDACTED]net or [REDACTED]

[REDACTED]. I understand that I may contact Dr. Fusco Kledzik at [REDACTED].

if I have any other questions or concerns about this research. If you have questions about your rights as a research participant, contact Dr. Judy Ho, Chairperson of the Graduate & Professional School Institutional Review Board (GPS IRB) at Pepperdine University, via email at gpsirb@pepperdine.edu or at 310-568-5753.

RIGHTS OF RESEARCH PARTICIPANT – IRB CONTACT INFORMATION

If you have questions, concerns or complaints about your rights as a research participant or research in general please contact Dr. Judy Ho, Chairperson of the Graduate & Professional School Institutional Review Board at Pepperdine University 6100 Center Drive Suite 500 Los Angeles, CA 90045, 310-568-5753 or gpsirb@pepperdine.edu.

By clicking on the link to the survey questions, you are acknowledging you have read the study information. You also understand that you may end your participation at end time, for any reason without penalty.

You Agree to Participate

You Do Not Wish to Participate

If you would like documentation of your participation in this research you may print a copy of this form.

APPENDIX G

IRB Approval Letter

NOTICE OF APPROVAL FOR HUMAN RESEARCH

Date: November 04, 2015

Protocol Investigator Name: Angela Larson Protocol #: 15-09-047

Project Title: FACTORS AFFECTING EDUCATOR PARTICIPATION IN PROFESSIONAL DEVELOPMENT ACTIVITIES THROUGH THE USE OF A MICROBLOG

School: Graduate School of Education and Psychology

Dear Angela Larson:

Thank you for submitting your application for exempt review to Pepperdine University's Institutional Review Board (IRB). We appreciate the work you have done on your proposal. The IRB has reviewed your submitted IRB application and all ancillary materials. Upon review, the IRB has determined that the above entitled project meets the requirements for exemption under the federal regulations 45 CFR 46.101 that govern the protections of human subjects. Your research must be conducted according to the proposal that was submitted to the IRB. If changes to the approved protocol occur, a revised protocol must be reviewed and approved by the IRB before implementation. For any proposed changes in your research protocol, please submit an amendment to the IRB. Since your study falls under exemption, there is no requirement for continuing IRB review of your project. Please be aware that changes to your protocol may prevent the research from qualifying for exemption from 45 CFR 46.101 and require submission of a new IRB application or other materials to the IRB. A goal of the IRB is to prevent negative occurrences during any research study. However, despite the best intent, unforeseen

circumstances or events may arise during the research. If an unexpected situation or adverse event happens during your investigation, please notify the IRB as soon as possible. We will ask for a complete written explanation of the event and your written response. Other actions also may be required depending on the nature of the event. Details regarding the timeframe in which adverse events must be reported to the IRB and documenting the adverse event can be found in the Pepperdine University Protection of Human Participants in Research: Policies and Procedures Manual at community.pepperdine.edu/irb. Please refer to the protocol number denoted above in all communication or correspondence related to your application and this approval. Should you have additional questions or require clarification of the contents of this letter, please contact the IRB Office. On behalf of the IRB, I wish you success in this scholarly pursuit. Sincerely, Judy Ho, Ph.D., IRB Chairperson Pepperdine University 24255 Pacific Coast Highway Malibu, CA 90263 TEL: 310-506-4000 Page: 1 cc: Dr. Lee Kats, Vice Provost for Research and Strategic Initiatives Mr. Brett Leach, Regulatory Affairs Specialist Pepperdine University 24255 Pacific Coast Highway Malibu, CA 90263 TEL: 310-506-4000 Page: 2

APPENDIX H

Code List

Backchannel

Connect

Continued Conversations

Convenience

Current Information

Customized

Inspiration

Interaction

Learn

Networking




Professional Development



Resources

Simplicity

APPENDIX I


Permission to Use Existing Interview

**Angela Larson**  to Ryan 

6/4/15 ☆  

Thank you! I will be sure to properly reference it. I am only planning to use a few of your questions, as my area of interest is related to why teachers use the tool, more specially what might be motivating them to seek voluntary professional development. Thanks again and I will keep you posted once I have gathered data.

Angela Larson


On Tue, Jun 2, 2015 at 7:27 AM, Ryan Visser  wrote:

Hello, Angela,

Sure, you can use our survey (see attached). The one thing we ask is that it is properly referenced.

I would love to hear more about your study and the results. Let me know if I can help any further.

Dr. Visser

On Mon, Jun 1, 2015 at 10:52 AM, Angela Larson  wrote:

Hello,

My name is Angela Larson and I am a doctoral student at Pepperdine University. I am also a middle school science teacher. I am currently working on my dissertation over microblogging, specifically Twitter, and how educators use the site for professional development activities. I've read and referenced your article, "#TwitterforTeachers: The Implications of Twitter as a Self-Directed Professional Development Tool for K-12 Teachers". I believe the survey you created may be useful in my own study. I am studying the what as well as the why in teacher use, and general characteristics of users. Would you be willing to allow me access and permission to your existing survey? Thank you for your consideration.

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Angela Larson
7th Grade Science
Bernard Campbell Middle School