

LEADING IN A DIGITAL AGE: DIGITAL LEADERS' IMPACT ON THE
PROFESSIONAL DEVELOPMENT CULTURE IN A
SECONDARY SCHOOL SETTING

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by

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The undersigned, appointed by the dean of the Graduate School, have examined the
dissertation entitled

LEADING IN THE DIGITAL AGE: DIGITAL LEADERS' IMPACT ON THE
PROFESSIONAL DEVELOPMENT CULTURE IN A
SECONDARY SCHOOL SETTING

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Table Of Contents

Acknowledgments _____	ii
List of Tables _____	vii
List of Figures _____	viii
ABSTRACT _____	ix
SECTION ONE _____	1
Introduction to the Background of the Study _____	2
Statement of Problem _____	3
Purpose of the Study _____	5
Research Questions _____	5
Theoretical Frameworks Reviewed _____	6
Learning Theory _____	7
Adult Learning Theory _____	7
Transformative Learning Theory _____	12
Adult Learning Theory vs. Transformative Learning _____	14
Design of the Study _____	14
Setting _____	16
Participants _____	16
Data Collection _____	17
Data Analysis _____	21
Credibility of the Study _____	23
Design Controls _____	24
Definitions of Key Terms _____	24
Significance of Study _____	25
Summary _____	26
SECTION TWO _____	28
Introduction _____	29
History of the Organization _____	30
Organizational Analysis _____	32
Leadership Analysis _____	35
Idealized Influence _____	36
Inspirational Motivation _____	36
Intellectual Stimulation _____	37
Individualized Consideration _____	38
Implications for Research in the Practitioner Setting _____	38

Summary	39
SECTION THREE	40
Introduction to Scholarly Review	41
Adult Learning Theory as a Conceptual Framework	43
Experience	44
Readiness to Learn	45
Orientation to Learning	46
Motivation to Learn	48
Need to Know	48
Self-Directed	49
Professional Development	51
Collaboration	53
Individualized	54
Sustainable	55
Transformational Leadership in the 21 st Century	57
Conclusion	59
SECTION FOUR	61
Introduction	62
Research Questions	62
Connection to Conceptual/Theoretical Framework	63
Participants and Data Collection	64
Presentation of the Data	66
Research Question One	67
Research Question Two	70
Research Question Three	81
Research Question Four	87
Research Question Five	92
Discussion of Findings	95
Professional learning in the digital age	95
Social media in schools	97
Lack of preparation and training at the preservice leadership level	99
Conclusions	100
Recommendations	103
SECTION FIVE	108
Introduction	112
Conceptual/Theoretical Framework	113
Methods	114
Participants and Data Collection	115

Presentation of the Data _____	117
Research Question One _____	118
Research Question Two _____	120
Research Question Three _____	126
Research Question Four _____	128
Research Question Five _____	130
Discussion of Findings _____	133
Professional learning in the digital age _____	133
Social media in schools _____	135
Lack of preparation and training at the preservice leadership level _____	137
Conclusions _____	139
Implications for Practice _____	141
Implications for Research _____	142
Journal Article References _____	144
SECTION SIX _____	148
REFERENCES _____	151
Appendix _____	164
APPENDIX A _____	165
APPENDIX B _____	174
APPENDIX C _____	185
VITA _____	191

LIST OF TABLES

Table	Page
1. Description of Organization Structure of the Participants	65
2. Description of Survey Participants.....	66
3. T-test Group Statistics.....	70
4. Independent Samples T-Test: Teacher Survey Question 2	73
5. Independent Samples T-Test: Teacher Survey Question 6	75
6. Independent Samples T-Test: Teacher Survey Question 7	77
7. Independent Samples T-Test: Teacher Survey Question 8	80
8. Independent Samples T-Test: Teacher Survey Question 10	80
9. Independent Samples T-Test: Teacher Survey Question 2	84
10. Independent Samples T-Test: Teacher Survey Questions 3 & 4	86
11. Independent Samples T-Test: Teacher Survey Question 1	87
12. Independent Samples T-Test: Teacher Survey Question 5	89
13. Independent Samples T-Test: Teacher Survey Question 8	92

LIST OF FIGURES

Figures	Page
1. Teacher Survey Question 2: I see a need for more personalized learning in teacher professional development.....	74
2. Teacher Survey Question 6: There is a strong collaborative environment amongst teachers in my building.	76
3. Teacher Survey Question 7: It is the responsibility of the principal to promote a culture of collaboration and self-directed learning.....	78
4. Teacher Survey Question 8: There is a culture of self-directed learning promoted within the school.....	79
5. Teacher Survey Question 10: Twitter allows me to collaborate with like-minded individuals.	81
6. Teacher Survey Question 2: I see a need for more personalized learning in teacher professional development.	83
7. Teacher Survey Question 3: I am familiar or have been exposed to using Twitter as a tool for professional development.	85
8. Teacher Survey Question 4: My principal's presence on social media directly impacts how much I use social media for personal professional development...	85
9. Teacher Survey Question 1: If there is a need for me to learn new information, I do not need a supervisor to point me in the right direction.	88
10. Teacher Survey Question 5: It is the principal's responsibility to expose teachers to various forms of personalized learning	90
11. Teacher Survey Question 8: There is a culture of self-directed learning promoted within the school.....	91

ABSTRACT

The greater demand for administrators and teachers to stay current in the ever-changing world of technology and education (Cho, 2016; Merriam & Bierema, 2014), justifies the need for more effective, personalized approaches to professional development (Dill, 2015). The data analysis procedure in this study was multi-step and addressed the five research questions. A convergent-mixed design approach was used to capture both quantitative and qualitative data through the theoretical lens of Adult Learning Theory.

This research was conducted on the campuses of four rural high schools within 90 minutes of Kansas City where two principals had a presence on social media, and two principals did not have a presence. Data were collected through four principal interviews and 106 teacher surveys. Lastly, the researcher collected survey data from 30 higher education pre-service professors who are actively teaching within their institution's pre-service leadership programs.

Qualitative analysis found three recurring themes: *Professional learning in the digital age, social media in schools, and lack of preparation and training at the preservice leadership level*. Additionally, quantitative data showed there is a difference in teacher's perceptions of professional development if their principal is active on social media or not active on social media. Research from this study shows that principal's commitment to personalized professional development, using Twitter, promotes a culture of collaboration and self-directed learning. Knowing this, the data provides the necessary research for universities to include the use of social media as a professional tool for

principals within the curriculum of their leadership programs and provide professors the necessary professional development and resources to achieve this goal.

SECTION ONE

INTRODUCTION TO DISSERTATION

Introduction to the Background of the Study

An administrator's role, in this digital age, of providing personalized professional development to teachers to help them grow as an educator is a leadership skill that has not been adequately researched (Cho, 2016; Dill, 2015). While school districts and building-level principals are required to provide professional development for teachers, traditional methods come in the form of a conference or building specific training (Matherson & Windle, 2017), not personalized learning. Furthermore, research confirms the most effective professional development incorporates components of social interaction (Desimone, 2009), is personalized to meet the needs of the teacher (Sheninger, 2014), and includes opportunities for teachers to explore and reflect (Edmunds, Lowe, Murray & Seymour, 2002). A personalized approach will transcend into the core values of each educator and promote a culture of self-directed learning (Cho, 2016). Even though principals are required to train educators on district-led initiatives, they often have autonomy and flexibility to promote a culture of continued personalized professional development within their respective buildings (Corus & Jarrett, 2012; Desimone, 2009). As a result, the overarching focus of this inquiry was to answer, "How are principals creating personalized learning through the use of social media? Moreover, if they do, are teachers more likely to embrace this new form of professional development?"

Professional development is key to the success of any professional, and in Pre K-12 public education, the majority of professional development occurs at conferences or district/building wide in-service (Jones & Dexter, 2014; Sheninger, 2014). With today's technology, professional development resources should be varied and easily accessible

with the use of social media to connect educators globally (Kimmerle, Moskaliuk, Oeberst, & Cress, 2015; Kind & Evans, 2015). Unfortunately, some leaders find it difficult to embrace these new media resources like a true form of professional development (Cho, 2016; Visser, Barrett, & Evering, 2014) or to create a personalized learning experience for teachers.

In this dissertation, the researcher will examine the principal's presence on social media within four Missouri high schools as viewed through the lens of adult learning theory. Within this chapter, presented are the problem and purpose of the research and the research questions used to guide the study will be presented. Additionally, discussed are the conceptual framework, along with the research design, research methodology, and significance of the study.

Statement of Problem

Inappropriately, the one-size fits all approach to professional development has been the norm for educators and leaders for many years (Ahlquist, 2014; Cho, 2016; Dill, 2015). Specifically, Cho (2016) has argued, for the most part, teachers only experience traditional, workshop-based professional development as their main practice of personal learning, even though research shows its ineffectiveness (Kind & Evans, 2014). Professional development can no longer be about exposing teachers to a concept in a one-time workshop (Kind & Evans, 2014), but needs to be about transforming teachers' thinking about making learning collaborative and specific to student learning needs.

Specifically, technology is affecting what we learn, how we learn, how we teach, and how we gather information (Cho, 2016). With the increased use of technology, learners can be at the center of their practice and professional development (Cho, 2016;

Dill, 2015). This movement to more of a personalized approach to learning can flourish (Dill, 2015) and be more transparent using social media - specifically Twitter (Sheninger, 2014). Sheninger (2014) further highlighted information can be gathered, practiced, and shared through the use of Twitter in a way that provides a platform for all educators and leaders to learn from each other outside the four walls of a conference or school building.

To remain relevant and cutting-edge, effective leaders must embrace the ever-changing landscape of leading in the digital age (Couros & Jarett, 2012; Sheninger, 2014). Personal Learning Network (PLN), as envisioned by Sheninger (2014), is a “collection of like-minded people with whom one exchanges information and engages conversations with the main objective of professional growth and improvement” (p.118). Leaders using this personalized professional development can meet the needs of diverse learners, acquire resources, access knowledge, and receive feedback (Sheninger, 2014). Furthermore, Sheninger (2014) and Couros and Jaret (2012) noted leaders could connect with other professionals in the field and discuss strategies to improve teaching, learning, and leadership using Twitter.

Building on the impact of the digital age literature, this research aims to examine a leader’s commitment to personal, professional growth using Twitter, and how through that use it changes the culture of professional development in a secondary school setting. While there has been some research on the topic of the benefits of administrators and teachers using social media for professional development (Cho, 2016), little has been researched on how an administrator’s presence on social media may have a direct impact on the professional development learning culture of the teachers they lead.

Purpose of the Study

With the use of technology, principals and teachers can be at the epicenter of their practice and professional development (Cho, 2016; Dill, 2015). Conversely, traditional methods of professional development in the form of educational seminars, workshops, or building-specific training have proven to be ineffective (Kind & Evans, 2014). However, understanding a leader's commitment to teacher professional development is a critical component of improving the teaching and learning environment in a school (Dill, 2015). This research seeks to provide a substantiation that administrators using Twitter to enhance their learning will further create conditions that promote a culture of self-directed learning for their teachers. Specifically, the purpose of this research is to determine whether a principal's presence on social media had a positive impact on the self-directed learning culture of teachers.

Research Questions

Within the context of this study, the researcher seeks to answer the following research questions:

1. How has the digital age impacted principals' perceptions of personal, professional growth strategies?
2. How does a principal's commitment to personalized professional development, using Twitter, promote a culture of collaboration and self-directed learning?
3. Is there a difference in teacher's perceptions of professional development if their principal is active on social media or not active on social media?
4. Is there a relationship between a principal's presence on social media, and how teachers are self-directed in their personal, professional development?

5. What are principal preparation programs doing to prepare their students to be digital leaders?

Theoretical Frameworks Reviewed

In examining learning theory, and how leaders promote an environment of personal, professional development, two theories were explored in-depth: adult learning theory (Knowles, 1975) and transformative learning theory (Mezirow, 1991). Patton, Parker, and Tannehill (2015) argued professional development depends upon the ability of teachers to apply newly-learned knowledge. Schuell (2013) noted the significance of learning as one of the most important outcomes from professional development for teachers. Consequently, Treff and Earnest (2015) recognized the investigation of adult learning should be about creating settings where adults can succeed and be self-directed.

Early on Knowles introduced the term andragogy as “the art and science of helping adults learn” (Knowles, 1980, p. 43), supporting the idea adults learn differently than children. More specifically, Knowles’ (1975) assumption of self-directed learning guided the research, as the goal was to seek if a self-directed learning culture through the leader’s use of social media was created.

Also, also considered for this inquiry was transformative learning theory (Mezirow, 1991). Treff and Earnest (2015) stressed due to maturity and life experiences children and adults learned differently and proposed that transformative learning creates a complex frame of reference for adults. Mezirow (2003) defined transformative learning as transforming, “problematic frames of reference—sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets)—to make them more inclusive, discriminating, open, reflective, and emotionally able to change (p. 58-59).”

Each of these theories was conceptualized; following are arguments regarding the suitability for this examination.

Learning Theory

While many theorists (Cox, 2015; Knowles, 1975; Mezirow, 1991) explain how humans learn, learning is a complex behavior that involves thinking, feeling, and acting. Classical theorist Locke (1690) historically set the stage for how learning took place with making the assumption humans are born into this world with no innate knowledge and that learning is an inevitable consequence of living. These experiences are the cornerstone of learning, and as one ages, humans can draw on those experiences to stimulate the learning process. Learning theorists, such as Knowles (1975) and Mezirow (1991), expanded on the importance of experiences and the shaping of decisions and mindsets as we become adults.

The art of learning has two divergent concepts: how children learn (pedagogy) and how adults learn (andragogy) (Knowles, 1975). The art of pedagogy originated in ancient Greece as a term used to describe the education of children and how they should be taught (Forrest Iii & Peterson, 2006). Consequently, the theory of andragogy is a “constructivist approach to learning that involves facilitating adults to draw on their experience and so create new learning based on previous understandings” (Cox, 2015, p. 29). Adult learning is voluntary, self-directed, and experiential (Bouchard, 2015).

Adult Learning Theory

Adult learning theory was first introduced in 1968 by Malcolm Knowles and became widespread in 1970 with the publishing of *The Modern Practice of Adult Education: Andragogy Versus Pedagogy* (Forrest Iii & Peterson, 2006; Merriam, 2001;

Merriam & Bierema, 2014). Fornaciari and Lund Dean (2014) argued that Knowles' work with adult learners separated the principles of adult education from those of children and started the conversation around the differences between andragogy and pedagogy. While neither are teaching techniques, but more of a philosophical approach, pedagogical and andragogical learning assumptions were investigated thoroughly in the world of education (Fornaciari & Lund Dean, 2014; Forrest Iii & Peterson, 2006; Taylor & Hamdy, 2013).

Knowles (1977) first identified four assumptions associated with adult learning theory: self-directed learning, bringing a wealth of experiences to the learning process, having a readiness to learn, and being "orientated toward immediate application of learned knowledge" (Forrest Iii & Peterson, 2006, p. 116). Additionally, Knowles (1984) added two additional assumptions to his theory in which adults need to know why they are learning the material and are inheritably intrinsically motivated. These assumptions are crucial for any leader as one starts to implement change or instruct staff on new strategies to use in the classroom. Moreover, these assumptions hold true as leaders look to create an environment of continuous professional development and self-directed learning (Cho, 2016; Dill, 2015). Discussed in the following sections will be the assumptions of self-directed learning, experience, readiness to learn, orientation to learning, motivation to learning, and the need to know.

Self-Directed Learning

Knowles (1975) defined self-directed learning as a process in which "individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying resources for learning, choosing and

implementing appropriate learning strategies, and evaluate learning outcomes" (p. 18).

This personal attribute or process (Merriam & Bierema, 2014) is an effective way to learn (Knowles, 1975) as adults naturally seek to be in charge of their educational experiences (Forrest & Peterson, 2006). As human's mature, they noticeably become more self-directed and take responsibility for their actions (Cox, 2015). In education, this self-direction should encourage by the principal so that teachers can determine their learning path (Cox, 2015; Sheninger, 2014). Furthermore, Forrest and Peterson (2006) reported effective administrators act as a mentor to help teachers develop while becoming less relevant to their learning.

Experience

Experience is the central component of understanding learning (Merriam & Bierema, 2014) and can either act as a catalyst or obstruct one's learning (Cox, 2015). This rich resource for adult learning can be very different for each learner and include biases or misconceptions (Edmunds et al., 2002). Additionally, Merriam and Bierema (2014) stated "at the heart of learning is engaging in, reflecting upon, and making meaning of our experiences, whether these experiences are primarily physical, emotional, cognitive, social, or spiritual" (p. 104). Consequently, leaders are tasked each year to provide direction and allow teachers to make use of the professional development experiences they have had and seek new information (Forrest & Peterson, 2006). If a teacher's experience with professional development was neither relevant nor personalized, teachers may not seek new information or reap the benefits of professional development (Edmunds et al., 2002). Providing relevant, personalized professional strategies will create experiences in which teachers can build upon, thus affecting their

future judgments about their personal, professional development (Merriam & Bierema, 2014).

Readiness to Learn

In many school settings, teachers are often at a myriad of career stages and have numerous needs. As one matures, a person's readiness to learn changes due to the developmental tasks of their social roles (Knowles, 1984). As Forrest and Peterson (2006) highlighted, "[They will] find little interest in ideas that are not relevant to them," and it is important for leaders to "create environments where adult interests are free to surface" (p.119). Whether or not adults are ready to learn depends on what they need to know to tackle current life or work situations (Knowles, 1984). Teachers, for instance, want to learn what they can currently apply to their teaching practices instead of something used in the past. When incorporating a new professional development model, Cox (2015) attested "leaders should challenge existing assumptions while ensuring learners are open to new learning" (p. 30). When challenging these assumptions about previous professional development activities, an effective leader communicates the value of the learning while making it relevant to each learner. Twitter offers a platform for learners to engage in learning activities that are self-paced and individually tailored (Edmunds et al., 2002; Cho, 2016; Dill, 2015).

Orientation to Learning

Closely related to readiness to learn, the orientation of learning relates to the assumption that "adults learn because they need to address issues in their lives" (Forrest & Peterson, 2006, p.119). Forrest and Peterson (2006) expanded the argument when noting adults enter the learning process from a person-centered or problem centered

mindset; thus, as they mature their time perspective changes to one of immediate application (Merriam & Bierema, 2014). As a result, professional development strategies centered on work and problem-centered learning are more "engaging and lend [themselves] to an immediate application (Merriam & Bierema, 2014, p. 54).

Motivation to Learn

While adults respond to external motivators, they are intrinsically motivated (Cox, 2015). In other words, "increased job satisfaction and improved quality of life lead adults to learn beyond what might be required by their place of employment (Merriam & Bierema, 2014, p. 54). Houle (1961) outlined three types of learning orientations: goal oriented, action oriented and learning oriented. The use of social media for professional development is goal, activity, and learning oriented (Cho, 2016; Dill, 2015) and thereby aligns with each of the learning orientations as outlined by Houle . Specifically, learners can accomplish goals, socialize with other learners, and focus on the new knowledge they are gaining through Twitter (Cho, 2016; Dill, 2015; Houle, 1961).

Need to Know

Merriam and Bierema (2014) further argued adults are motivated to learn when they need to know and can relate the content of their learning to current real-world problems. If leaders can effectively communicate why it is important for teachers to learn something before learning happens, teacher's motivation will be much stronger (Dill, 2015; Malik, 2016). Having answers to questions such as "how will the new information help me?", "How can I practically make use of it?" is critical to the success of the professional development and the use of technology (Cho, 2016; Dill, 2015).

Transformative Learning Theory

Mezirow (1991) first introduced the theory of transformative learning theory when studying the experiences of women who were resuming their education or were considering reentering to the workforce (Cox, 2015; Kitchenham, 2008; Parker, 2013). Just as Knowles (1975) identified the value of experience, transformative learning theory established that the experience of returning to the workforce and school caused the women in the study to "examine their assumptions about who they were and how they were the products of societal, cultural expectations of women at the time" (Merriam & Bierema, 2014, p. 84). Additionally, for transformative learning to take place it must involve three elements: the centrality of experience, critical self-reflection, and critical discourse (Kitchenham, 2008; Kroth & Boverie, 2009; Mezirow, 1991).

Forest Iii and Peterson (2006) postulated, "Andragogy is predicated on the belief that during the span of living, humans accumulate experience" (p. 118). While these experiences are important, an emphasis on the role experience plays in the learning process and how it impacts the learner's needs, beliefs, and assumptions, are grounded in transformative learning theory (Cox, 2015). Similarly, Mezirow (2000) argued, "Learning is understood as a process of using prior interpretation to construe a new or revised interpretation of the meaning of one's experience as a guide to future action (p. 5)." This new or revised interpretation related to the trends surrounding professional development strategies that leaders can employ, such as reflection. Moreover, the experiences we have shaped our thinking of how the world works; how we view our surroundings is a social construct that provides a foundation for critical reflection (Forrest Iii & Peterson, 2006; Mezirow, 1998; Mezirow, 2000).

Cranton and King, (2003) noted, "Professional development, to help educators understand what they do and why they do it, needs to incorporate activities that foster content, process, and reflection" (p. 34). Similarly, transformative learning theory revolves around the change of a learner's beliefs through critical reflection (Parker, 2014; Taylor, 2008; Taylor & Hamdy, 2013) and researchers (Kimmerle et al., 2015; Kroth & Boverie, 2009) argued that it is nearly impossible for transformative learning to take place without critical reflection. Moreover, it is considered a distinguishing characteristic of adult learning (Fornaciari & Lund Dean, 2014; Merriam & Bierema, 2014).

Mezirow (1991) further believed that transformative learning occurs as a result of a "disorienting dilemma" but concluded that learning might be a result of an accumulation of experiences over time that eventually comes together to foster a transformation (Mezirow, 1998, p. 193), through discourse. Discourse, in this current research, refers to dialogue involving the assessment of beliefs, feelings, and values with professional development (Merriam & Bierema, 2014; Merriam, Caffarella, & Baumgartner, 2007). Similarly, the ineffectiveness and non-personalized aspect of a "one size fits all" professional development approach started the movement of using Twitter as a platform for receiving, sharing, and collaborating on all things education (Cho, 2016). When educators think about how they learn, why they are learning, and what they are learning, they begin to question the norms set forth by their leaders. Taylor (2009) expanded this noting "dialogue becomes the medium for critical reflection to be put into action, where experience is reflected on, assumptions and beliefs question?, and habits of the mind are ultimately transformed" (p. 9).

Adult Learning Theory vs. Transformative Learning

Explored under the theoretical framework of learning theory were Knowles's (1975) theory of andragogy and Mezirow's (1991) theory of transformative learning. By reviewing the purpose of this inquiry and the stated research questions the theoretical framework of learning theory was allowed to funnel (Heppner & Heppner, 2010) down to the conceptual framework of adult learning theory. The focus of examining a leader's commitment to personal, professional growth using Twitter and transforming the culture of professional development in a secondary school setting, along with investigating how the leaders' presence on social media, impacts the collaborative and self-directed learning culture in a school setting, aligned appropriately with the elements of adult learning theory. While transformative learning theory encompasses the need for self-reflection and critical discourse, the six assumptions of adult learning theory connected to numerous aspects of learning through social media and the leader's role in that learning process, especially through self-directed learning. Learning using social media is not only a professional development strategy but also a different mindset of communicating and growing professionally (Cho, 2016; Couros & Jarret, 2012; Sheninger, 2014), and is used best when self-directed (Cox, 2016). With technological advances integrating into educators' daily lives, effective leaders must be prepared to provide sufficient guidance to take their teachers to the next level by creating a culture of self-directed learning through the use of social media.

Design of the Study

For this study, chosen was a mixed methods research as it involved the collection and analyzation of both quantitative and qualitative data. Applying a mixed methods

(Creswell, 2014) procedure afforded the researcher the ability to converge, as well as merge, quantitative and qualitative data to create a complete analysis of the research problem. Creswell (2014) further argued that analyzing both data sets equate a better understanding of the problem as opposed to a single data collection approach while allowing the use of inductive and deductive thinking. By gathering data from both quantitative and qualitative sources, the researcher was able to use both predetermined and emerging methods while collecting from both open and closed-ended questions (Creswell, 2014). Furthermore, the use of a mixed methods approaches minimized the limitations in both qualitative and quantitative research methods.

Selected was a convergent parallel mixed method case study (Merriam & Tisdell, 2016), also known as a mixed methods comparative case study (Creswell, 2015). There were four high schools in Missouri used to explore the relationship of the principal's use of Twitter and the self-directed professional development of teachers. The researcher interviewed the purposefully-selected principals while having the teachers fill out a quantitative survey (Kerrigan, 2014). The researcher then analyzed both sets of data, within each case and across cases.

Additionally, conducted was the concurrent triangulation strategy (Creswell, 2014; Merriam & Tisdell, 2016) during the mixed method study procedure. This strategy allowed the researcher to collect both quantitative and qualitative data concurrently and compare the two databases to determine if there was convergence, differentiation or a combination of the two (Creswell, 2003 Sapsford, 2007).

Setting

This inquiry was conducted on the campuses of four rural high schools within 90 minutes of Kansas City, each with a total enrollment of 600-750 in grades 9-12. Within these four high schools, a history of professional development was evident in their building and district improvement plans. Of these four high schools, two principals tweeted professional development topics and discussions more than five times per week, while principals who did not have a presence on Twitter for professional development purposes led the other two high schools. In all four high schools, technology access was similar as all participants had access to technology and Wi-Fi during the workday.

Participants

To examine how a leader's presence on social media impacts the professional development culture within a building, purposefully selected were principals based on their professional use or nonuse of social media. Creswell (2003) noted, "Purposeful sampling is used so that individuals are selected because they have experienced the central phenomenon" (p. 220). Similarly, Mertens (2005) highlighted researchers using purposeful sampling have a "goal of identifying information-rich cases that will allow them to study a case in-depth" (p. 317). Specifically, employed was purposeful criterion sampling since participants in this study were selected based on their use or lack of use of Twitter in their presentation of professional development to teachers. This purposeful sampling created an understanding of the research questions (Creswell, 2014), in addition to selecting a site that was a natural setting (Creswell, 2014) for the participants. Using participants' current high school as the site for gathering data, the researcher created the natural setting that would be conducive for optimal data

collection.

First, principals were chosen and categorized into a user of social media (5+ tweets a week) (n=2), and no presence at all on social media for professional development use (n=2). Within these two categories, the researcher interviewed each principal in an attempt to collect qualitative data and hear their voices about professional growth strategies and their impact on the culture of professional learning in their buildings. Additionally, randomly distributed were online surveys to the teachers (n=235) in each principal's perspective buildings. The researcher collected survey data from a random sample of the teachers, so the data set represented the school organization as a whole. Creswell (2014) stated the use of random sampling "reflects the true proportion of the population of individuals" (p. 158). Collected was quantitative data through a ten-item Likert scale developed by the researcher. Sent to 235 teachers was the survey; however response rate was low. In the treatment group, in which the administrators were present in social media, 57 participants filled the survey voluntarily. In the control group, 43 participants completed the survey with descriptive analyses ran for testing assumptions. As a result, data showed normal distribution.

Data Collection

Using the convergent parallel-mixed methods design approach allowed for the parallel collection of both qualitative and quantitative data, analyzed separately, and then merged (Bogan & Biklen, 2011; Merriam & Tisdell, 2016; Seidman, 2013). Within this multi-method approach, principal interviews, teacher surveys, and document analysis allowed the researcher to collect data that would offer "detailed views of the participants qualitatively and scores on the instruments quantitatively" (Creswell, 2014 p. 219). In an

attempt to understand if the findings confirmed or disconfirmed each other, the data were gathered from different sources and analyzed (Merriam & Tisdell, 2016). By using a mixed-methods approach, the researcher was able to analyze the main findings from administrators interviewed and triangulate with the perspectives of the teachers, along with the analyzed documents.

Prior to the start of the investigation, the researcher collected permissions from each school district gatekeeper (see Appendix C) to conduct and collect research in his/her district. After securing gatekeeper permissions and after the proposal hearing, the researcher submitted the formal University Institutional Review Board application. Upon receiving approval from the University of Missouri (see Appendix C3) the researcher then contacted participants to request their permission to participate in the study and letters of informed consent were collected (see Appendix B).

Principal Interview Protocol

As identified by researchers (Creswell, 2013; Marshall & Rossman, 2014) qualitative research centers around basic characteristics such as a natural setting, researcher as the key instrument, and reflexivity it offers for the researcher. These characteristics provided a framework (Bogan & Biklen, 2011) of analyzing a principal's commitment to professional development using social media and its impact on the professional development culture within the building they lead. Specifically, in most forms of qualitative research, the majority of data gathered are from interviews (Creswell, 2014; deMarrais, 2004; Maxwell, 2013).

In this research conducted were, face-to-face, semi-structured interviews with the four selected administrators. This interview protocol consisted of ten questions.

Specifically, interviewed were administrators on their personal views of self-directed professional development strategies, their commitment to professional development, as well as how they promote a culture of self-directed learning in schools they lead.

Additionally, each principal was asked questions regarding the use of technology to enhance personal learning and personalized learning for teachers. These sixty-minute interviews allowed the researcher to collect data from the open-ended semi-structured questions (deMarrais, 2004; Maxwell, 2013), but also observe the behaviors and dispositions the leaders had surrounding the topic of using social media for professional development.

Each participant took part in two audio-recorded interviews: one face-to-face interview and one follow-up telephone interview. Interviews were transcribed and interview analysis sent to each of the participants for review and member checking (Meriam & Tisdell, 2016), giving participants the opportunity to provide feedback and clarification to any of their responses and the researchers' interpretations.

A letter of confirmation, the interview questions (see Appendix A2), and a letter of informed consent (see Appendix B2) were emailed to each interview participant to confirm the date and time of interview and to provide time for the participants to review and reflect on the questions. Providing questions before the interview allowed principals time to reflect on their personal experiences in conducting professional development and prepare for the interview, a practice seldom found to slant the results of the interview (Merriam & Tisdell, 2016). The triangulation of interview transcripts and field notes enabled the researcher to code for adult learning theory and personalized professional learning themes found in the data.

Teacher Survey Protocol

Additionally, the use of survey research provided a “quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population” (Creswell, 2014, p. 155). The researcher designed a comprehensive and flexible data collection operation (Newcomer, Hatry, & Wholey, 2015) using a web-based survey (see Appendix A1), which was administered to teachers within the same high school building as the selected interviewed administrators. Web-based surveys gave the researcher more flexibility (Newcomer et al., 2015) and also allowed quick and efficient data analysis (Fink, 2017). Topics included perceptions of their principal and their involvement on social media, the teachers’ personal use of social media for professional development, and their views on whether promotion of a culture of self-directed learning occurred in their school.

To establish reliability, the researcher used test-retest reliability that determined the degree that scores are consistent over time (Gay, 1996). The survey was administered two times to the same group of fifteen educators within a three-week interval. Collected was feedback from the pilot group, and after analysis, no significant changes beyond editing and format errors occurred to the survey instrument. The score sets from the survey administration were correlated using the Pearson coefficient (r) to establish the stability for the reliability of the survey. A high coefficient of stability was the criteria for good test-retest reliability. Psychometric analysis was run to process further for group comparisons and correlations, validity and reliability of the survey over the pretest and posttest scores of the participants. Conducted were both Cronbach’s alpha internal consistency reliability coefficients and test-retest reliability statistics. Reliability analysis

run with 148 sample size indicated .60 Cronbach's alpha coefficient. This coefficient is within the acceptable range although a moderate or good reliability coefficient is not specified, but .70 is considered as adequate, .80 and above is accepted as good (Demiroz, 2016; Horner et al., 2004; Osborne, 2008). Then test-retest reliability statistics also calculated for pretest and posttest scores. As a result of test-retest reliability, the Pearson correlation coefficient is .72 ($p < 0.01$). Before the group comparisons and correlations statistics, construct validity evidence were collected. Factor analysis was completed for the scale. Content validity for the survey was determined by examining the literature on adult learning theory validated through a myriad of research (Fornaciari & Lund Dean, 2014; Forrest Iii & Peterson, 2006; Knowles, 1977; Knowles, 1984; Taylor & Hamdy, 2013).

Data Analysis

Using a convergent-mixed design came with the challenge of knowing how to merge the two datasets. Creswell (2014) stated that a side-by-side approach comparison approach would allow the researcher to make a "comparison within a discussion, presenting one set of findings and then the other" (p. 222). Qualitative findings were analyzed and compared with the quantitative results gathered from teachers' surveys. Qualitative data analysis involved the organization and examination of data for themes or issues to gain a deeper understanding of the data (Creswell, 2014). This analysis came in the forms of emerging themes from the principal interviews and documents.

Furthermore, use of case study for data analysis allowed the researcher to develop an "intensive, holistic description and analysis of a single, bonded unit" (Merriam & Tisdell, 2016, p. 232). Research questions one, two, and five were primarily answered

using qualitative data analysis. The use of quantifiable data results interpreted from a statistical test, and then presented in the form of a table was used for research questions three and four.

Additionally, the researcher used descriptive statistics to summarize the characteristics of the sample collected and inferential statistics to refine data to provide answers to the research questions. To distinguish differences between professional learning indicators as perceived by the teachers with principals using social media, and teachers with principals not using social media, an independent sample *t*-test for uncorrelated means was calculated, followed by the Eta test (Pearson Coefficient Test) to determine if there was a relationship between the two categorical variables: professional development with social media and professional development without social media. The level of significance was determined at $p < .05$.

To determine the relationship between teachers with professional development using social media, and those with professional development without a social media presence by the principal, a Pearson's *r* was conducted. The level of significance was determined at $p < .05$.

Validity using the convergent approach was based on "establishing both quantitative validity (e.g., construct) and qualitative validity (e.g., triangulation) for each database" (Creswell, 2014, p. 223). It was important to develop a systematic approach to collecting the ample amount of data to minimize differing sample sizes of the teachers' surveys, including using a web-based survey, as well as follow-up reminders and a communicated cut-off date. The researcher conducted continuous data analysis throughout the study to triangulate the data collected. The transcribed information

gathered from the interview, member checking to determine the accuracy of the qualitative findings (Creswell, 2014; Merriam & Tisdell, 2016), and a reflection onto the extent the survey measured the teachers' perceptions all provided further validation of the study.

Credibility of the Study

Addressing the researcher's biases, one must know that the researcher has been using social media for professional development for quite some time and has seen the value in learning through the use. Additionally, of the four administrators chosen for the study, three of them are professional colleagues of the researcher, which allowed not only an environment for free sharing but the possibility of affecting the interpretation of the findings (Creswell, 2014). However, keeping these biases at the forefront of interpreting the data helped to minimize the impact (Merriam & Tisdell, 2016).

The study was limited to four "rural" secondary high schools in the state of Missouri; thus, it would be difficult to generalize results to other schools whose principals may or may not be active on social media as a professional development tool (Creswell, 2014; Merriam & Tisdell, 2016). Additionally, there are limitations to this study as they relate to the self-designed survey instrument. However, through the use of content validity and the piloting of the survey with a test-retest format, minimized this limitation.

Similarly, the use of a mixed methods approach minimized the limitations in both qualitative and quantitative research methods validity using the convergent approach was based on "establishing both quantitative validity (e.g., construct) and qualitative validity (e.g., triangulation) for each database" (Creswell, 2014, p. 223). The researcher

conducted continuous data analysis throughout the study to triangulate the data collected. Furthermore, transcribed information gathered from the interview, member checking to determine the accuracy of the qualitative findings (Creswell, 2014; Merriam & Tisdell, 2016), and a reflection onto the extent the survey measured the teachers' perceptions all provided validity of the study.

Design Controls

The researcher utilized the following controls to reduce bias in the research conducted. To control for limitations of the case study, the researcher addressed biases by focusing on participants' experiences and opinion while placing personal experiences aside (Merriam & Tisdell, 2016). Consequently, interview questions were designed to include open-ended questions to generate honest discussion (Krueger & Casey, 2009) and were coded based on established adult learning theory. Accordingly, Merriam and Tisdell (2016) concluded it is important to code information "according to whatever scheme is relevant to the study, and according to the theoretical framework that informs the study" (p. 200).

Definitions of Key Terms

The following terms will be defined to provide a deeper understanding of the key constructs to enhance the readers' knowledge about the investigation:

Digital Leadership: "Establishing direction, influencing others, and initiating sustainable change through the access of information, and establishing relationships to anticipate changes pivotal to school success in the future (Sheninger, 2014 p. 1).

Sheninger (2014) outlined seven pillars of digital leadership, including communication,

public relations, branding, student engagement/learning, professional growth/development, re-envisioning learning spaces and environments, and opportunity.

Personalized Learning Network: “Collection of like-minded people with whom one exchanges information and engages in conversation” (Sheninger, 2014, p. 118)

Professional Development: “Activities that -
“(A) Are an integral part of school and local educational agency strategies for providing educators with the knowledge and skills necessary to enable students to succeed in a well-rounded education and to meet the challenging state academic standards; and
(B) Are sustained, intensive, collaborative, job-embedded, data-driven, and classroom-focused”. (Hirsh, 2015, p. 1)

Social Media: “Group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content” (Kaplan & Haenlein, 2010, p. 61)

Twitter: Internet-based social media platform used for communication in the form of “tweets, direct message, mentions (e.g., @ user), replies to (e.g., RT @ user), or hashtags (e.g., #topic)” (Rehm & Notten, 2016, p. 217)

Significance of Study

This study will provide a significant endeavor in promoting the use of social media for true personalized professional development and the importance for principals to model the characteristics of a lifelong learner. The greater demand for administrators and teachers to stay current in the ever-changing world of technology and education (Cho, 2016; Merriam & Bierema, 2014), justifies the need for more effective, personalized approaches to professional development (Dill, 2015). Thus, administrators

who embrace the use of social media for personalized professional development and communication will be able to foster a culture of self-directed learning and collaboration within their teachers (Sheninger, 2014; Visser et al., 2014).

For the researcher, the study will help uncover critical areas of effective leadership (Northouse, 2015) that may be missing from pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs. Effective leaders need to be well-versed in not only current technological advances (Sheninger, 2014) but also social media platforms that can be used to help grow professionals and create a self-directed professional development culture (Ahlquist, 2014, Dill, 2015). Moreover, if they do, are teachers more likely to embrace this new form of professional development?" is relevant information for current and future administrators as they navigate through the learning and leading in this digital age. Moreover, if this research can find a relationship between a principal's presence on social media, and how self-directed teachers are in their personal, professional development, this current and future research can be used to change the curriculum within pre-service leadership programs.

Summary

Professional development is key to the success of any professional, and with the digital age of rapid growth, warranting the need to examine the use of social media as a professional development tool. Unfortunately, some leaders find it difficult to inspire educators to embrace these new resources like a true form of professional development. To remain relevant and on the cutting edge, effective leaders must embrace the ever-

changing terrain of leading in the digital age and use social media as a viable instrument of change.

This mixed methods study (Creswell, 2016) combined with the conceptual framework of adult learning theory (Knowles, 1984) will collect perceptions and data within the four high schools studied. The focus of this study is to examine a principal's presence on social media and if that presence caused teachers to be more self-directed in their professional development.

Knowles (1975) defined self-directed learning as the “process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes” (p. 18). The way a principal fosters this culture of self-directed learning with teachers will further enhance professional development through personalized learning in schools.

SECTION TWO
PRACTITIONER SETTING FOR THE STUDY

Introduction

Substantial work remains for most school leaders toward creating a professional development culture geared towards meeting the needs of all teachers (Bayar, 2014; Birman, Desimone, Porter, & Garet, 2000; Kind & Evans, 2014). Not mentioned was professional development in federal policy until the *Professional Standards for Education Leaders* (PSEL) and the *Every Student Succeeds Act* (ESSA) was enacted in 2015 (Hirsh, 2015; Lam, Mercer, Podolsky, & Darling-Hammond, 2016). Likewise, Murphy, Louis, & Smylie (2017) stated the PSEL finally highlighted the importance of a school leaders' responsibility to develop the professional capacity of teachers and staff, thus changing the accountability of administrators in regards to professional development.

For this study, the researcher focused on four high schools, similar in enrollment size and organizational structure. Leaders of these organizations were categorized by their commitment to professional development on social media to distinguish differences between professional learning indicators as perceived by the teachers with principals using social media and teachers with principals not using social media. Histories of the organizations will be outlined to provide a clearer explanation of the organizations used in the study as well as the organization structure in a traditional k-12 setting. Next, an analysis focused on transformative leadership will attempt to provide a lens that will highlight the necessary characteristics needed of a leader who wants to transform the professional learning culture within the school they lead. Finally, explored were the implications for this type of research.

History of the Organization

Historical education roots of School District A can be traced back to 1830 when first settlers opened the first one-room schoolhouse. Since then, the school district has been a pillar of the community with small town values around an education system with strong teaching and learning culture. Furthermore, community members have demonstrated an appreciation for their schools through the financial backing in regards to various no-tax-increases and bond elections in the past 40 years.

Over the past three years, High School A's data has stayed consistent in the areas of student enrollment, student demographics, and students who qualify for free and reduced lunch. Within this 9-12 school building, data shows that the average yearly enrollment of High School A is 662 students with 17% of those students qualifying for free and reduced lunch (DESE). Of these 662 students, 91.2 % classified themselves as white or Caucasian (DESE). Additionally, the 56 teachers within High School A have an average of twelve years of experience, and 58.2% of the teachers on staff have a master's degree or higher. Consequently, the principal of High School A has been in the district for twenty-one years, currently holds a doctorate, and does not have a social media presence on Twitter. While Twitter is used for school branding, communication, and praise, there was no evidence of the use of Twitter by the principal for professional learning.

Proudly displayed on the district webpage, School District B's mission highlights its partnership with parents and the community while "providing educational opportunities for all students to achieve life-long learning skills through quality academic, vocational, and social, educational experiences in a safe and nurturing

environment” (School Website). This rural community is only forty minutes from a metropolitan area, thus most of the industry is located outside of the city limits.

The makeup school High School B consists of 52 teachers, 632 students, and a principal with ten years of experience within the district. Of these 52 teachers, 56.9% of them have advanced degrees and have been teaching for an average of 14 years. Additionally, the student body demographics reflect a lack of diversity with 94.9% classified as white/Caucasian but a need for extra support as 31.8% of the 632 students qualifying for free and reduced lunch. Lastly, while the principal has only been in the role as head principal for three years, previously he/she was an assistant principal in the district. Currently, they are not using Twitter for professional development purposes, but do showcase things going on in their school.

Comparatively to School District B, School District C is grounded in every aspect of its rural community. The symbols of school pride are woven throughout the community in business windows, yard signs, and city signs and community support are evident in the support given to schools for students in need as showcased on the school Facebook page. While the student need is much higher than the other districts used in the study, school demographics are relatively the same.

Within High School C, there has been a thirty-six student enrollment decline over the past three years. Currently, student enrollment numbers show that of the 606 students enrolled at High School C in 2017, 47.8 % qualify for free and reduced lunch (DESE). Like the other high schools in this study, the diversity of students is not prevalent as 93.3% of the students at High School are white/Caucasian (DESE). The investigation into the teacher and administrator demographics within the school building yielded

similar results as the previous schools discussed. Of the 63 teachers at High School C, 45.5% of have advanced degrees and have been in the teaching profession for 10.6 years (DESE). Unlike other principals researched in this study, High School C's principal has only been in the district for two years but has six years of administrative experience. The principal is in his first head principal job and is currently working in the process of completing a dissertation. This leader has a strong presence on Twitter for professional development as well as school branding.

The last school researched was High School D. The School District D is the largest of the four school districts in the study, and its mission is to ensure their students learn and empower their success. The students within the School District D are issued a MacBook. Thus one can conclude there is a rich technology culture in High School D.

Within this 9-12 school building, data shows that the 2017 enrollment of High School D is 843 students with 42.1% of those students qualifying for free and reduced lunch (DESE). Of these 843 students, 93.7 % classified themselves as white or Caucasian (DESE). Additionally, the 83 teachers within High School D have an average of fourteen years of experience, and 61.1% of the teachers on staff have a master's degree or higher. Consequently, the principal of High School D has been in the district for two years and currently holds a doctorate. Unlike the principal from High School C, the principal has seventeen years of experience in an administrative role and is very active on Twitter for professional development needs and also school branding.

Organizational Analysis

When creating a culture of personalized learning in a school, one must address the structural environment and human resource frames as outlined in Bolman and Deal

(2013). Bolman and Deal (2013) outlined many forms of an organizational structure including work from Henry Mintzberg. Mintzberg (1980) concluded that there were five sectors of an organization: operating core, middle line, strategic apex, techno-structure, and support staff. Within the structural frame (Bolman & Deal, 2013), a school district is loosely aligned to Mintzberg's (1980) five sectors with the teachers being the operating core, building level administration the middle line, and superintendent and school board the strategic apex.

Moreover, Missouri public high schools operate as what Bolman and Deal (2013) and Mintzberg (1980) would call a professional bureaucracy. In a professional bureaucracy, teachers are not only the bulk of the professionals in the organization but also have the autonomy in their work. They “work relatively freely not only of their administrative hierarchy but also their colleagues” (Mintzberg, 1980, p. 332). The control in a professional bureaucracy relies “heavily on professional training and indoctrination” (Bolman & Deal, 2013, p. 79). Unfortunately, professional bureaucracy can be slow to respond to external change as well as have problems when exercising control over the operating system. Thus, causes challenges between individuals in the operating core.

The organizations outlined in this research, High Schools A, B, C, D, all operate with the same number of administrators (one principal and one assistant principal) and roughly lead between 52 and 64 teachers collectively. Like most school districts, these building principals are tasked each year to develop a professional development plan for their school that supports the district's goals and implements this plan throughout the school year.

Bolman and Deal (2013) human resource frame focus on the relationship between the organization and the people and the needs of the people (Sabnett & Ross, 2007). Moreover, the assumption that “organizations exist to serve human needs” (Bolman & Deal, 2013, p. 117) and needs are met through “facilitation and empowerment” (Sabnett & Ross, 2007, p. 2) can be compared to the need for leaders to promote personalized professional development. Bolman and Deal (2013) concluded that progressive organizations invest in the development of their employees and recognize that learning must occur on the job. Investing time and resources into teachers is a key component of effective leadership. Likewise, effective leaders provide "responsive and flexible professional development opportunities" (Flanagan & Jacobsen, 2003, p. 127) to meet the needs of the teachers they lead.

School principals play a significant role in establishing or hindering an effective organizational structure, thus impacting the teaching and learning environment within a school (Birman, Desimone, Porter, & Garet, 2000; Flanagan & Jacobsen, 2003). To name a few, they are assigned roles such as student disciplinarian, organizational manager, teacher evaluator, and instructional leader. Instructional leadership focuses on “strengthening teaching and learning, professional development decision-making and accountability” (Thompson, 2017, p. 7). In this focus, principals are considered an instructional leader who works with staff to create a culture of continuous professional learning (Darling-Hammond et al., 2009; Desimone & Garet, 2015).

Schein (2005), Bolman and Deal (2013), Manning (2013), Levi (2015) defined culture as the shared values, beliefs, and norms of a team or organization. Each scholar reiterated how an organization’s culture could affect not only how he or she

communicates, but also how he or she coordinates work. As a result, when a principal is transparent in their learning, promotes learning through social media on a consistent basis, and exposes teachers to the engaging aspects of using social media for professional development, teachers are more likely to engage in the same behaviors (Edmunds et al., 2002).

Leadership Analysis

Currently, students are born into a digital lifestyle where self-directed learning and creativity are at the tips of their fingertips (Parker, 2013; Sheninger, 2014). These societal shifts “have a profound impact on teaching, infrastructure, resources, stakeholder relations, and learning culture” in our schools (Sheninger, 2014, p. 1). Consequently, this evolving educational landscape creates a culture in which leaders are forced to evaluate their current leadership practices and adapt to this new way of leading and learning to move their followers (Northouse, 2016). Research from Darling-Hammond et al. (2009) found that 90% of teachers in the United States participated in ineffective professional development sessions that did not impact their pedagogical practice nor student learning. These ineffective professional development sessions lack an individualized approach (Sheninger, 2014) and do not provide opportunities for learners to explore and interact with the material (Edmunds et al., 2002). Merriam and Bierema’s (2015) emphasized further by stating “given our every changing environment, it is no longer possible to learn everything we know and need to know” in a traditional professional development model (p.78). This focus on the needs of the followers as they adapt learning in the digital age lends itself to the research surrounding transformational leadership.

Transformational leaders require characteristics that will transform a professional development culture into a more personalized approach (Bass, 1985; Lanaj, Johnson, & Lee, 2016; Northouse, 2016). Northouse (2016) suggested four factors, within transformational leadership theory, that will allow leaders the ability to move towards a personalized professional learning culture: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration.

Idealized Influence

Lanaj, Johnson, and Lee (2016) concluded transformational leaders are cognizant of their follower's job satisfaction, self-efficacy, and creativity and leaders can achieve these outcomes by motivating and inspiring others as well as acting as role models in (Bass, 1985). This emotional component of leadership (Antonakis, 2012) transcends the importance of a principal as a strong instructional leader who models lifelong learning. For example, in idealized influence, teachers start to identify with their leaders and try to emulate them due to deeply rooted respect (Bass, 1990; Northouse, 2016). When principals demonstrate the use of personalized professional development in their professional learning, teachers will follow suit as it aligns with the leadership vision that was communicated (Neumerski, 2013). Desimone and Garet's (2015) concluded, "Teachers are more likely to use ideas and strategies from professional development opportunities when they are aligned with the leadership priorities" (p. 257).

Inspirational Motivation

Meaningful professional development goes far beyond learning a new way of doing things. It involves educators as a whole person. Thus, their values, beliefs, and assumptions about teaching are transformed not only for the betterment of their students

but also themselves (Cranton & King, 2003). Transformational leaders “communicate high expectations to followers, inspiring them through motivation to become committed to and part of a shared vision in the organization” (Northouse, 2016, p. 169). Using the discourse surrounding traditional one-size fits all professional development models, transformation leaders create connections with their followers to elevate motivation (Bass, 1985; Bass, 1990; Cline, 2015) in addition to encouraging followers to reflect on their current practice (Northouse, 2016). While teachers are internally motivated (Cox, 2015), effective principals commit to linking content to the needs and interests of the teachers (Merriam & Bierema, 2014) to increase external motivation.

Intellectual Stimulation

Effective principals create environments in which teachers feel comfortable taking risks in their learning while investigating creative ways to meet their individualized learning style (Ahlquist, 2014; Cox, 2015; Flanagan & Jacobsen, 2003). Moreover, transformative leaders “stimulate followers to challenge their own beliefs and values as well as those of the leader and the organization” (Northouse, 2016, p. 169). These aspects of intellectual stimulation are evident in promoting a culture of self-directed learning through the use of social media. Effective digital leaders inspire and support teachers in their individualized learning by showcasing how Twitter can be used to connect colleagues to share resources and collective problem-solving. According to Knowles, Holton, and Swanson (2014), it is more motivating for teachers when they see the need to solve a problem than if administrators present the issues as something of importance. “Intellectually stimulating leaders are willing and able to show their

employees new ways to looking at old problems, to teach them to see difficulties as problems to be solved and to emphasize rational solutions” (Bass, 1990, p. 21).

Individualized Consideration

Individualized consideration is all about an individualized approach in regards to creating a supportive culture (Bass, 1990; Lanaj et al., 2016; Northouse, 2016).

Transformational leaders give personal attention to their followers and “pay close attention to differences among their employees” (Bass, 1990 p. 21). Effective principals understand that not all teachers respond the same and are intentional about the tone, timing, wording, and body language and general conversations with teachers. One can compare individualized consideration with Goleman’s (2006) work in emotional intelligence. Emotional intelligence and awareness norms include “taking time to get to know each other to increase interpersonal understanding and ensuring equal participation so that all perspectives can be considered” (Levi, 2014, p. 109). Effective leaders who are trying to incorporate a technology-based professional development model need to be considerate of individual teachers learning needs as well as their comfort with using technology.

Implications for Research in the Practitioner Setting

The body of evidence reviewed suggests a need for a personalized approach to professional development to meet the needs of all teachers (Bayar, 2014; Desimone & Garet, 2015). Consequently, promoting these personalized opportunities for teachers’ rests on the shoulders of the leader in the building, the principal (Cos, 2015; Flanagan & Jacobsen, 2003; Neumerski, 2013). Principals play a key role in the professional development of the teachers they lead (Desimone & Garet, 2013) but are required to

“assume leadership responsibilities in areas with which they are unfamiliar, and for which they have received little training” (Flanagan & Jacobsen, 2003, p. 124). Lack of preparation is evident in a disconnect in “developing competent leaders capable of leading change using social media” (Ahlquist, 2014, p. 57).

Principals leading in the twenty-first century carries its own set of challenges as technology is changing the role of education leaders (Parker, 2013). Unfortunately, critical areas of effective leadership in this digital age are missing from pre-service leadership programs. This study hopes to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs.

Summary

Transformational leaders require characteristics that will transform a professional development culture into a more personalized approach (Bass, 1985; Lanaj et al., 2016; Northouse, 2016). Lanaj et al. (2016) concluded transformational leaders are cognizant of their follower’s job satisfaction, self-efficacy, and creativity and leaders can achieve these outcomes by motivating and inspiring others as well as acting as role models in (Bass, 1985). This emotional component of leadership (Antonakis, 2012) transcends the importance of a principal is a strong instructional leader who models lifelong learning. They have the capabilities to act as a catalyst for change (Flanagan & Jacobsen, 2003) as principals navigate through leading in the digital age. For leaders to meet the needs of the teachers they lead, they need to address and embrace change as these emerging technologies are changing the learning landscape.

SECTION THREE

SCHOLARLY REVIEW FOR THE STUDY

Introduction to Scholarly Review

In 2015, President Barack Obama signed the *Every Student Succeeds Act* (ESSA) that outlined a clear and specific definition of professional development in federal policy (Lam, Mercer, Podolsky, & Darling-Hammond, 2016). ESSA defined professional development as “an integral part of the school and local educational agency strategies for providing educators with the knowledge and skills necessary to enable students to succeed in a well-rounded education and to meet the challenging State academic standards” (Hirsh, 2015, p.1). Specifically, ESSA outlined that professional development activities are “sustained, intensive, collaborative, job-embedded, data-driven, and classroom-focused” and not a standalone event or workshop (Hirsh, 2015, p. 1). This move by the federal government demonstrates a commitment to viewing professional development as a continuous learning journey instead of a one-time, one-size-fits-all approach.

Moreover, bodies of leadership standards such as *Principal Instructional Management Rate Scale* (PIMRS) and the *Interstate School Leaders Licensure Consortium* (ISLLC) failed to include a commitment to professional development as outlined in their standards (Murphy, 2016; Murphy et. Al, 2017; National Policy Board for Educational Administration, 2015; Neumerski, 2013). The commitment all changed in 2015 when *Professional Standards for Education Leaders* (PSEL), was signed into law with significant attention to topics such as ethics, equity, culturally-responsive schools, and effective professional development (Murphy et al., 2017; National Policy Board for Educational Administration, 2015). These revised standards still apply to principals, assistant principals, and district leaders as outlined in the ISSC standards (Neumerski,

2013; Murphy, 2015) and promote more of a positive approach to leadership and the importance of relationships. Furthermore, Murphy, Louis, and Smylie (2017) stated PSEL standards “more fully describe a school leaders’ responsibility to develop the professional capacity of teachers and staff” (p.22), as evident in the Standard 6: Professional Capacity of School Personnel and Standard 7: Professional Community for Teachers and Staff (National Policy Board for Educational Administration, 2015). While Standard 6 speaks to the importance of building capacity in teachers and recruiting and retaining highly effective teachers, Standard 7 takes the conversation deeper by asking administrators to “foster a professional community of teachers and other professional staff” (National Policy Board for Educational Administration, 2015, p. 15). Specifically, under Standard 7 in the PSEL standards, effective leaders “develop workplace conditions that promote effective professional development” and “design and implement job-embedded opportunities for professional learning collaboratively with faculty and staff (National Policy Board for Educational Administration, 2015, p. 15). Additionally, Bayar (2014) concluded teacher continuous professional development “has become the most common central concern in education over the past several decades” (p. 321).

Effective leaders examine their work through the lens of the learner and model reflective professional development practices that promote a culture of self-directed learning (Fornaciari & Lund Dean, 2014). This self-directed learning helps adults learn in both personal and professional contexts (Merriam & Bierema, 2014). These learning assumptions hold as leaders deliberate about the professional development environment and opportunities for their teachers in their school. Knowing that a leader’s commitment to teacher professional development is a critical component of improving the teaching

and learning environment in a school, this research seeks to attest that administrators using Twitter for professional development create a culture in their building that promotes self-directed learning. While evidence of this connection has been established amongst teachers (Cho, 2016), there is little research on the association between an administrator's use of social media and the result it has on the teachers they lead. The researcher hopes to determine that administrators using Twitter to enhance teacher learning will create conditions that promote a culture of learning.

Adult Learning Theory as a Conceptual Framework

Various researchers such as Jones and Dexter (2014) and Malik (2016) have studied adult learning theory and its link to effective professional development. Comparing effective professional development methods with the six assumptions of adult learning theory, Kind and Evans (2014) argued, "social media tools that engage the learner are likely to be the most effective tools for lifelong learning" (p. 128). Using an online society like Twitter, educators are exposed to a platform of increased opportunities to learn (Kind & Evans, 2014) in which they can "share resources, ask and answer questions, and debate and discuss education issues of the day" (Couros & Jarret, 2012, p. 149). This shared space provides a unique opportunity for educators to support other teachers while fostering personal, professional growth (Kind & Evans, 2014; Merriam & Bierema, 2014; Sheninger, 2014). Moreover, Merriam and Bierema (2014) argued, "Given our ever-changing environment, it is no longer possible to learn everything we need to know" in traditional professional development models (p.78). Each of these six assumptions will be examined within the adult learning theory as they apply to the use of social media as a platform for individualized professional development.

Experience

Merriam and Bierema (2013) concluded that experience is the central component of understanding learning in andragogy, self-directed learning, and transformative learning and act as resources for learning. While lifetime experiences are different for each learner (Edmunds et al., 2002), they can “become an individual’s identify and form the foundation on which humans create their self-image” (Forrest & Peterson, 2001, p. 118). Edmunds et al. (2002) further describes experiences to include “misconceptions, biases, prejudices, and preference “(p. 5) and are rich resources for adult learning. Knowing the importance of experiences that teachers bring to professional development activities, one can conclude that this accumulated knowledge can be used to promote or derail a principal’s vision for professional development as “teachers come to professional development with various levels of experience” (Desimone & Garet, 2015, p. 255).

Research from Darling-Hammond et al. (2009) found that 90% of teachers in the United States participated in ineffective professional development sessions that did not impact their pedagogical practice or student learning. These ineffective professional development sessions lack an individualized approach (Sheninger, 2014) and do not provide opportunities for learners to explore, grasp, and interact with the material (Edmunds et al., 2002). These experiences with professional development can cause teachers to be leery about professional development opportunities and activities generated from the building level because they are not individualized to meet the needs of each teacher (Birman et al., 2000; Flanagan & Jacobson, 2003; Desimone & Garet, 2015). Effective professional development taps into the notion that the “goal of professional development is not to shift into a completely individualized experience but to provide

collective experiences targeting groups of teachers and administrators with similar needs and challenges” (Desimone & Garet, 2015, p. 255). Twitter can contribute to the continuous professional development of teachers by adopting informal learning (Rehm & Notten, 2016).

Further, creating a flexible and informal learning environment that allows educators to connect with other educators (Greenhalgh & Koehler, 2016) allows teachers to share and reflect on experiences with like-minded individuals for their personal, professional development. Twitter allows learners to stay current and foster professional growth (Kind & Evans, 2014) without the cost of expensive out-of-town training (Cho, 2016).

Readiness to Learn

Readiness to learn refers to the learners’ maturity and their likelihood to seek out new information (Cox, 2015; Knowles, 1977). When learners reach adulthood, they begin to see the value of education and are more focused on the act of learning. Understanding principals play a key role in the professional development of the teachers they lead (Desimone & Garet, 2105) by “creating environments where adult interests are free to surface” (Forrest & Peterson, 2006, p.119), Cox (2015) concluded adults learn when they are ready to learn and when they need to learn and relevance is key. More specifically, it is important for leaders to understand that new teachers and veteran teachers often have varying needs that various activities and opportunities can meet (Masuda, Ebersole, & Barret, 2013). It is imperative for leaders to be cognizant of the timing of new learning as adults tend to not value learning if they feel like they do not need to know the material being present (Desimone & Garet, 2015). Social media

platforms, such as Twitter, can easily be used to accommodate the learning styles of both new and veteran teachers and “be the most effective tools for lifelong learning” (Kind & Evans, 2014). Moreover, Kind and Evans (2014) add that variety is key to professional development as “teachers vary considerably in their response to the same professional development” (p. 255).

As one matures, a person's readiness to learn changes with the developmental tasks of their social roles (Knowles, 1984). As a teacher matures throughout their career, the social roles they have within the school setting start to evolve (Masuda et al., 2013). For some teachers, they start to evolve into teacher leaders, department chairs, or have aspirations for moving to an administrative role (Birman et al., 2003; Neumerski, 2013). It is important for principals to recognize maturity in teachers and provide them with opportunities to take on a more complex role within the school community (Remijan, 2014). Additionally, Hattie (2013) concluded that teacher-driven professional development activities tend to be more effective than administrative-driven. Effective principals employ teacher leaders to use social media as an opportunity to build their leadership capacity while promoting learning in others (Sheninger, 2014). Furthermore, this shows support for continued learning throughout the school community (Remijan, 2014).

Orientation to Learning

Closely related to readiness to learn, the orientation of learning relates to the assumption that “adults learn because they need to address issues in their lives” (Forest & Peterson, 2006, p. 119). They enter the learning process from a performance-centered or problem-centered mindset (Forrest & Peterson, 2006) and can use what they are learning

and apply it to their work or problem (Cox, 2015; Edmunds et al., 2002). This problem-centered way of learning is “preferred by adults because it is more engaging and lends itself to the immediate application, which in turn solidifies learning” (Merriam & Bierema, 2014). Moreover, Neumerski (2013) attests that “learning is likely to be co-constructed, not only between leaders and teachers but among groups of leaders, teachers, students, and their contexts” (p. 334). For example, in education, teachers may take on new learning challenges to address problems that exist in their classroom, department, and school.

One can conclude that readiness to learn relates to the work Mezirow (1991) when talking about critical discourse in the transformational learning theory. Discourse, in this research, refers to dialogue involving the assessment of beliefs, feelings, and values with professional development (Merriam & Bierema, 2014; Merriam et al., 2007). Similarly, the ineffectiveness and non-personalized aspect of a "one size fits all" professional development approach started the movement of using Twitter as a platform for receiving, sharing, and collaborating on all things education (Cho, 2016; Couros & Jarret, 2012; Sheninger, 2014). When educators think about how they learn, why they are learning, and what they are learning and they begin to question current professional development methods. Social media allows learners to select opportunities in areas where they need improvement (Desimone & Garet, 2015) as well as provide on the spot, timely professional development to help problem solve (Greenhalgh & Koehler, 2016). Additionally, Twitters provides learners with an interactive platform where shared information occurs in real time (Kind & Evans, 2014).

Motivation to Learn

While adults respond to external motivators, they are internally motivated (Cox, 2015). “Internal incentives, such as the need for esteem, the desire to achieve, the urge to grow, the satisfaction of accomplishment, the need to know something specific, and curiosity” have shown to increase a learner’s motivation (Knowles, 1975, p. 21)”

According to Knowles, Holton, and Swanson (2014), it is more motivating for teachers when they see the need to solve a problem than if administrators simply present the issues as something of importance. While not all learning is internally motivated, effective principals commit to linking content to the needs and interests of the teachers (Merriam & Bierema, 2014).

Houle (1961) identified three types of learning orientations: (1) goal-oriented learners who are working on accomplishing another goal, (2) activity-oriented learners who want to socialize with other learners and participate in the activity, and (3) learning-oriented learners who are focused on the new knowledge they are learning. Comparing these learning orientations to motivation to learn, one can conclude that the use of social media can motivate teachers in their learning. This shared space can meet the needs of all three of these learning orientations through its active participation (Bayar, 2014), personalization (Cho, 2016; Couros & Jarrett, 2012; Sheninger, 2014) and the notion that the learner decides and organizes all aspects of the learning (Haworth, 2016).

Need to Know

Knowles’ (1984) assumption that need to know goes hand in hand with internal motivation correlates to Bayar (2014) conclusion that it is important to adult learners that the focus of professional development opportunities is towards the existing school needs

as well as individual needs. Adult learners are motivated to learn when they have a need to know and are ready to learn (Cox, 2015; Edmunds et al., 2002), and principals should be intentional about providing or exposing teachers to information to groups. For example, not all teachers are going to need intense training in classroom management techniques. These should focus on new teachers as well as those that have shown a specific need for these types of training. Furthermore, it is beneficial for the leader to start with the why when introducing new learning opportunities because of this assumption that adult learners need to know (Knowles, 1984; Merriam & Bierema, 2014).

In this digital age, information is consistently at our fingertips 24/7 where we can “freely exchange and have instant access to information” (Merriam & Bierema, 2014, p. 190). Social media allows the learner to stay current and foster professional growth at times that are convenient for the learner (Haworth, 2016; Kind & Evans, 2014; Rehm & Notten, 2016), and promotes lifelong, continuous learning (Cho, 2016; Greenhalgh & Koelher, 2016; Kaplan & Hanenlien, 2010).

Self-Directed

Knowles (1975) defined self-directed learning as a process “in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating those learning outcomes” (p. 18). When learners start to mature, they become more independent and self-directed in their learning (Cox, 2015; Knowles, 1984). In this key assumption of adult learning, self-directed learning is considered to be the “primary process and

defining characteristics of adult learners” (Merriam & Bierema, 2014, p. 78). The adult learner plans and organizes all aspects of learning (Haworth, 2016; Knowles, 1975) and begins to take more responsibility of one’s actions in learning (Merriam & Bierema, 2014, p. 78). Researchers Forrest and Peterson (2006) stated: “adults naturally seek to direct their own educational experience (p. 16), while Knowles (1975) added that this type of learning is the “best way to learn” (p. 10). Additionally, Twitter provides a platform for learning to be continuous and at the fingertips of all learners (Haworth, 2016; Manca & Ranieri, 2016; Sheninger, 2014). It allows educators to “share resources, ask and answer questions, debate, and discuss education issues” (Couros & Jarret, 2012, p. 149) while conversing with like-minded professionals (Cho, 2016; Sheninger, 2014). Moreover, the use of hashtags “allows individuals to include their contributions in a larger conversation about a certain topic” (Rehm & Notten, 2016, p. 217).

Consequently, there are situations in which adults are going to be learning new material and may be more dependent on the teacher or leader to guide them through their learning (Merriam & Bierema, 2014). While Carpenter and Krutka (2014s) found that teachers consider Twitter to be a grassroots form of professional development for their research, navigating through the digital age can become a new skill for other teachers (Cho, 2016). Parker (2013) agrees that technology is changing and challenging the role of education leaders. Effective leaders inspire their staff by modeling the use of social media (Sheninger, 2014) while providing professional development opportunities for their teachers (Flanagan & Jacobson, 2003).

Professional Development

Throughout their career, a teacher can experience a vast range of professional development activities that aim to increase knowledge and skills that will improve teaching practice (Kind & Evans, 2014). Traditionally, these activities are in the form of educational seminars, conferences, and building-specific training (Bayar, 2014; Desimone & Garet, 2015; Kind & Evans, 2014). These administrative-driven or district initiative training can miss the mark for teachers as they seldom embody characteristics of effective professional development. Bayar (2014) attested while short workshops are shorter in time commitment, they “tend to be less effective” as they offer little to no impact on teacher pedagogy skills (p. 321). Sheninger (2014) added traditional methods of professional development lack connection and conversation and attests that “connectedness should be the standard, not just an option in education” (p. 124). Merriam and Bierema (2015) further stated “given our every changing environment, it is no longer possible to learn everything we know need to know” in a traditional professional development model (p.78). To emphasize further, Darling-Hammond, Wei, Andree, Richardson, and Orphanos (2009) found that 90% of teachers in the United States participated in ineffective professional development sessions that did not impact their pedagogical practice or student learning. The most effective forms of professional development incorporate components of social interaction (Cranton, 1996; Desimone, 2009; Matherson & Windle, 2017) and provide opportunities for teachers to explore and reflect (Edmunds et al., 2002).

Bayar (2014) determined teachers find professional development effective when based on their needs (individualized), match the existing needs of the school, and involve

teachers in the design and planning process. Comparatively, researchers Birman et al. (2000) highlighted the importance of incorporating active learning activities that are “consistent with teacher goals, building on early activities, and involve teachers in discussing their experiences with other teachers and administrators in the school” (p. 31). Nevertheless, when comparing effective professional development to Knowles’ six assumptions in the adult learning theory, research shows that effective professional development models are based on the individual needs of the participants, built upon teacher experiences, are orientated to learning, motivation to learn, and are self-directed (Bayar, 2014; Birman et al., 2000; Cox, 2015; Desimone & Garet, 2015; Edmunds, et al., 2002; Flanagan & Jacobsen, 2003).

The historical “one size fits all” approach of professional development with teachers (Malik, 2016; Moreillon, 2016) has morphed into the need for a more personalized technology-based method (Ahlquist, 2014; Cho, 2016; Dill, 2015; Visser et al., 2014). This style of informal learning (Jones & Dexter, 2014), through the use of Twitter, allows learners the “opportunity to exchange information and experiences, while connecting with other people and learning from and with each other” (McKinney, Labat Jr, & Labat, 2015, p. 216). With technology, teachers can “work, learn, and study whenever and where they choose” (Merriam & Bierema, 2014, p. 205) and specifically use what they are learning and apply it to their work (Cox, 2015).

Meaningful professional development goes far beyond learning a new way of doing things. It involves educators as a whole person. Thus, their values, beliefs, and assumptions about teaching are transformed not only for the betterment of their students but also themselves (Cranton & King, 2003). In the digital age, individuals can freely

exchange and have instant access to information (Kind & Evans, 2014; Merriam & Bierema 2014). Parker (2013) argued, technology has not only infused every aspect of society, but it is substantially changing how we communicate, think and learn. It can connect adults to the younger generation, provide a "wide range of applications that enable users to create and share comments" (Manca & Ranieri, 2016, p. 217) and foster feedback and collaboration (Kind & Evans, 2014). Furthermore, the utilization of social media, more specifically Twitter, has drastically changed how we learn as professionals. While a connected learner is still supported in the traditional methods, the use of digital tools can allow a teacher to tap into other professional learning resources (Sheninger, 2014).

Collaboration

DuFour (2004) indicated "collaboration is a systematic process in which teachers work together to analyze and improve their classroom practice" (p. 6). This essential component of effective professional development (Rubin, 2009) requires learners to exchange ideas and experiences, reflect on their current practice and grow through giving and receiving feedback (Rehm & Notten, 2016). Social media creates this space that can foster professional growth (Kind & Evans, 2014) and select growth opportunities in areas where they need improvement (Desimone & Garet, 2015).

Social media is not a fad that will eventually go away (Ahlquist, 2014). Its properties allow for a new way of communicating (Ahlquist, 2014) and are the platform choice for connecting educators with other professionals in their field (Cho, 2016). Educators can engage in both "consumption and publication of knowledge" (Sheninger, 2014 p. 119) while linking other professionals from across the globe (Cho, 2016; Kind &

Evans, 2014). Comparatively, Couros and Jarret (2012) stated that Twitter is where educators go to "share resources, ask and answer questions, and debate and discuss issues" (p. 149). It is the connecting, sharing, and gathering of information aspects of Twitter that is forever changing the way educators learn and consequently should be affecting how principals lead.

Sheninger (2014) defined a Personal Learning Network (PLN) as the "collection of like-minded people with whom one exchanges information and engages in conversation" (p. 118). Its primary objective is professional growth as it provides a means to connect minds with the purpose of sharing resources and engage in collective problem solving and (Cho, 2016; Sheninger, 2014). This connectedness facilitates learning in a way that is meaningful to adults as it is timely, relevant, and self-directed (Meriam & Bierema, 2013). Within a PLN, learners can foster their professional growth by staying current with emerging trends while engaging in a creative and collaborative environment (Ahlquist, 2014; Kind & Evans, 2014). These networks provide unique opportunities for educators to support learners through the use of social media.

Individualized

Individualized professional development not only transcends into the assumptions of Knowles' (1975) adult learning theory but also is a key component of effective professional development (Bayar, 2014; Birman et al., 2000; Kind & Evans, 2014). As indicated in research, variety is key to professional development as "teachers vary considerably in their response to the same professional development (Desimone & Garet, 2015, p. 255) and should be calibrated to meet the needs of all learners (Ahlquist, 2014). Twitter allows all learners (teachers and administrators) to navigate through its platform

to find information, "share resources, ask and answer questions, and debate and discuss education issues of the day" that is adapted to their current professional need (Couros & Jarret, 2012, p. 149). Twitter is considered the platform of choice for connecting with other educators (Cho, 2016). Additionally, it creates a space where educators can connect to the younger generation (Manca & Ranieri, 2016), allowing lessons to be more relevant to the current times. As a result of this continual collaboration, giving and receiving feedback comes to the forefront of this communication (Kind & Evans, 2014) therefore, changing the educator's knowledge base to impact teaching and learning within their classroom.

Twitter allows educators the ability to participate in on the spot timely professional development at the tips of the fingertips (Greenhalgh & Koehler, 2016) tailored to their specific needs as an educator (Desimone & Garet, 2015; Flanagan & Jacobson, 2003; Kind & Evans, 2014). The notion that informal and formal professional development/learning has to take place within the four walls of a school building or professional conference is absurd when one investigates the potential Twitter holds. Through the use of hashtags, educators can search for topics related to their field, content area, or specific pedagogical need (Rehm & Notten, 2016), providing educators the flexibility to learn at their own pace while connecting with other educators in the same content area (Sheninger, 2014).

Sustainable

Studies on effective professional development from Bayar (2014) and Birman, et al. (2000) concluded that learning should be viewed as a long-term engagement and should be sustainable past the initial introduction of information. As proven by Birman,

et al. (2000), professional development using social media allows for a longer duration of learning and its use provides an effective tool for lifelong learning (Kind & Evans, 2014). Perrin (2015) states that social media usage has grown from 7% to 65% in adults from the years 2005-2015 thus it is doubtful that it will be going away anytime soon (Ahlquist, 2014). This sustainable product not only promises to be a source of information for many years but also promotes continuous communication for learners across all genres.

There are many aspects of Twitter that promote sustainability in learning including the ease of the use, real-time information, use of hashtags to find information easily, and also the participation in Twitter chats. Twitter chats are live scheduled events, usually moderated and focused around a pre-defined topic (Hitchcock & Young, 2016; Seger, Hill, Stafne, & Swadley, 2017; Smarty, 2012) and are organized by the inclusion of a hashtag. The hashtag allows users to search for content talked about within the chat (Rehm & Notten, 2016) while conversing with like-minded educators to learn information about the pre-determined topic. During the chat, participants can consume information by reading the responses from other users, retweet comments that are interesting to them, as well as engage in the conversation by participating in the chat through the form of a tweet (Seger et al., 2017). According to the Twitter Chat website, there are roughly 350 education-related twitter chats that range from weekly, bimonthly and monthly ("Twitter Chats," n.d.). As research has shown, there is an endless amount of information that educators can access, at any time, about any subject, that will meet their learning needs (Cho, 2016; Couros & Jarret, 2012; Sheninger, 2014;

Transformational Leadership in the 21st Century

Northouse (2016) attests that transformational leadership is a “process that changes and transforms people” while “moving the followers to accomplish more than what is usually expected of them” (p. 161). Additionally, transformational leaders engage with their followers and create connections, thus increasing motivations because they are truly focused on the needs of the followers (Bass, 1985; Northouse, 2016). Transformational leaders require characteristics that will transform a professional development culture into a more personalized approach (Bass, 1985; Lanaj et al., 2016; Northouse, 2016).

In an efficient, professional development culture, principals are considered an instructional leader who works with staff to create a culture of continuous professional learning (Darling-Hammond et al., 2009). The concept of instructional leadership “first became popular in the United States in the 1980s as researchers concluded from various studies that the principals who lead the most effective schools were primarily focused on curriculum and instruction rather than on other administrative matters” (Suh, 2013). In support of this research, Thompson (2017) concluded that effective instructional leaders were focused on strengthening teaching and learning while promoting a sustainable professional development culture and substantiated by Robinson et al. (2008) study which states a “school’s leadership is likely to have more positive impacts on student achievement and well-being if it is able to focus on the quality of learning, teaching, and teacher learning” (p. 668). This principal-centered approach to teacher learning is key to creating an effective school culture (Neumerski, 2013).

Technology is affecting what we learn, teach, and gather information while changing and challenging the role of education leaders (Parker, 2013; Sheninger, 2014). With the use of technology, learners can be at the center of their practice and professional development (Cho, 2016; Dill, 2015), while collaborating with other educators from across the globe (Carpenter & Krutka (2014a). Principals play a key role in the professional development of the teachers (Desimone & Garet, 2015; Hilton, Hilton, Dole & Goss, 2015) by creating opportunities to dialog through individualized professional development plans and look to build opportunities to collaborate with educators (Flanagan & Jacobsen, 2003). A study done by researchers Hilton, Hilton, Dole, and Goss (2015) found that when administrators learn alongside teachers, teachers were perceived to be more supported and encouraged to experiment with various professional opportunities. Comparatively, Desimone and Garet (2015) study concluded that that “teachers are more likely to use ideas and strategies from professional development opportunities when they are aligned with the leadership priorities” (p. 257).

Forrest and Peterson (2006) agreed an effective leader provides direction to foster a culture of self-directed learning in the teachers they lead. While teachers might be more dependent on the leader as they navigate through a new way of learning using social media, the goal is that teachers become more self-directed in their learning (Cox, 2015; Knowles, 1984; Merriam & Bierema, 2014; Sheninger, 2014). Alhquist (2014) argued there "exists a gap in developing competent leaders who are capable of leading change using social media" to the lack of training in areas of technology (p. 57). This lack of training for developing skills needed for principals to function in the digital age as

technology leaders lacks in current pre-service leadership programs (Flanagan & Jacobsen, 2003).

Sheninger (2014) was quoted in his article *Pillars of Digital Leadership* saying that “Leadership is no different today than it was years ago. The only difference is that style and focus need to change with the times if we are to accomplish the lofty task of preparing students for the dynamic world, that is more socially connected as a result of technology” (p. 1). Additionally, Ahlquist (2014) indicated that for leaders to address and embrace change, emerging technologies are critical to building competence. This social aspect of learning is one of the major driving forces behind this research as Twitter is an online society with increasing opportunities for learning that can connect geographically diverse people while having accountability partners in learning. This connectedness is the essential component to cultivate innovative practices and drive sustainable change" (Sheninger, 2014, p. 122).

Conclusion

The overarching focus guiding this study was whether a principal’s presence on Twitter transformed the culture of professional development in a secondary school setting. The professional development culture, defined by the researcher, included the teaching and learning priorities of a school as well as the collaborative environment between teachers. Moreover, the literature showed that schools could not achieve the fundamental purpose of learning for all if educators work in isolation (Malik, 2016; Taylor & Hamdy, 2013). This research aimed to provide leaders with not only the conceptual framework of adult learning theory to frame the use of Twitter for professional development, but also serve as a guide for ways to implement these practices

in a school setting transforming the culture within the building. Furthermore, this research was intended to be used by higher education systems to prepare enhanced pre-service to administrators on how they can better meet the needs of their teachers regarding professional development through the effective use of social media.

SECTION FOUR
CONTRIBUTION TO PRACTICE

Introduction

Not adequately research is the administrator's role, in this digital age, of providing personalized professional development to teachers to help them grow as an educator (Cho, 2016; Dill, 2015). While school districts and principals are required to provide professional development for their teachers, traditional methods came in the form of a conference or building specific training (Matherson & Windle, 2017). Research supported that the most effective professional development incorporates components of social interaction (Desimone, 2009), are personalized to meet the needs of that the teacher (Sheninger, 2014), as well as include opportunities for teachers to explore and reflect (Edmunds, Lowe, Murray & Seymour, 2002). As argued by Cho (2016) a personalized approach will transcend into the core values of each educator and promote a culture of self-directed learning. Even while principals are required to train educators on district-led initiatives, they often have autonomy and flexibility to promote a culture of continued personalized professional development within their respective buildings (Cours & Jarrett, 2012; Desimone, 2009). As a result of these challenges, the overarching focus of this inquiry was to seek to answer, "Is it the leader's responsibility to showcase that personalized and public learning through the use of social media? Moreover, if they do, are teachers more likely to embrace this new form of professional development?"

Research Questions

The research questions guiding this study were:

1. How has the digital age impacted principals' perceptions of personal, professional growth strategies?

2. How does a principal's commitment to personalized professional development, using Twitter, promote a culture of collaboration and self-directed learning?
3. Is there a difference in teacher's perceptions of professional development if their principal is active on social media or not active on social media?
4. Is there a relationship between a principal's presence on social media, and how teachers are self-directed in their personal, professional development?
5. What are principal preparation programs doing to prepare their students to be digital leaders?

Connection to Conceptual/Theoretical Framework

Effective leaders examine their work through the lens of the learner and model reflective professional development practices that promote a culture of self-directed learning (Fornaciari & Lund Dean, 2014). This self-directed learning helps adults learn in both personal and professional contexts (Merriam & Bierema, 2014). These learning assumptions hold as leaders deliberate about the professional development environment and opportunities for their teachers in their school.

In examining learning theory and how leaders promote an environment of personal, professional development, two theories were explored in-depth: adult learning theory (Knowles, 1975) and transformative learning theory (Mezirow, 1991). Explored were both Knowles's (1975) theory of andragogy and Mezirow's (1991) theory of transformative learning under the theoretical framework of learning theory. The focus of examining a leader's commitment to personal, professional growth using Twitter, and transforming the culture of professional development in a secondary school setting, along

with investigating how the leaders' presence on social media impacts the collaborative and self-directed learning culture in a school setting, aligned appropriately with the elements of adult learning theory. While transformative learning theory encompasses the need for self-reflection and critical discourse, the six assumptions of adult learning theory connected to numerous aspects of learning through social media and the leader's role in that learning process, especially through self-directed learning. Learning using social media is not only a professional development strategy but also a different mindset of communicating and growing professionally (Cho, 2016; Couros & Jarret, 2012; Sheninger, 2014), and is used best when self-directed (Cox, 2016). With technological advances integrating into educators' daily lives, effective leaders must be prepared to provide sufficient guidance to take their teachers to the next level by creating a culture of self-directed learning through the use of social media.

Participants and Data Collection

Conducted on the campuses of four rural high schools within 90 minutes of Kansas City, each with a total enrollment of 600-850 in grades 9-12 was this mixed design inquiry. Within these four schools interviewed was each head principal and subsequently, their teachers surveyed. Of these four high schools, two principals (High School Principal C and D) tweeted professional development topics and discussions more than five times per week, while Principals A and B did not have a presence on Twitter for professional development purposes led the other two high schools. In all four high schools, technology access was similar as all participants had access to technology and Wi-Fi during the workday. Provided in Table 1 is a description of the organizational structure of the participants involved in the study.

Table 1

Description of Organization Structure of the Participants

School	Student		Teacher			Principal	
	Enrollment	F/R Lunch	Total Teachers	Avg Exp	Advanced Degrees	Yrs at Site	Degree
A	622	17%	56	12	58.2%	8	Doctorate
B	632	31.8%	52	14	56.9%	4	Masters
C	606	47.8%	63	11	45.5%	2	ABD
D	843	42.1%	83	14	61.1%	3	Specialist

Note: N = 4 interview participants; High School Principals A and B did not have a presence on social media; Principals C and D had a presence on social media.

The researcher designed a comprehensive and flexible data collection operation (Newcomer, Hatry, & Wholey, 2015) using a web-based survey (see Appendix A1), administered to all teachers (N= 235) within the same high school building as the selected interview administrators. Two hundred and thirty-five teachers received the survey. Fifty-seven teachers who had administrators present in social media completed the survey, whereas forty –three participants completed the survey from the school where their administrator had no social media presence. Survey topics included perceptions of their principal and their involvement in social media, the teachers’ personal use of social media for professional development, and their views on whether promoted was a culture of self-directed learning. Illustrated in Table 2 is the number of participants from each group. Group one includes teachers led by a principal who has a social media presence while group two participants are under the leadership of a principal who is not active on social media for professional development gains.

Table 2

Description of Survey Participants

	Group #1 Principal had a Presence on Social Media	Group #2 Principal had no Presence on Social Media
Number of Responses from Teachers	59	47

Note: 235 teachers sent the survey

Lastly, the researcher attempted to collect data from all of the nineteen higher education institutions in Missouri that offer a pre-service leadership degree using a survey (Appendix A3). Thirteen of the nineteen institutions responded from 30 professors who teach in leadership preparatory programs in Missouri. The response from the thirty professors within the thirteen institutions provided ample data for the researcher and helped to answer research questions one and five.

Presentation of the Data

Presented in this section are the results of the study, including both qualitative and quantitative analysis. The data analysis procedure was multi-step and addressed the five research questions. Using a convergent-mixed design came with the challenge of knowing how to merge the two datasets. Creswell (2014) stated that a side-by-side approach comparison approach would allow the researcher to make a “comparison within a discussion, presenting one set of findings and then the other” (p. 222). Answered qualitatively was research questions, while two and five were answered using both qualitative and quantitative data analysis. Specifically, analyzed and triangulated were the qualitative findings with the quantitative results gathered from teachers’ surveys. For

research, questions three and five the use of quantifiable data results interpreted from a statistical test, and then presented in the form of tables and figures.

Research Question One

How has the digital age impacted principals' perceptions of personal, professional growth strategies?

Despite not having any formal training from their leadership programs, all four principals have found a way to navigate through the digital age in their own way. Principals C and D, who have a presence on social media, have embraced the accessibility that technology provides as well as the specific information that can be gathered from using technology for professional development. As Principal D highlighted, “when I see something that interests me, or I think might help one of my teachers I share it instantly” On the other hand, Principals A and B, who do not have a presence on social media, both stated they use technology but neither specifically spoke to how technology has changed their professional growth. Principal B noted social media “is a great communication tool. And that is something that I probably use it more as a communication tool and a PR tool than professional development.” Both C and D who were the principals using technology for professional development stated that technology has made it easier to gather knowledge that they have more control over what learning they participate. As illustrated by Principal C, social media is “something I can seek out exactly what I'm needing. It's not just a canned. I can seek out what leadership or what content I want and go find it.”

Unlike Principal A, who stated, “I have had no training on using technology for professional development”. Principal C highlighted, “I was exposed to the use of social

media as a tool for professional development by a past mentor.” Principal C went on to illustrate, “This mentor provided training for all administrators in their district and fueled my need and use for personalized learning through the use of technology.” While Principal D attested “Twitter’s platform allows me to “search for information at my fingertips” and then added, “there is not a huge need to meet face to face with other professionals in the field of education” like there once was.”

Before the digital age, the majority of professional development opportunities out there for leaders came in the form of conferences or meetings. Both Principal C and D appreciated that they could “share ideas outside of the school day with the staff and community”. Principal C went on to say that unfortunately, the “challenge is getting people started using technology as a tool for professional development.” Principal C further anticipates once educators get started using technology for professional development “it will start to take care of itself.” Comparatively, Principal D has “seen the value” in the using social media for gains in their professional growth and “has made it a part of their morning routine.” Principal D “gets to school forty-five minutes before school starts and spends that time on Twitter” looking for learning opportunities and subjects about their professional growth.

Conversely, Principals A and B’s perception regarding how the digital age has influenced their perceptions of professional growth strategies were different. For instance, Principal A stated

My assistant superintendent leads professional growth activities for all of the district administrators. Very rarely, do these learning activities involve technology

or social media. On my own time, I do not use social media as a tool for professional growth or for my teachers.

Furthermore, Principal B attested as someone from the “older generation; the learning curve is huge.” Principal B went on to say that, “it is something that someone in my generation has to value and see important to stay current on.” These statements correlate to the information gathered from pre-service leadership program professors, as there is a lack of training for those individuals who have been in education for an extended amount of time. As one professor noted, “I do not know of any specific ways for students demonstrate their knowledge around the concept of digital leadership.”

Quantitative Data Analysis

Quantitative data was collected through a ten-item Likert scale developed by the researcher for research questions 2, 3, 4, and 5. The survey was sent to 235 teachers, with 106 returned surveys. Survey results were analyzed through a t-Test and Eta (Pearson Correlation Coefficient). Displayed in Table 3 are the T-test data results. Additionally, the use of Eta (Pearson Correlation Coefficient) aimed to find linear relationships or correlations between variables. Data analysis found positive correlations on all teacher survey questions except for questions 1 and 2. In order to evaluate the correlation between variables point biserial correlations were calculated, and Eta scores were reported because a principal’s presence on social media is a dichotomous variable whereas scores are continuous. Scatterplots were drawn to evaluate the relations on visual graphics and displayed throughout the chapter.

Table 3

T-test Group Statistics

	Group #1 Principal had a Presence on Social Media		Group #2 Principal had no Presence on Social Media	
	M	SD	M	SD
Q1	2.842	1.251	2.349	1.044
Q2	1.877	0.847	1.930	0.458
Q3	4.123	0.888	2.604	1.530
Q4	2.789	1.065	1.744	1.136
Q5	3.123	0.908	2.861	0.915
Q6	3.579	1.051	3.116	1.051
Q7	4.158	0.702	4.093	0.526
Q8	3.035	0.886	3.070	1.242
Q9	3.228	0.708	3.023	0.938
Q10	3.544	0.908	2.791	1.125

Note: N=57 for the group whose principal had a social media presence; N=43 for the group whose principal did not have a presence.

Research Question Two

How does a principal's commitment to personalized professional development, using Twitter, promote a culture of collaboration and self-directed learning?

Answered using both qualitative data and quantitative data was research question two. Principals using Twitter for professional development spoke to many connections between their use and a culture of collaboration and self-directed learning. These include modeling self-directed learning, highlighting personalized opportunities, and increased in

collaboration and communication with all stakeholders and other professionals. To illustrate, Principal C said the use of social media for professional development allows “teachers to gather information on new teaching strategies, so they don't get stuck in a rut” and Principal D contended, “some of the department meetings I have been a part of have addressed information that I have put out there on social media. While everyone in the department may not be using it, I know they are talking about it.” While Principals A and B are not active on Twitter for professional development reasons, they too highlighted positive gains in collaboration and communication using social media in schools.

For instance, all principals agree that the use of social media as a tool for communication has increased the connections between parents, students, and school then in return, increasing collaboration opportunities. Principal A, B, and C specifically spoke using Twitter to showcase the great things going in the classroom as well as reporting out sports scores. Principal B uses social media as a way to connect with stakeholders in their use of “tweeting out a selfie with the principal” to create more positive interactions with parents. Principal A stated he used social media as a “new age newsletter.” While he does not use it often, he appreciated when his staff “promoted positive things in their classroom/activity” while “communicating with parents on a different level.” Comparatively, Principal B wanted to “connect with more staff on Twitter” because they have seen a difference in providing “real-time communication to all” stakeholders.

With this increased communication, a connectedness grows. Principal C felt more connected to staff when using Twitter. One example Principal B used to connect their use of social media for branding purposes to increased collaboration, was when tweeting

out an activity in physical education. From this tweet, there were “numerous staff members approach them” about the activity and then “began conversations around that instruction.” Principal B stated this collaboration “allowed... cross-curricular conversations with teachers that do not necessarily work together”. Additionally, Principal D spoke to experience in the utilization of information found on Twitter and that crossover in department meetings. Some of the teachers that Principal D works with have “come back from their department meetings discussing something that they had put out there on Twitter”. This illustrated how collaboration opportunities have spawned from what a leader has put on Twitter.

Lastly, the transparency of using social media for professional development created a platform for leaders to model self-directed learning and collaboration outside of the school day. For example, Principals C and D highlight one’s use of obtaining and sharing information outside the four walls of a school as well as outside the time constraints of the school day. Principal C indicated their “connected network of people on social media” allows them to highlight pertinent information that may coincide with “building goals” by retweeting articles. Furthermore, this connection allows Principal C to “share professional ideas with leaders in the field across the entire world” then in return, making them a better leader. Principal D makes a connection back to their time in the classroom when he stated, “I wish Twitter had been around when I was teaching in a classroom setting”. These statements by the principals show a determination to obtain more information needed, on their own, to make changes in not only their personal, professional growth but also initiatives within the building. Principals C and D have promoted a culture of self-directed learning because they model their self-directed

learning, share what they learn, and then connect it back to what is going in the schools they lead. As Principal C highlighted, “they [teachers] actively seek out what leadership topics or content they want to learn about and then go find it”. Conversely, Principals A and B did not speak to that aspect of social media perhaps because they are not currently utilizing social media for professional development purposes.

Quantitatively research question two was analyzed through teacher survey questions 2, 6, 7, 8, and 10. An independent-sample t-test was conducted to compare the two groups of teachers on teacher survey question two, (see Table 4) “*I see a need for more personalized learning in teacher professional development*”. There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=1.87, SD=0.84$) and teachers who do not have a principal who has a presence on social media ($M=1.93, SD=0.45$) conditions; $t(98)=-.372, p=.711$.

Table 4

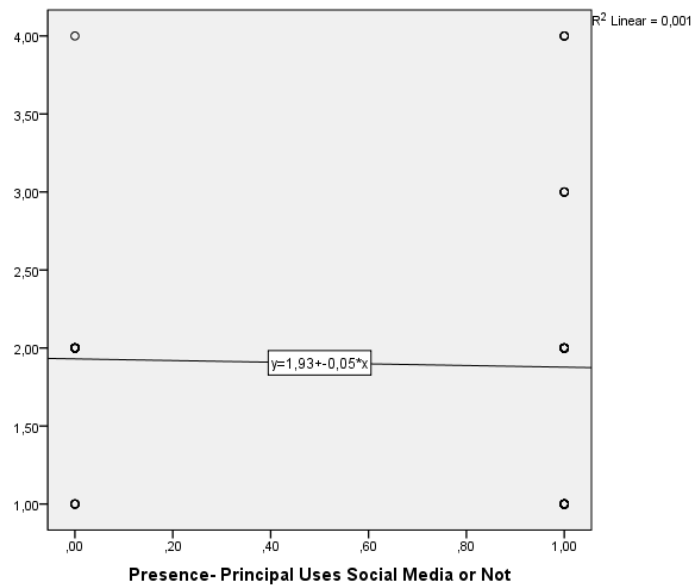
Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q2	15.121	.000	-.372	98	.711	-.0530	.1427	-.3362	.2302

Eta data analysis of question two “*I see a need for more personalized learning in teacher professional development*” suggested a negative correlation between Principals’ presence on social media, and teachers’ need for more personalized learning in teacher

professional development (Note that this item is reverse coded). The more presence of principals on social media, the fewer teachers’ need for more personalized learning in teacher professional development. The Eta score is .39, and Eta squared is .15 (see Figure 1). The revealed a 15 percent of the variance in teachers’ need for more personalized learning in teacher professional development and can be explained by the principals’ presence on social media.

Figure 1 Teacher Survey Question 2: I see a need for more personalized learning in teacher professional development.



Data analysis of question six, through the use of a t-test (see Table 5), suggested teachers who have a leader that is present at social media and actively uses it perceive a strong collaborative environment amongst teachers in their buildings as there was a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.57, SD=1.05$) compared to teachers who do not have a principal who has a presence on social media ($M=3.11, SD=1.05$) conditions; $t(98)=2.179, p=.032$.

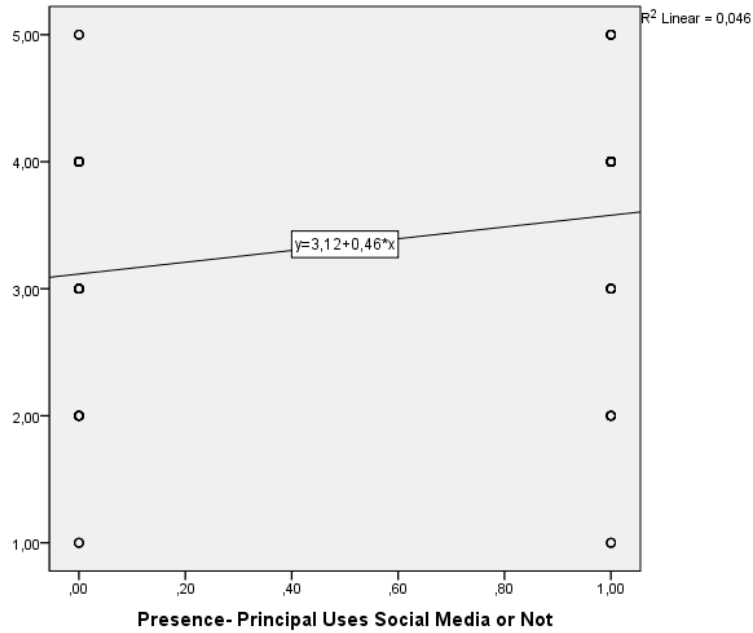
Table 5

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q6	.001	.976	2.179	98	.032	.4626	.2123	.0412	.8840

Additionally, the interpretation of data collected from survey question six “*There is a strong collaborative environment amongst teachers in my building*” suggested there is a positive, but moderate correlation between principals’ presence on social media, and teachers’ beliefs about a strong collaborative environment amongst teachers in buildings. The more presence of principals on social media, the more teachers’ beliefs about strong collaborative environment amongst teachers in buildings. To examine this further, the eta scores and eta-squared scores were calculated (see Figure 2). The Eta score was .28, and Eta squared is .08. Which means 8 percent of the variance in teachers’ beliefs about a strong collaborative environment amongst teachers in buildings can be explained by the principals’ presence on social media.

Figure 2 Teacher Survey Question 6: There is a strong collaborative environment amongst teachers in my building.



An independent-samples t-test (see Table 6) was conducted on teacher survey question seven “*It is the responsibility of the principal to promote a culture of collaboration and self-directed learning*”. There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=4.15$, $SD=0.70$) and teachers who do not have a principal who has a presence on social media ($M=4.09$, $SD=0.52$) conditions; $t(98)=-.508$, $p=.613$.

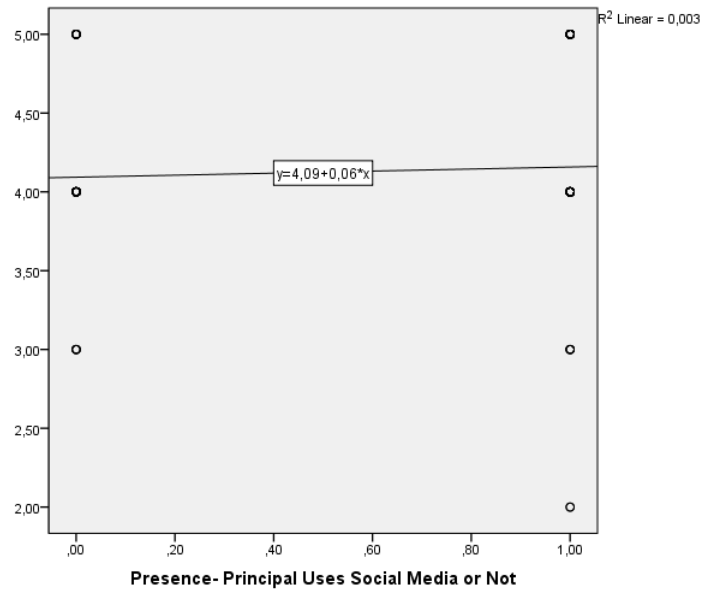
Table 6

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q7	3.275	.073	.508	98	.613	.0648	.1277	-.1886	.3184

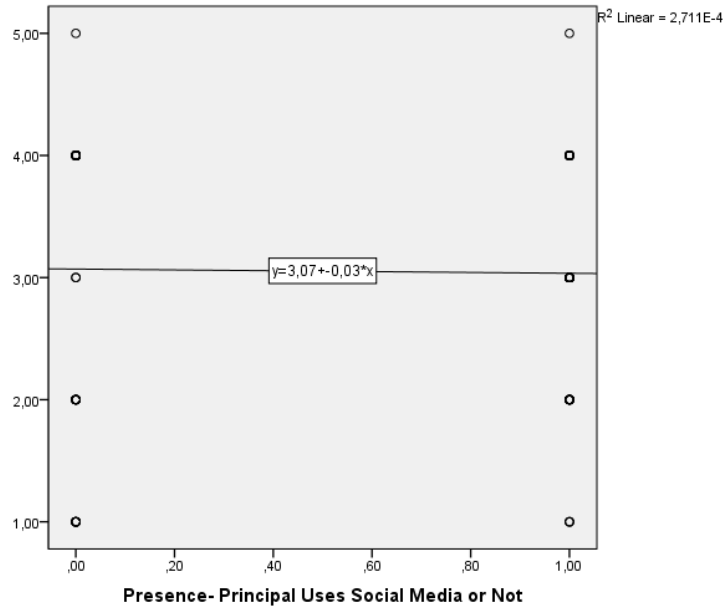
ETA data collected from question seven “*It is the responsibility of the principal to promote a culture of collaboration and self-directed learning*” found there is a positive, but very weak correlation between Principals’ presence on social media, and teachers’ beliefs about the responsibility of the principal to promote a culture of collaboration and self-directed learning. The more presence of principals on social media, the more teachers’ beliefs about the responsibility of the principal to promote a culture of collaboration and self-directed learning. Illustrated in Figure 3 were the Eta score .19, and Eta squared of .08. Which means .04 percent of the variance in teachers’ beliefs about the responsibility of the principal to promote a culture of collaboration and self-directed learning can be explained by the principals’ presence on social media.

Figure 3 Teacher Survey Question 7: It is the responsibility of the principal to promote a culture of collaboration and self-directed learning.



The interpretation of data collected from survey question eight “*There is a culture of self-directed learning promoted within the school*” found a positive, but moderate correlation between principals’ presence on social media, and teachers’ perception about the culture of self-directed learning promoted within the school (see Figure 4). The more presence of principals on social media, the increased teachers’ perception about the culture of self-directed learning promoted within the school. The Eta score is .46, and Eta squared is .23, which means .04 percent of the variance in teachers’ beliefs about the responsibility of the principal to promote a culture of collaboration and self-directed learning can be explained by the principals’ presence on social media.

Figure 4 Teacher Survey Question 8: There is a culture of self-directed learning promoted within the school.



As displayed in Table 7, an independent-samples t-test was conducted to compare the two groups of teachers: one whose principal has a presence on social media and the other who's principal does not have a presence on social media. There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.03$, $SD=0.88$) and teachers who do not have a principal who has a presence on social media ($M=3.07$, $SD=1.24$) conditions; $t(98)=-.163$, $p=.871$.

Table 7

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q8	18.537	.000	-.163	98	.871	-.0346	.2127	-.4568	.3875

Data collected from question ten “*Twitter allows me to collaborate with like-minded individuals*” suggested teachers are more likely to believe that Twitter allows them to collaborate with like-minded individuals when their principal is present at social media and actively uses it (see Table 8). There was a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.54$, $SD=.91$) and teachers who do not have a principal who has a presence on social media ($M=2.79$, $SD=1.12$) conditions; $t(98)=3.71$, $p=.000$.

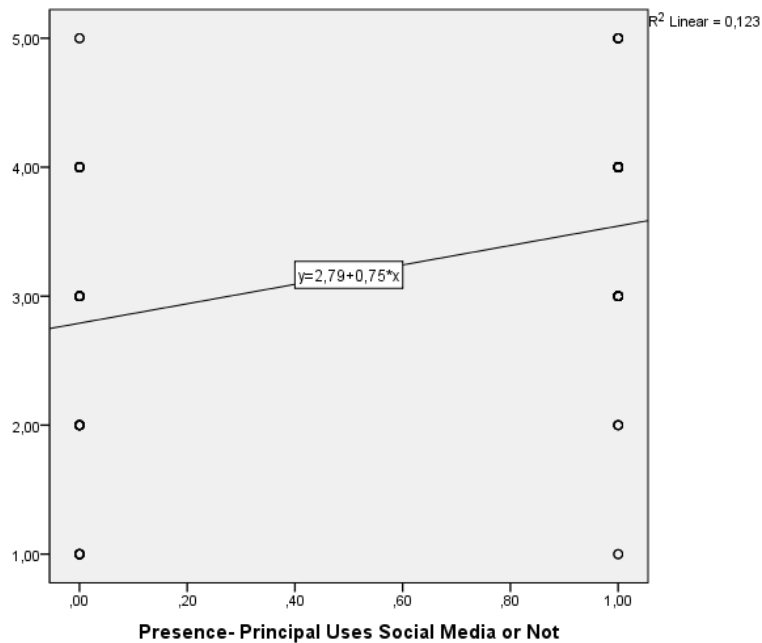
Table 8

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q10	2.291	.133	3.705	98	.000	.7531	.2032	.3497	1.1565

Additionally, Eta scores (see Figure 5) found there is a positive, but moderate correlation between principals’ presence on social media, and teachers’ perception about the allowance of Twitter for collaboration with like-minded individuals. The more presence of principals on social media, the increased teachers’ perception about the allowance of Twitter for collaboration with like-minded individuals. The Eta score is .36, and Eta squared is .13, which means .13 percent of the variance in teachers’ perception about the allowance of Twitter for collaboration with like-minded individuals can be explained by the principals’ presence on social media.

Figure 5 Teacher Survey Question 10: Twitter allows me to collaborate with like-minded individuals.



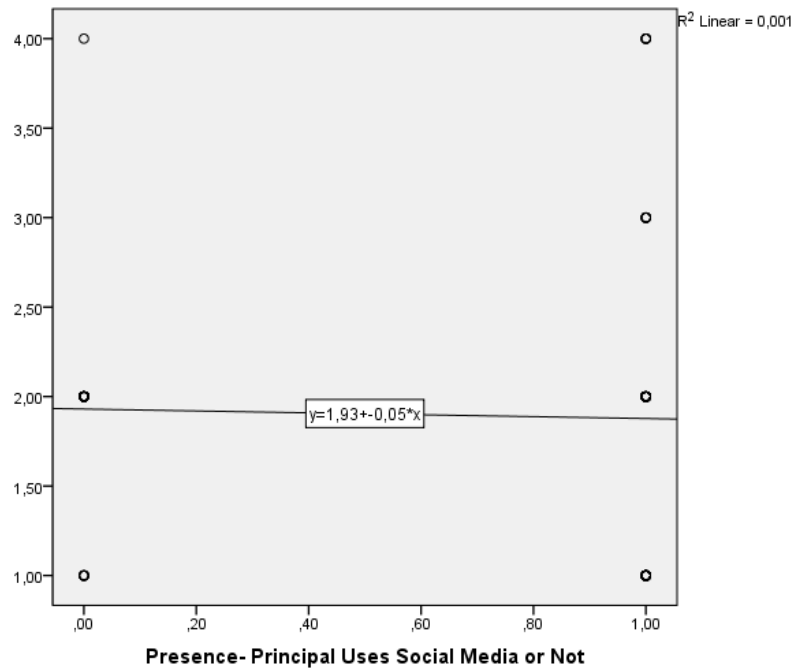
Research Question Three

Is there a difference in teacher’s perceptions of professional development if their principal is active on social media or not active on social media?

Data analysis of this research question was solely used from the quantitative data gathered from the teacher survey. More specifically, survey questions two, three, and four were constructed in an attempt to gather ample data to answer research questions three. Data collected from the t-test showed a difference between the two groups surveyed while ETA scores showed both a negative correlation on question two and a positive correlation on questions three and four. These findings will be summarized in the next following paragraphs.

Data collected from question two showed a negative correlation between principals' presence on social media and teachers' need for more personalized learning in teacher professional development (Note that this item is reverse coded). One can interpret that teachers who are being led by a principal who is on social media do not need as much personalized learning opportunities as teachers who have a principal that is not only social media for professional development reasons. In Figure 6, the Eta score of .39, and Eta squared score of .15 means 15 percent of the variance in teachers' need for more personalized learning in teacher professional development can be explained by the principals' presence on social media. One concludes that teachers from the group whose principal has a social media presence do not feel the need for more personalized learning as it may be embedded into the school's professional development culture or their professional development practices.

Figure 6 Teacher Survey Question 2: I see a need for more personalized learning in teacher professional development.



An independent-samples t-test was conducted to compare the two groups of teachers: one whose principal has a presence on social media and the other whose principal does not have a presence on social media (see Table 9). There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=1.87$, $SD=0.84$) and teachers who do not have a principal who has a presence on social media ($M=1.93$, $SD=0.45$) conditions; $t(98)=-.37$, $p=.711$. Specifically, these results suggest that a principal's social media presence does not have an effect teachers need for more personalized learning in their current teacher professional development.

Table 9

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q2	15.121	.000	-.372	98	.711	-.0530	.1427	-.3362	.2302

The interpretation of the data results from survey questions three and four show there is a strong and positive correlation between principals’ presence on social media, and teachers’ familiarity and exposition to using Twitter as a tool for professional development as well as their use of social media for personal, professional development. The data suggest that when a principal is active on social media, teachers are not only more familiar using Twitter as a tool for professional development but also more likely to use it for their professional development. This is evident in the eta scores and eta-squared scores of survey question three (see Figure 7) where the Eta score is .63, and Eta squared is .40. Additionally, illustrated in figure 8 is the eta and eta-squared scores of survey question four showed an Eta of .52, and Eta squared of .27, which means 27 percent of the variance in teachers’ use of social media for personal, professional development can be explained by the principals’ presence on social media.

Figure 7 Teacher Survey Question 3: I am familiar or have been exposed to using Twitter as a tool for professional development.

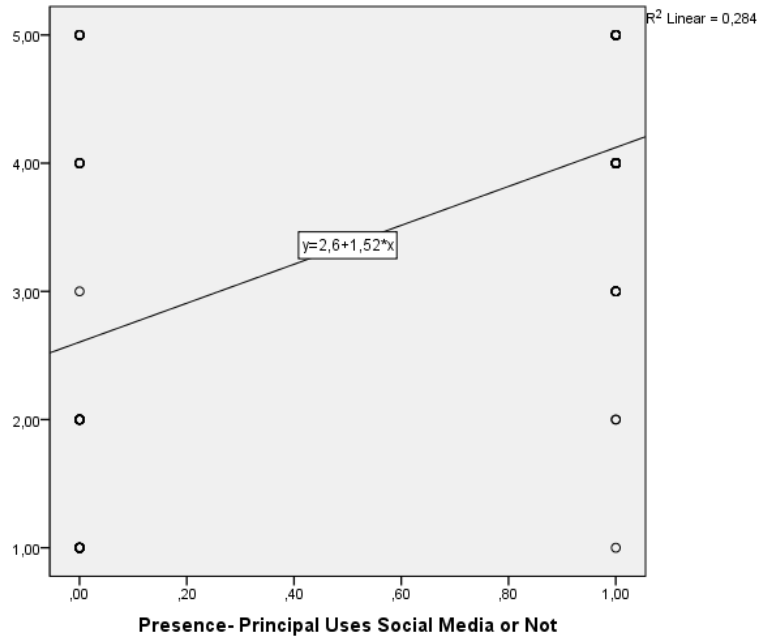
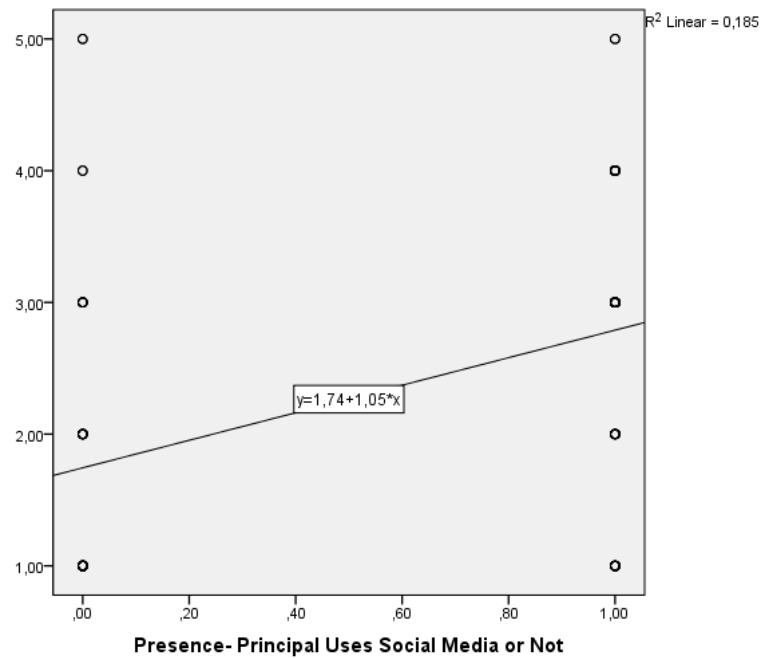


Figure 8 Teacher Survey Question 4: My principal's presence on social media directly impacts how much I use social media for personal professional development.



T-test data from questions three and four highlights these differences as well as displayed in Table 10. Data collected from question three “*I am familiar or have been exposed to using Twitter as a tool for professional development*” statistically significantly differ (with Media presence: $M=4.13$, $SD=.89$; without Media presence: $M=2.60$, $SD=1.53$; $t(98)=6.235$. $p=.000$). This reveals teachers are familiar with using Twitter as a tool for professional development if their principal is present at social media and actively uses it. Comparatively, results from question four “*my principal’s presence on social media directly impacts how much I use social media for personal professional development*” are statistically significantly differ (with Media presence: $M=2.79$, $SD=1.06$; without Media presence: $M=1.74$, $SD=1.14$; $t(98)=4.723$. $p=.000$). This suggests if their principal is present at social media and actively uses it, the principal’s presence on social media directly impacts how much teachers use social media for personal, professional development.

Table 10

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q3	32.040	.000	6.235	98	.000	1.5181	.2435	1.0349	2.0013
Q4	.331	.566	4.723	98	.000	1.0452	.2213	.6060	1.4845

Research Question Four

Is there a relationship between a principal’s presence on social media and how teachers are self-directed in their personal, professional development?

Data analysis of this research question was solely used from the quantitative data gathered from the teacher survey. More specifically, survey questions one, five, and eight were constructed in an attempt to gather data to answer research question four.

Findings from t-test data (see Table 11) on teacher survey question one, *“If there is a need for me to learn new information, I do not need a supervisor to point me in the right direction”* suggested teachers who are led by a principal who is active on social media are less likely to need their supervisor to point them in the right direction (treatment: $M=2.84, SD=1.25$; control $M=2.35, SD=1.04$). Therefore, it is revealed that the difference between groups is statistically significant ($t(98) = 2.094, p=.039$), and interpret this as "principals' presence on social media directly impacts how much teachers use social media for personal, professional development."

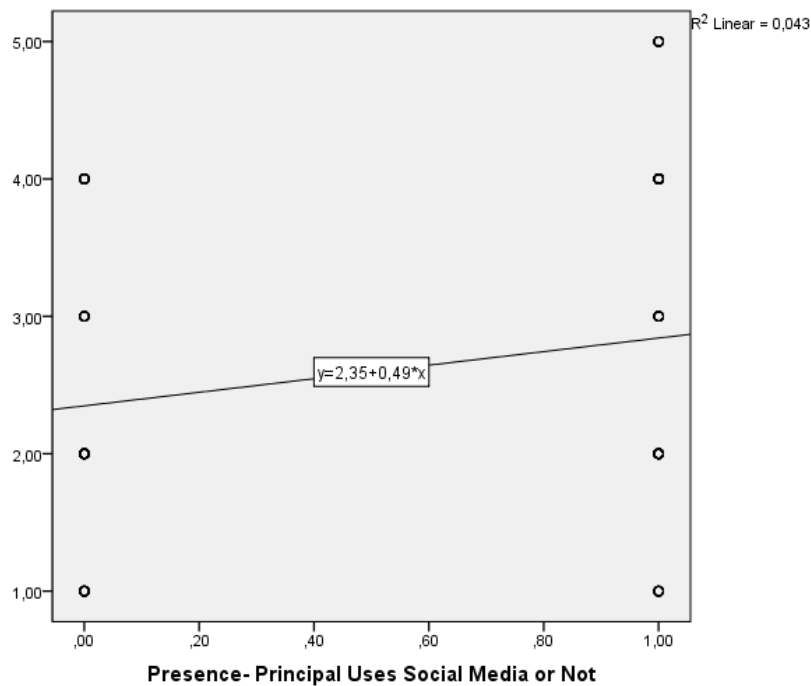
Table 11

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q1	4.045	.047	2.094	98	.039	.4932	.2356	.0256	.9608

Additionally, Eta test (see Figure 9) found there is a negative correlation between principals’ presence on social media and teachers’ need for a supervisor to point them to the right direction (Note that this item is reverse coded). The more presence of principals on social media, the fewer teachers need a supervisor to point them in the right direction. The Eta score is .25, and Eta squared is .06, which means 6 percent of the variance in need for a supervisor can be explained by the principals’ presence on social media.

Figure 9 Teacher Survey Question 1: If there is a need for me to learn new information, I do not need a supervisor to point me in the right direction.



Additionally, an independent-samples t-test was conducted to compare the two groups of teachers on teacher survey question five “*It is the principal’s responsibility to expose teachers to various forms of personalized learning*”. As displayed in Table 12 there was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.12, SD=0.90$) and teachers who do not have a

principal who has a presence on social media ($M=2.86$, $SD=0.91$) conditions; $t(98)=1.43$, $p=.157$.

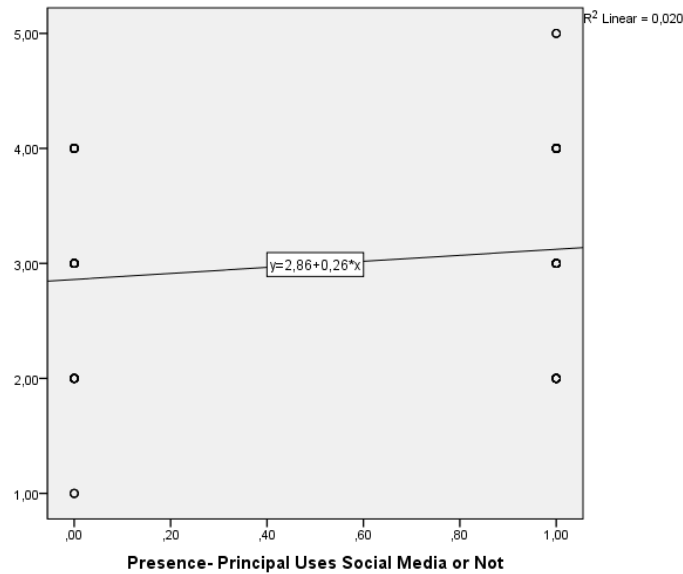
Table 12

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q5	.013	.910	1.426	98	.157	.2623	.1839	-.1027	.6274

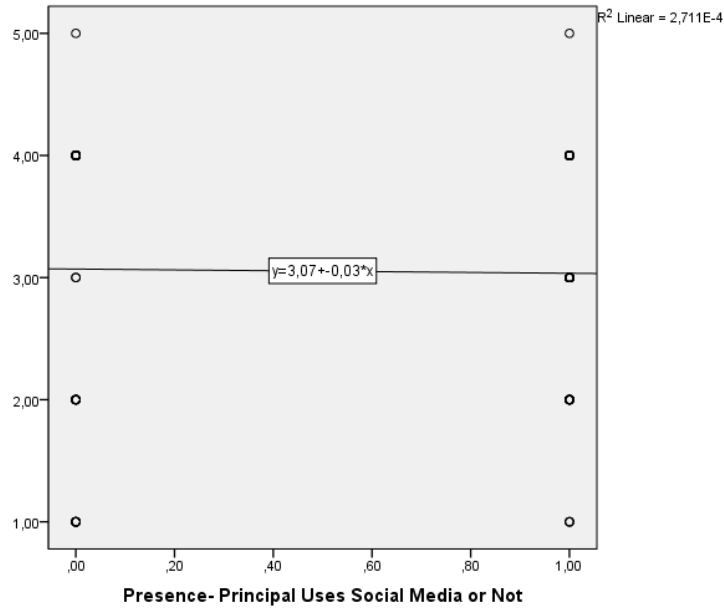
The interpretation of data collected from Eta (Pearson Coefficient Test) on survey question five “*It is the principal's responsibility to expose teachers to various forms of personalized learning*” found a positive, but weak correlation between principals’ presence on social media, and teachers’ beliefs about principal's responsibility to expose teachers to various forms of personalized learning (see Figure 10). The more presence of principals on social media, the more teachers’ beliefs about the principal's responsibility to expose teachers to various forms of personalized learning. The Eta score is .25, and Eta squared is .06 which means .06 percent of the variance in teachers’ use of social media for personal professional development can be explained by the principals’ presence on social media.

Figure 10 Teacher Survey Question 5: It is the principal's responsibility to expose teachers to various forms of personalized learning.



The interpretation of data collected from survey question eight “*There is a culture of self-directed learning promoted within the school*” found a positive, but moderate correlation between principals’ presence on social media, and teachers’ perception about the culture of self-directed learning promoted within the school. The more presence of principals on social media, the increased teachers’ perception about the culture of self-directed learning promoted within the school. Displayed in Figure 11 is the Eta score .46, and Eta squared is .23, which means .04 percent of the variance in teachers’ beliefs about the responsibility of the principal to promote a culture of collaboration and self-directed learning can be explained by the principals’ presence on social media.

Figure 11 Teacher Survey Question 8: There is a culture of self-directed learning promoted within the school.



An independent-samples t-test was conducted (see Table 13) to compare the two groups of teachers: one whose principal has a presence on social media and the other whose principal does not have a presence on social media on teacher survey questions eight “*There is a culture of self-directed learning promoted within the school*”. There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.03$, $SD=0.88$) and teachers who do not have a principal who has a presence on social media ($M=3.07$, $SD=1.24$) conditions; $t(98)=-.163$, $p=.871$.

Table 13

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q8	18.537	.000	-.163	98	.871	-.0346	.2127	-.4568	.3875

Research Question Five

What are principal preparation programs doing to prepare their students to be digital leaders?

While all thirteen higher education institutions that responded to the survey out of nineteen indicated they are providing their students with coursework that will help future leaders implement a strong professional development program in their leadership roles, only ten of them stated that their students are prepared to implement a strong professional development once they leave their program. Additionally, of those thirteen institutions surveyed, eight of the thirteen institutions stated that their students are prepared to use technology to enhance their learning and the personalized learning for teachers.

Moreover, seven of the institutions highlighted that digital leadership was a component of the coursework they offer for pre-service leaders. These topics are embedded in the coursework in such places as “Personnel Administration”, Digital Based Decision Making”, “Data-Driven Leadership and Principalship and Staff Observation”, as well as other elective courses.

Professors stated that Digital Leadership was emphasized in their coursework, through various “authentic project-based learning opportunities” as well as in coursework referencing “branding, social media, creating learning spaces for collaboration using technology, and communication.” More specifically, one institution highlighted a course titled “Digital Based Decision Making” which is centered on the work of Eric Sheninger. This concept compares to the course offered at one institution where the students are asked to “prepare samples of tweets, Facebook posts, and other social media platforms to communicate with internal and external audiences”. Comparatively, one professor noted, “We have some faculty members requiring their students to tweet and use social media as a participation model.”

Conversely, out of the thirteen institutions responding, the majority spoke to projects having many technological aspects but not relating it back to the pillars of digital leadership. There appeared to be a disconnection between what is digital leadership and the use of technology within the coursework. For example, one professor stated, “Each course in the program has a key assessment that is based on state and national standards. Many projects require students to collect data, analyze, and present data. To do this, students must be able to use technology.” Another professor noted, “Many of our faculty are not trained for the digital world.”

The perceptions of the use of technology and the key components of digital leadership with preparatory programs were very different based on the stakeholder. All four principals agreed that when they were going through their pre-service leadership program, technology was extremely different from what it is today. High School B and C’s principals are either currently taking a class to further their degree or are finished

with coursework but working on their dissertation. High School B Principal has stated that he/she had experience of “using social media in a college class but felt that it was not used effectively” and High School C Principal said technology was “highlighted in the use of Blackboard or other student work platforms only.”

Similarly, the two main reasons the six institutions do not have digital leadership as a component of their coursework noted the “lack of technology skills of the professors” and “it is not linked directly to the standards” or a “requirement by the Department of Secondary Education (DESE).” Data collected from the principal interviews also show a lack of preparation to not only implement a strong professional development system but to do so using a technology-based learning and digital leadership. This is evident in the responses from Principal B when stating that while they had great professors they [professors] “lacked much knowledge about new concepts in digital education and using technology to be a better leader.” Another principal went onto say that this lack of knowledge “can be a disservice for pre-service leadership students as they are not current with new concepts out there.”

One professor agreed that the topic of digital leadership “should be addressed more in our preparatory programs.” While another cited “time is the biggest reason,” and yet the professor noted, “they want to redesign their coursework in order to offer a specific course on digital leadership in the future”. In comparison to principal’s perceptions, all four principals stated that they see the value in using social media in their role as a leader and agree that this topic should be discussed and implemented in all current pre-service leadership programs. This is reflected in High School Principal D

response when concluded the term “personalized wasn’t even a concept” that was approached in their pre-service leadership programs but is one that is needed”.

Discussion of Findings

Qualitative data analysis involved the organization and examination of data for themes to gain a deeper understanding of the data (Creswell, 2014). This analysis came in the forms of emerging themes from the principal interviews, followed by additional quantitative data analysis of both teachers and professors through surveys. The triangulation of the data resulted in the reoccurring three themes emerging: *Professional learning in the digital age, Social media in schools; Lack of preparation and training at the preservice leadership level.*

Professional learning in the digital age

Throughout their career, a teacher can experience a vast range of professional development activities that aim to increase knowledge and skills that will improve teaching practice (Kind & Evans, 2014). Traditionally, these activities are in the form of educational seminars, conferences, and building-specific training (Bayar, 2014; Desimone & Garet, 2015; Kind & Evans, 2014). These administrative-driven or district initiative training can miss the mark for teachers, as they seldom embody characteristics of effective professional development. Bayar (2014) attests that while they are shorter in time commitment, they "tend to be less effective" as they offer little to no impact on teacher skills (p. 321). Sheninger (2014) added traditional methods of professional development lack connection and conversation and attests that “connectedness should be the standard, not just an option in education” (p. 124). The use of social media to augment learning is a relatively new and growing area, and there is very little research on

the use of social networking sites to promote professional development (Kind & Evans, 2014). In the digital age, individuals can freely exchange and have instant access to information (Kind & Evans, 2014; Merriam & Bierema 2014). Parker (2013) argued technology has not only infused every aspect of society, but it is substantially changing how we communicate, think, and learn.

Meaningful professional development goes far beyond learning a new way of doing things and principals play a key role in the professional development of the teachers they lead. This is not only evident in the work of Desimone and Garet (2015) when they stated "teachers are more likely to use ideas and strategies from PD when they are aligned with leadership priorities" (p. 257) but also in this research. Data from the teacher survey suggested that if principals are on social media, teachers are more familiar with the use of social media as a professional development tool and are more likely to use it. This data also revealed teachers believe that Twitter allows them to collaborate with like-minded individuals increasing their knowledge base. While this data is powerful in itself, one of the most insightful interpretations of the data was found when the data collected suggested that teachers from the group who was being led by a principal who uses social media for professional development did not need more personalized learning opportunities in relation to the group of teachers whose principal was not on social media.

Technology facilitates learning in a way that is meaningful to adults: timely, relevant, and self-directed (Merriam & Bierema, 2014). While not all principals in this research have much experience using social media as a platform for professional development, all of them understand the importance of meeting their teacher's specific

needs. As indicated in research, variety is key to professional development as “teachers vary considerably in their response to the same professional development (Desimone & Garet, 2015, p. 255) and should be calibrated to meet the needs of all learners (Ahlquist, 2014). Twitter allows all learners (teachers and administrators) to navigate through its platform to find information, "share resources, ask and answer questions, and debate and discuss education issues of the day" that is adapted to their current professional need (Couros & Jarret, 2012, p. 149). Teachers agree that having a leader who sets a strong example of life-long learning is vital to the development and maintenance of healthy and intellectual and professional habits. Another teacher highlights that they believe that if a principal is silent in their professional learning, they will have an uphill battle when it comes to creating a learning culture in his or her school. Navigating the new terrain that is the digital age, comes with both successes and challenges. It can be suggested principals effective in personalized learning embrace the use of social media to not only highlight their learning but also empower their teachers to challenge their thinking about their learning.

Social media in schools

The data suggested there are many other benefits, besides professional development, for educators to be active on social media. For example, participants in both the principal interview and teacher survey highlighted four of Sheninger’s (2014) seven pillars of digital leadership, including communication, public relations, branding, and student engagement.

Hearn (2008) and Cho (2016) speak to the importance of leaders not only using social media as a tool to brand themselves as a professional but also as a way to brand

their school's mission and vision to all stakeholders. "Visionary leadership demonstrates energy, commitment, entrepreneurial spirit, values and conviction that all children will learn at high levels, as well as inspiring and influencing others with this vision both inside and outside the school building" (Thompson, 2017, p. 7). A teacher from one school suggested that social media allows principals to "tell the story" of their building. Highlighted in the work of Sheninger (2014) is this notion when he stated if leaders do not tell their story, it opens up the floodgates for someone else to tell it for them. Ahlquist (2014) and Flanagan and Jacobsen (2003) expand this view and imply that the use of social media can be a catalyst for leading change within a school as social media usage has grown from 7% to 65% in adults from the years 2005-2015 (Perrin, 2015). In a more recent study, it was found by the Pew Research Internet Project that 69% of adults in the United States use at least one social media site with a majority of users using social media on a daily basis (Pew Research Center, 2018). This increased usage of technology is changing how educators gather and disseminate knowledge. Furthermore, "technology is not just a device that is utilized as a tool. Rather technology has infused every aspect of society" (Parker, 2013, p.55).

Social media is where people get their information and where they communicate with others. Increased communication allows principals and teachers to showcase the positive aspects of their school (Whitaker, Zoul, & Casas, 2015) and communicate on a global stage (Cho, 2016). In return, principals and educators can promote a culture of collaboration and transparency (Sheninger, 2014). This is also evident in responses from both groups of teachers and principals surveyed. Many of them suggested that one major and obvious advantage of principals using social media is that it keeps people connected

and communicating. While online communication cannot “completely replace the power of face-face communication” (Whitaker, Zoul, & Casas, 2015, p. 33), principals and teachers noted that using social media allows communication to be accessible 24/7 as the platform is public. From this research, it is suggested all stakeholders view the value of the use of social media in 9-12 settings, as a platform for personalized learning and professional development.

Lack of preparation and training at the preservice leadership level

This study also focused on clarifying the importance of educating future leaders in effective professional development models in the digital age, as many leaders are unprepared for the complex issues that surround leading in the digital age (Kind & Evans, 2014; Flanagan & Jacobsen, 2003; Sheninger, 2014). Previous studies have reported, "school administrators are required to assume leadership responsibilities in areas with which they are unfamiliar, and for which they have received little training" (Flanagan & Jacobsen, 2003, p. 124). Furthermore, Ahlquist (2014) added there “exists a gap in developing competent leaders capable of leading change using social media” (p. 57). This is evident in the responses gathered in this research from principals and pre-service leadership professors. Many higher education institutions spoke to projects having many technological aspects but not specifically relating it to any of Sheninger’s (2014) pillars of digital leadership. The data suggests there is a disconnection between knowing the difference between utilizing technology and the key components of digital leadership. While there may be opportunities for aspiring leaders to utilize technology in their preservice leadership programs, these opportunities lack the fundamental components of digital leadership including “establishing direction, influencing others, and initiating

sustainable change through the access of information, and establishing relationships to anticipate changes pivotal to school success in the future (Sheninger, 2014 p. 1).

Additionally, while the Professional Standards of Education Leaders (PSEL) standards “more fully describe a school leaders’ responsibility to develop the professional capacity of teachers and staff” (Murphy, Louis, & Smylie, 2017, p.22) and “design and implement job-embedded opportunities for professional learning collaboratively with faculty and staff (National Policy Board for Educational Administration, 2015, p. 15), the key component of leading in the digital age was omitted. One of the differences between the ISLLC and PSEL standards was the PSEL was adopted to provide a more future-oriented perspective as principals are leading in an ever-changing world. One can speculate that professors and aspiring principals could find many connections between the essential components of digital leadership and the new standards; however, an explicit connection is not as apparent. Consequently, the lack of knowledge on digital leadership will not allow professors to make those connections explicit to provide digital learning opportunities for their students. From this inquiry, data suggests the curriculum within preparatory programs must reflect understandings and demonstrations in the application of digital learning to enhance personalized teacher learning through professional development.

Conclusions

While there has been some research on the topic of the benefits of administrators and teachers using social media for professional development (Cho, 2016), little has been researched on how an administrator’s presence on social media may have a direct impact on the professional development learning culture of the teachers they lead. This research

sought to provide confirmation that administrators using Twitter to enhance their learning will further create conditions that promote a culture of self-directed learning for their teachers. Specifically, the purpose of this research was to determine whether a principal's presence on social media had a positive impact on the self-directed learning culture of teachers.

This movement to more of a personalized approach to learning can flourish (Dill, 2015) and be more transparent using social media; more specifically Twitter (Sheninger, 2014). Despite not having any formal training from their leadership programs, all four principals in this research have found a way to navigate through the digital age in their way. Specifically, principals that are using social media for professional development stated that technology has made it easier to gather knowledge and that they have more control over what learning they participate in. More specifically, one principal's daily routine has changed as they arrive at school early to look for learning opportunities and subjects about their professional growth. Furthermore, Sheninger (2014) and Couros and Jaret (2012) noted leaders could connect with other professionals in the field and discuss strategies to improve teaching, learning, and leadership using Twitter.

Research from this study shows that principal's commitment to personalized professional development, using Twitter, promotes a culture of collaboration and self-directed learning. Teachers, who have a leader that has a social media presence and actively uses it, perceive that there is a strong collaborative environment amongst teachers in their buildings and the increased teachers' perception about the culture of self-directed learning promoted within the school. Further results from this research conclude that the more presence of principals on social media, the fewer teachers' need for more

personalized learning in teacher professional development. In addition, one can conclude that these teachers do not have that need because they have been exposed to social media for professional development and embrace self-directed opportunities for themselves. This correlates with Sheninger's (2014) thoughts on the use of Twitter as a platform for all educators and leaders to learn from each other outside the four walls of a conference or school building.

This research also showed there is a difference in teacher's perceptions of professional development if their principal is active on social media or not active on social media. Effective leaders inspire their staff by modeling the use of social media (Sheninger, 2014) while providing professional development opportunities for their teachers (Flanagan & Jacobson, 2003). One can interpret data collected in this research that teachers who are being led by a principal who is on social media do not need as much personalized learning opportunities as teachers who have a principal that is not on social media for professional development reasons. Furthermore, one concludes that teachers from the group whose principal has a social media presence do not feel the need for more personalized learning as it may be embedded into the school's professional development culture or their professional development practices. Researchers Forrest and Peterson (2006) stated: "adults naturally seek to direct their own educational experience (p. 16) while Knowles (1975) added that this type of learning is the "best way to learn" (p. 10). Additionally, Twitter provides a platform for learning to be continuous and at the fingers tips of all learners (Haworth, 2016; Manca & Ranieri, 2016; Sheninger, 2014). It allows educators to "share resources, ask and answer questions, debate, and discuss

education issues” (Couros & Jarret, 2012, p. 149) while conversing with like-minded professionals (Cho, 2016; Sheninger, 2014).

Lastly, leading in the twenty-first century carries its own set of challenges as technology is changing the role of education leaders (Parker, 2013). Unfortunately, critical areas of effective leadership in this digital age are missing from pre-service leadership programs. This is evident in data collected from preservice leadership programs. There seems to be a disconnection between what is digital leadership and the use of technology within the coursework. Additionally, two main reasons the six higher education institutions do not have digital leadership as a component of their coursework is “lack of technology skills of the professors” and “it is not linked to the standards” or a “requirement by the Department of Secondary Education (DESE).” Data collected from principal interviews also show a lack of preparation for leadership to not only implement a strong professional development system as well as technology-based learning and digital leadership. Effective leaders need to be well versed in not only current technological advances (Sheninger, 2014) but also social media platforms that can be used to help grow professionals and create a self-directed professional development culture (Ahlquist, 2014, Dill, 2015). Knowing this, the data provides the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs and provide professors the necessary professional development and resources to achieve this goal.

Recommendations

This study focused on highlighting the importance of educating our future leaders in effective professional development models in the digital age. The research revealed

leaders are unprepared for the complex issues that surround leading in the digital age, and this inquiry supported that assertion. Following is the executive summary that will be presented to the CPPP leadership team and other Professors of Educational Leadership to enhance professor's understandings regarding what aspects of curriculum might need updating, as well as allow discussion on what authentic, real-world opportunities they can create within the preparatory programs. In addition, the following executive summary highlights the importance of promoting personalized professional development in pre-service leadership programs.

LEADING IN THE DIGITAL AGE

Digital Leaders' Impact on the Professional Development Culture in a Secondary School Setting

An administrator's role, in this digital age, of providing personalized professional development to teachers to help them grow as an educator is a leadership skill that has not been adequately researched. While school districts and buildings are required to provide professional development for their teachers, traditional methods come in the form of a conference or building specific training. Research shows that the most effective professional development incorporates components of social interaction, are personalized to meet the needs of that the teacher, as well as include opportunities for teachers to explore and reflect. A personalized approach will transcend into the core values of each educator and promote a culture of self-directed learning. This research seeks to provide a substantiation that administrators using Twitter to enhance their learning will further create conditions that promote a culture of self-directed learning.

The purpose of this research is to determine whether a principal's presence on social media had a positive impact on the self-directed learning culture of teachers.

Research Questions

1. How has the digital age impacted principals' perceptions of personal, professional growth strategies?
2. How does a principal's commitment to personalized professional development, using Twitter, promote a culture of collaboration and self-directed learning?
3. Is there a difference in teacher's perceptions of professional development if their principal is active on social media or not active on social media?
4. Is there a relationship between a principal's presence on social media, and how teachers are self-directed in their personal, professional development?
5. What are principal preparation programs doing to prepare their students to be digital leaders?



CONCEPTUAL FRAMEWORK	PARTICIPANTS	DATA ANALYSIS
Adult Learning Theory, and its six assumptions, more closely fits the concepts associated with a principals presence on social media and how that presence changes how teachers view their personal professional development	4 Principals (2 w/Social Media Presence & 2 w/o Presence) Interviewed 107 Teachers Surveyed 30 University professors within 13 Pre-Service Leadership Programs in Missouri Surveyed	Mixed Method Design using both <u>qualitative</u> data from principal interviews and responses from Pre-service leadership professors and <u>quantitative</u> data from teacher surveys.



Description of Organization Structure of the Participants

This study was conducted on the campuses of four rural high schools within 90 minutes of Kansas City, each with a total enrollment of 600-850 in grades 9-12. Within these four high schools, each head principal was interviewed and subsequently their teachers surveyed. Of these four high schools, two principals (Schools C & D) tweeted professional development topics and discussions more than five times per week, while principals who did not have a presence on Twitter for professional development purposes led the other two high schools (Schools A & B). In all four high schools, technology access was similar as all participants had access to technology and Wi-Fi during the workday. Provided in table below is an overview of the organizational structure of the schools involved in the study.

School	Student Enrollment	F/R Lunch	Total # of Teachers	Avg Teacher Experience	Teachers w/ Masters	AdminYrs at Site	Principal's Degree
A	622	17%	56	12	58%	8	Doctorate
B	632	31.8%	52	14	57%	4	Masters
C	606	47.8%	63	11	46%	2	ABD
D	843	42%	83	14	61%	2	Specialist

Emerging Themes from Qualitative Data

Professional Learning in the Digital Age	Social Media in Schools	Lack of Preparation and Training at the Pre-Service Leadership Level
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Quantitative Data

Quantitative data was collected through a 10-item Likert scale developed by the researcher. The survey was sent to 235 teachers, but the response rate was low. In the treatment group, in which the administrators were present in social media, there were 57 participants who filled the survey voluntarily. In the control group, 43 participants completed the survey. Survey results were analyzed through a T-Test and Eta (Pearson Correlation Coefficient). T-test data results showed a statistical difference between the groups on teacher survey questions 1, 3, 4, 6, and 10. Additionally, the use of Eta (Pearson Correlation Coefficient) aimed to find linear relationships or correlations between variables. This data analysis found positive correlations on all teacher survey questions except for questions 1 and 2.



Findings



Professional Learning in the Digital Age

Traditional methods of professional development have been proven to be not as effective as opportunities that engage the learner in content that is specific to their needs, allows for realtime collaboration, and is sustainable. The digital age allows learners to access information at the tips of their fingertips and engage with professionals across the world.

Through the use of Twitter, principals and teachers can access information readily and specific to the needs of the individual. Additionally, this research showed that there is a positive impact on teachers when their principal uses this social media as communication and professional development tool.

Social Media in Schools

The data suggests that there are many other benefits, besides professional development, for educators to be active on social media. In this digital age, social media is where people get their information and where they communicate with others. This increased communication allows principals and teachers to showcase the positive aspects of their school and increase their engagement with stakeholders. Additionally, both teachers and principals in this research stated that they feel more connected to each other when they are active on social media. Principals should use this key component of digital leadership to engage with faculty, students, and community members.

Lack of Preparation & Training in Pre-Service Leadership Programs

There exists a gap in developing competence leaders capable of leading change and personal growth through the use of social media. This is evident as the majority of university faculty lack the knowledge and practice to expose their students to the key components of digital leadership. Students are leaving these programs not prepared for the challenges that await them as they navigate through new terrain of leading in this digital age. More over, the Professional Standards for Education Leaders (PSEL) do not include a standalone standard that is devoted to the key components of digital leadership so preparing pre-service leadership students to lead in this digital age is not a priority.

Recommendations



1

Provide professional development opportunities for university faculty to stay current on digital age topics to prepare professors to provide current best practices for the future leaders they are preparing for administrative positions.

2

Evaluate current course offerings and activities to ensure that Digital Leadership is a component within the Pre-Service Leadership curriculum.

3

Revisit Professional Standards for Education Leaders (PSEL) Standards and advocate for them to create a standalone standard geared towards Digital Leadership topics and leading in the digital age.

SECTION FIVE
CONTRIBUTION TO SCHOLARSHIP

Gerardo R. Lopez Editor

Please accept this article submission for review in the upcoming issue of *Educational Administration Quarterly (EAQ)*. The use of social media as a tool for professional development is a newly researched topic. Due to this new outlook on leadership, EAQ's primary focus on the studies of educational leadership and leadership development espouse the investigation of new ways of learning and leading in the digital age. Furthermore, EAQ encourages manuscripts that address the "influence of leadership on education practice and the impact of diverse forms of leadership preparation and development" (*Educational Administration Quarterly*, 2018, p. 1)

This submission provides an in-depth look into leading in the digital age and the principal's role in providing personalized professional development opportunities for teachers through the use of Twitter. The researcher examined the principal's presence on social media within four Missouri high schools as viewed through the lens of adult learning theory. Specifically, the article is based on mixed-methods research design for the purpose of determining whether a principal's presence on social media had a positive impact on the self-directed learning culture of teachers.

Please review this submission as it adheres to the guidelines from EAQ outline that a structured abstract to include sections such as purpose, research methods/approach, findings, and implications for research and practice and should not exceed 250 words. Additionally, manuscripts should be 25 to 40 pages in length, inclusive of references, tables, and figures and follow the style of the 6th edition of the *Publication Manual of the American Psychological Association (APA)*. Additionally, this article reviews current literature and adds to the body of knowledge surrounding the use of social media

dissertation in practice, K. England

110

for professional development and its connection to adult learning theory. For the researcher, the study will help uncover critical areas of effective leadership that may be missing from pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals, within the curriculum of their leadership programs.

Thank you,

Kayla R. England, Ed. D.

Title

Leading in the Digital Age: Digital Leaders' Impact on the Professional Development
Culture in a Secondary School Setting

Kayla R. England, Ed.D.

Introduction

Specifically, technology is affecting what we learn, how we learn, how we teach, and how we gather information (Cho, 2016). With the increased use of technology, learners can be at the center of their practice and professional development (Cho, 2016; Dill, 2015). This movement to more of a personalized approach to learning can flourish (Dill, 2015) and be more transparent using social media; more specifically Twitter (Sheninger, 2014). Sheninger (2014) further highlighted information can be gathered, practiced, and shared through the use of Twitter in a way that provides a platform for all educators and leaders to learn from each other outside the four walls of a conference or school building.

To remain relevant and cutting-edge, effective leaders must embrace the ever-changing landscape of leading in the digital age (Couros & Jarett, 2012; Sheninger, 2014). Personal Learning Network (PLN), as envisioned by Sheninger (2014), is a “collection of like-minded people with whom one exchanges information and engages conversations with the main objective of professional growth and improvement” (p.118). Leaders using this personalized professional development can meet the needs of diverse learners, acquire resources, access knowledge, and receive feedback (Sheninger, 2014). Furthermore, Sheninger (2014) and Couros and Jaret (2012) noted leaders could connect with other professionals in the field and discuss strategies to improve teaching, learning, and leadership using Twitter.

This research aims to examine a leader’s commitment to personal, professional growth using Twitter, and how through that use it changes the culture of professional development in a secondary school setting. While there has been some research on the

topic of the benefits of administrators and teachers using social media for professional development (Cho, 2016), little has been researched on how an administrator's presence on social media may have a direct impact on the professional development learning culture of the teachers they lead.

This research was guided by the following research questions.

1. How has the digital age impacted principals' perceptions of personal, professional growth strategies?
2. How does a principal's commitment to personalized professional development, using Twitter, promote a culture of collaboration and self-directed learning?
3. Is there a difference in teacher's perceptions of professional development if their principal is active on social media or not active on social media?
4. Is there a relationship between a principal's presence on social media, and how teachers are self-directed in their personal, professional development?
5. What are principal preparation programs doing to prepare their students to be digital leaders?

Conceptual/Theoretical Framework

Effective leaders examine their work through the lens of the learner and model reflective professional development practices that promote a culture of self-directed learning (Fornaciari & Lund Dean, 2014). This self-directed learning helps adults learn in both personal and professional contexts (Merriam & Bierema, 2014). These learning assumptions hold as leaders deliberate about the professional development environment and opportunities for their teachers in their school.

In examining learning theory and how leaders promote an environment of personal, professional development, two theories were explored in-depth: adult learning theory (Knowles, 1975) and transformative learning theory (Mezirow, 1991). Explored were both Knowles's (1975) theory of andragogy and Mezirow's (1991) theory of transformative learning under the theoretical framework of learning theory. The focus of examining a leader's commitment to personal, professional growth using Twitter, and transforming the culture of professional development in a secondary school setting, along with investigating how the leaders' presence on social media impacts the collaborative and self-directed learning culture in a school setting, aligned appropriately with the elements of adult learning theory. While transformative learning theory encompasses the need for self-reflection and critical discourse, the six assumptions of adult learning theory connected to numerous aspects of learning through social media and the leader's role in that learning process, especially through self-directed learning. Learning using social media is not only a professional development strategy but also a different mindset of communicating and growing professionally (Cho, 2016; Couros & Jarret, 2012; Sheninger, 2014), and is used best when self-directed (Cox, 2016). With technological advances integrating into educators' daily lives, effective leaders must be prepared to provide sufficient guidance to take their teachers to the next level by creating a culture of self-directed learning through the use of social media.

Methods

For this study, chosen was a mixed methods research as it involved the collection and analyzation of both quantitative and qualitative data. Applying mixed methods (Creswell, 2014) procedure afforded the researcher the ability to converge, as well as

merge, quantitative and qualitative data to create a complete analysis of the research problem. Creswell (2014) further argued that analyzing both data sets equate a better understanding of the problem as opposed to a single data collection approach while allowing the use of inductive and deductive thinking. By gathering data from both quantitative and qualitative sources, the researcher was able to use both predetermined and emerging methods while collecting from both open and closed-ended questions (Creswell, 2014). Furthermore, the use of a mixed methods approaches minimized the limitations in both qualitative and quantitative research methods.

Selected was a convergent parallel mixed method case study (Merriam & Tisdell, 2016), also known as a mixed methods comparative case study (Creswell, 2015). There were four high schools in Missouri used to explore the relationship of the principal's use of Twitter and the self-directed professional development of teachers. The researcher interviewed the purposefully selected principals while having the teachers to fill out a quantitative survey (Kerrigan, 2014). The researcher analyzed both sets of data, within each case and across cases.

Additionally, conducted was the concurrent triangulation strategy (Creswell, 2014; Merriam & Tisdell, 2016) during the mixed method study procedure. This strategy allowed the researcher to collect both quantitative and qualitative data concurrently and compare the two databases to determine if there was convergence, differentiation or a combination of the two (Creswell, 2003 Sapsford, 2007).

Participants and Data Collection

Conducted on the campuses of four rural high schools within 90 minutes of Kansas City, each with a total enrollment of 600-850 in grades 9-12 was this mix design

inquiry. Within these four schools interviewed was each head principal and subsequently, their teachers surveyed. Of these four high schools, two principals (High School Principal C and D) tweeted professional development topics and discussions more than five times per week, while Principals A and B did not have a presence on Twitter for professional development purposes led the other two high schools. In all four high schools, technology access was similar as all participants had access to technology and Wi-Fi during the workday. Provided in Table 1 is a description of the organizational structure of the participants involved in the study.

Table 1

Description of Organization Structure of the Participants

School	Student		Teacher			Principal	
	Enrollment	F/R Lunch	Total Teachers	Avg Exp	Advanced Degrees	Yrs at Site	Degree
A	622	17%	56	12	58.2%	8	Doctorate
B	632	31.8%	52	14	56.9%	4	Masters
C	606	47.8%	63	11	45.5%	2	ABD
D	843	42.1%	83	14	61.1%	3	Specialist

Note: N = 4 interview participants; High School Principals A and B did not have a presence on social media; Principals C and D had a presence on social media.

The researcher designed a comprehensive and flexible data collection operation (Newcomer, Hatry, & Wholey, 2015) using a web-based survey (see Appendix A1), which were administered to all teachers (N= 235) within the same high school building as the selected interview administrators. Two hundred and thirty-five teachers received the survey, with 57 teachers who had administrators present in social media, complete the survey. Forty –three participants completed the survey from the school where their

administrator had no social media presence. Survey topics included perceptions of their principal and their involvement in social media, the teachers' personal use of social media for professional development, and their views on whether promoted was a culture of self-directed learning. Illustrated in Table 2 is the number of participants from each group. Group one includes teachers that are led by a principal who has a social media presence while group two participants are under the leadership of a principal who is not active on social media for professional development gains.

Table 2

Description of Survey Participants

	Group #1 Principal had a Presence on Social Media	Group #2 Principal had no Presence on Social Media
Number of Responses from Teachers	59	47

Note: 235 teachers sent the survey

Lastly, the researcher attempted to collect data from all of the nineteen higher education institutions in Missouri that offer a pre-service leadership degree using a survey (Appendix A3). Thirteen of the nineteen institutions responded from 30 professors who teach in leadership preparatory programs in Missouri. The response from the thirty professors within the thirteen institutions provided ample data for the researcher and helped to answer research questions one and five.

Presentation of the Data

Presented in this section are the results of the study, including both qualitative and quantitative analysis. The data analysis procedure was multi-step and addressed the five research questions. Using a convergent-mixed design came with the challenge of

knowing how to merge the two datasets. Creswell (2014) stated that a side-by-side approach comparison approach would allow the researcher to make a “comparison within a discussion, presenting one set of findings and then the other” (p. 222). Answered qualitatively was research questions, while two and five were answered using both qualitative and quantitative data analysis. Specifically, analyzed and triangulated were the qualitative findings with the quantitative results gathered from teachers’ surveys. For research, questions three and five the use of quantifiable data results interpreted from a statistical test, and then presented in the form of tables and figures.

Research Question One

How has the digital age impacted principals’ perceptions of personal, professional growth strategies?

Despite not having any formal training from their leadership programs, all four principals have found a way to navigate through the digital age in their own way. Principals C and D, who have a presence on social media, have embraced the accessibility that technology provides as well as the specific information that can be gathered from using technology for professional development. As Principal D highlighted, “when I see something that interests me, or I think might help one of my teachers I share it instantly” On the other hand, Principals A and B, who do not have a presence on social media, both stated they use technology but neither specifically spoke to how technology has changed their professional growth. With Principal B noting, social media “It is a great communication tool. And that is something that I probably use it more as a communication tool and a PR tool than professional development.” Both C and D who were the principals using technology for professional development stated that

technology has made it easier to gather knowledge that they have more control over what learning they participate. As illustrated by Principal C, social media is “something I can seek out exactly what I'm needing. It's not just a canned. I can seek out what leadership or what content I want and go find it.”

Unlike Principal A, who stated, “I have had no training on using technology for professional development”, Principal C highlighted, “I was exposed to the use of social media as a tool for professional development by a past mentor.” Principal C goes on to illustrate, “This mentor provided training for all administrators in their district and fueled my need and use for personalized learning through the use of technology.” While Principal D attested “Twitter’s platform allows me to “search for information at my fingertips” and then added, “there is not a huge need to meet face to face with other professionals in the field of education” like there once was.”

Before the digital age, the majority of professional development opportunities out there for leaders came in the form of conferences or meetings. Both Principal C and D appreciate that they can “share ideas outside of the school day with the staff and community”. Principal C goes onto to say that unfortunately, the “challenge is getting people started using technology as a tool for professional development.” Principal C further anticipates once educators get started using technology for professional development “it will start to take care of itself.” Comparatively, Principal D has “seen the value” in the using social media for gains in their professional growth and “has made it a part of their morning routine.” Principal D “gets to school forty-five minutes before school starts and spends that time on Twitter” looking for learning opportunities and subjects about their professional growth.

Conversely, Principals A and B perception regarding how the digital age has influenced their perceptions of professional growth strategies were different. For instance, Principal A stated

Their assistant superintendent leads professional growth activities for all of the district administrators. Very rarely, do these learning activities involve technology or social media. On my own time, I do not use social media as a tool for professional growth or for my teachers.

Furthermore, Principal B attested as someone from the “older generation; the learning curve is huge.” Principal B went on to say that, “it is something that someone in my generation has to value and see important to stay current on.” These statements correlate to the information gathered from pre-service leadership program professors, as there is a lack of training for those individuals who have been in education for an extended amount of time. As one professor noted, “I do not know of any specific ways to for students demonstrate their knowledge around the concept of digital leadership.”

Research Question Two

How does a principal's commitment to personalized professional development, using Twitter, promote a culture of collaboration and self-directed learning?

Answered using both qualitative data and quantitative data was research question two. Principals using Twitter for professional development spoke to many connections between their use and a culture of collaboration and self-directed learning. These include modeling self-directed learning, highlighting personalized opportunities, and increased in collaboration and communication with all stakeholders and other professionals.

Illustrated when Principal C said, the use of social media for professional development

allows “teachers to gather information on new teaching strategies, so they don't get stuck in a rut.” and Principal D contended, “some of the department meetings I have been a part of have addressed information that I have put out there on social media. While everyone in the department may not be using it, I know they are talking about it” While Principals A and B are not active on Twitter for professional development reasons; they too highlighted positive gains in collaboration and communication using social media in schools.

For instance, all principals agree that the use of social as a tool for communication has increased the connections between parents, students, and school then in return, increasing collaboration opportunities. Principal A, B, and C specifically spoke using Twitter to showcase the great things going in the classroom as well as reporting out sports scores. Principal B uses social media as a way to connect with stakeholders in their use of “tweeting out a selfie with the principal” to create more positive interactions with parents. Principal A stated he used social media as a “new age newsletter.” While he does not use it often, he appreciated when his staff “promoted positive things in their classroom/activity” while “communicating with parents on a different level.”

Comparatively, Principal B wanted to “connect with more staff on Twitter” because they have seen a difference in providing “real-time communication to all” stakeholders.

With this increased communication, a connectedness grows. Principal C specified that they “feel more connected to staff when they use Twitter.” One example Principal B used to connect their use of social media for branding purposes to increased collaboration, was when they tweeted out an activity in physical education. From this tweet, they had “numerous staff members approach them” about the activity and then

“began conversations around that instruction.” Principal B stated this collaboration “allowed her to have cross-curricular conversations with teachers that do not necessarily work together”. Additionally, Principal D spoke to their experience in the utilization of information found on Twitter and that crossover in department meetings. Some of the teachers that Principal D works with have “come back from their department meetings discussing something that they had put out there on Twitter”. This illustrated how collaboration opportunities have spawned from what a leader has put on Twitter.

Lastly, the transparency of using social media for professional development created a platform for leaders to model self-directed learning and collaboration outside of the school day. For example, Principals C and D highlight their use of obtaining and sharing information outside the four walls of a school as well as outside the time constraints of the school day. Principal C indicated their “connected network of people on social media” allows them to highlight pertinent information that may coincide with “building goals” by retweeting articles. Furthermore, this connection allows Principal C to “share professional ideas with leaders in the field across the entire world” then in return, making them a better leader. Principal D makes a connection back to their time in the classroom when he stated, “I wish Twitter had been around when I was teaching in a classroom setting”. These statements by the principals show a determination to obtain more information needed, on their own, to make changes in not only their personal, professional growth but also initiatives within the building. Principals C and D have promoted a culture of self-directed learning because they model their self-directed learning, share what they learn, and then connect it back to what is going in the schools they lead. As Principal C highlighted, “they [teachers] actively seek out what leadership

topics or content they want to learn about and then go find it”. Conversely, Principals A and B did not speak to that aspect of social media perhaps because they are not currently utilizing social media for professional development purposes.

Quantitatively this *research question* was analyzed through teacher survey questions 2, 6, 7, 8, and 10. An independent-samples t-test was conducted to compare the two groups of teachers on teacher survey question two, (see Table 3) “*I see a need for more personalized learning in teacher professional development*”. There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=1.87, SD=0.84$) and teachers who do not have a principal who has a presence on social media ($M=1.93, SD=0.45$) conditions; $t(98)=-.372, p=.711$.

Table 3

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q2	15.121	.000	-.372	98	.711	-.0530	.1427	-.3362	.2302

Data analysis of question six, through the use of a t-test (see Table 4), suggested if teachers who have a leader that is present at social media and actively uses it, perceive that there is a strong collaborative environment amongst teachers in their buildings as there was a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.57, SD=1.05$) compared to teachers who do not have a

principal who has a presence on social media ($M=3.11$, $SD=1.05$) conditions;

$t(98)=2.179$, $p=.032$.

Table 4

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q6	.001	.976	2.179	98	.032	.4626	.2123	.0412	.8840

An independent-samples t-test (see Table 5) was conducted on teacher survey question seven “*It is the responsibility of the principal to promote a culture of collaboration and self-directed learning*”. There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=4.15$, $SD=0.70$) and teachers who do not have a principal who has a presence on social media ($M=4.09$, $SD=0.52$) conditions; $t(98)=.508$, $p=.613$.

Table 5

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q7	3.275	.073	.508	98	.613	.0648	.1277	-.1886	.3184

As displayed in Table 6, an independent-samples t-test was conducted to compare the two groups of teachers: one whose principal has a presence on social media and the other whose principal does not have a presence on social media. There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.03$, $SD=0.88$) and teachers who do not have a principal who has a presence on social media ($M=3.07$, $SD=1.24$) conditions; $t(98)=-.163$, $p=.871$.

Table 6

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q8	18.537	.000	-.163	98	.871	-.0346	.2127	-.4568	.3875

Data collected from question ten “*Twitter allows me to collaborate with like-minded individuals*” suggested teachers are more likely to believe that Twitter allows them to collaborate with like-minded individuals when their principal is present at social media and actively uses it (see Table 7). There was a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.54$, $SD=.91$) and teachers who do not have a principal who has a presence on social media ($M=2.79$, $SD=1.12$) conditions; $t(98)=3.71$, $p=.000$.

Table 7

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q10	2.291	.133	3.705	98	.000	.7531	.2032	.3497	1.1565

Research Question Three

Is there a difference in teacher's perceptions of professional development if their principal is active on social media or not active on social media?

Data analysis of this research question was solely used from the quantitative data gathered from the teacher survey. More specifically, survey questions two, three, and four were constructed in an attempt to gather ample data to answer research questions three. Data collected from the t-test showed a difference between the two groups surveyed.

An independent-samples t-test was conducted to compare the two groups of teachers: one whose principal has a presence on social media and the other whose principal does not have a presence on social media (see Table 8). There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=1.87$, $SD=0.84$) and teachers who do not have a principal who has a presence on social media ($M=1.93$, $SD=0.45$) conditions; $t(98)=-.37$, $p=.711$. Specifically, these results suggest that a principal's social media presence does not have an effect teachers need for more personalized learning in their current teacher professional development.

Table 8

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q2	15.121	.000	-.372	98	.711	-.0530	.1427	-.3362	.2302

T-test data from questions three and four highlights these differences as well as displayed in Table 9. Data collected from question three “*I am familiar or have been exposed to using Twitter as a tool for professional development*” statistically significantly differ (with Media presence: $M=4.13$, $SD=.89$; without Media presence: $M=2.60$, $SD=1.53$; $t(98)=6.235$. $p=.000$). This reveals teachers are familiar to using Twitter as a tool for professional development if their principal is present at social media and actively uses it. Comparatively, results from question four “*my principal’s presence on social media directly impacts how much I use social media for personal professional development*” are statistically significantly differ (with Media presence: $M=2.79$, $SD=1.06$; without Media presence: $M=1.74$, $SD=1.14$; $t(98)=4.723$. $p=.000$). This suggests if their principal is present at social media and actively uses it, the principal's presence on social media directly impacts how much teachers use social media for personal, professional development.

Table 9

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower Upper	
Q3	32.040	.000	6.235	98	.000	1.5181	.2435	1.0349	2.0013
Q4	.331	.566	4.723	98	.000	1.0452	.2213	.6060	1.4845

Research Question Four

Is there a relationship between a principal's presence on social media, and how teachers are self-directed in their personal, professional development?

Data analysis of this research question was solely used from the quantitative data gathered from the teacher survey. More specifically, survey questions one, five, and eight were constructed in an attempt to gather data to answer research questions four.

Findings from t-test data (see Table 10) on teacher survey question one, "*If there is a need for me to learn new information, I do not need a supervisor to point me in the right direction*" suggested teachers who are led by a principal who is active on social are less likely to need their supervisor to point them in the right direction (treatment: $M=2.84$, $SD=1.25$; control $M=2.35$, $SD=1.04$). Therefore, it is revealed that the difference between groups is statistically significant ($t(98) = 2.094$, $p=.039$), and interpret this as "principals' presence on social media directly impacts how much teachers use social media for personal, professional development."

Table 10

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q1	4.045	.047	2.094	98	.039	.4932	.2356	.0256	.9608

Additionally, an independent-samples t-test was conducted to compare the two groups of teachers on teacher survey question five “*It is the principal’s responsibility to expose teachers to various forms of personalized learning*”. As displayed in Table 11 there was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.12$, $SD=0.90$) and teachers who do not have a principal who has a presence on social media ($M=2.86$, $SD=0.91$) conditions; $t(98)=1.43$, $p=.157$.

Table 11

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q5	.013	.910	1.426	98	.157	.2623	.1839	-.1027	.6274

An independent-samples t-test was conducted (see Table 12) to compare the two groups of teachers: one whose principal has a presence on social media and the other

whose principal does not have a presence on social media on teacher survey questions eight “*There is a culture of self-directed learning promoted within the school*”. There was not a significant difference in the scores for teachers who have a principal that has a presence on social media ($M=3.03, SD=0.88$) and teachers who do not have a principal who has a presence on social media ($M=3.07, SD=1.24$) conditions; $t(98)=-.163, p=.871$.

Table 12

Independent Samples T-Test

Question	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Q8	18.537	.000	-.163	98	.871	-.0346	.2127	-.4568	.3875

Research Question Five

What are principal preparation programs doing to prepare their students to be digital leaders?

While all thirteen higher education institutions that responded to the survey out of nineteen indicated, they are providing their students with coursework that will help future leaders implement a strong professional development program in their leadership roles, only ten of them stated that their students are prepared to implement a strong professional development once they leave their program. Additionally, of those thirteen institutions surveyed, eight of the thirteen institutions stated that their students are prepared to use technology to enhance their learning and the personalized learning for teachers.

Moreover, seven of the institutions highlighted that digital leadership was a component of the coursework they offer for pre-service leaders. These topics are embedded in the coursework in such places as “Personnel Administration”, Digital Based Decision Making”, “Data-Driven Leadership and Principalship and Staff Observation”, as well as other elective courses.

Professors stated that Digital Leadership was emphasized in their coursework, through various “authentic project-based learning opportunities” as well as in coursework referencing “branding, social media, creating learning spaces for collaboration using technology, and communication.” More specifically, one institution highlighted a course titled “Digital Based Decision Making” which is centered on the work of Eric Sheninger. This concept compares to the course offered at one institution where the students are asked to “prepare samples of tweets, Facebook posts, and other social media platforms to communicate with internal and external audiences”. Comparatively, one professor noted, “We have some faculty members requiring their students to tweet and use social media as a participation model.”

Conversely, out of the thirteen institutions responding the majority spoke to projects having many technological aspects but not relating it back to the pillars of digital leadership. There appeared to be a disconnection between what is digital leadership and the use of technology within the coursework. For example, one professor stated, “Each course in the program has a key assessment that is based on state and national standards. Many projects require students to collect data, analyze, and present data. To do this, students must be able to use technology.” Another professor noted, “Many of our faculty are not trained for the digital world.”

The perceptions of the use of technology and the key components of digital leadership with preparatory programs were very different based on the stakeholder. All four principals agreed that when they were going through their pre-service leadership program, technology was extremely different from what it is today. High School B and C's principals are either currently taking a class to further their degree or are finished with coursework but working on their dissertation. High School B Principal has stated that he/she had experience of "using social media in a college class but felt that it was not used effectively" and High School C Principal said technology was "highlighted in the use of Blackboard or other student work platforms only."

Similarly, the two main reasons the six institutions do not have digital leadership as a component of their coursework noted the "lack of technology skills of the professors" and "it is not linked directly to the standards" or a "requirement by the Department of Secondary Education (DESE)." Data collected from the principal interviews also show a lack of preparation to not only implement a strong professional development system but to do so using a technology-based learning and digital leadership. This is evident in the responses from Principal B when stating that while they had great professors they [professors] "lacked much knowledge about new concepts in digital education and using technology to be a better leader." Another principal went onto say that this lack of knowledge "can be a disservice for pre-service leadership students as they are not current with new concepts out there."

One professor agreed that the topic of digital leadership "should be addressed more in our preparatory programs." While another cited "time is the biggest reason," and yet the professor noted, "they want to redesign their coursework in order to offer a

specific course on digital leadership in the future”. In comparison to principal’s perceptions, all four principals stated that they see the value in using social media in their role as a leader and agree that this topic should be discussed and implemented in all current pre-service leadership programs. This is reflected in High School Principal D response when concluded the term “personalized wasn’t even a concept” that was approached in their pre-service leadership programs but is one that is needed”.

Discussion of Findings

Qualitative data analysis involved the organization and examination of data for themes to gain a deeper understanding of the data (Creswell, 2014). This analysis came in the forms of emerging themes from the principal interviews. Followed by additional quantitative data analysis of both teachers and professors through surveys. The triangulation of the data resulted in the reoccurring three themes emerging: *Professional learning in the digital age, Social media in schools; Lack of preparation and training at the preservice leadership level.*

Professional learning in the digital age

Throughout their career, a teacher can experience a vast range of professional development activities that aim to increase knowledge and skills that will improve teaching practice (Kind & Evans, 2014). Traditionally, these activities are in the form of educational seminars, conferences, and building specific training (Bayar, 2014; Desimone & Garet, 2015; Kind & Evans, 2014). These administrative driven or district initiative training can miss the mark for teachers as they seldom embody characteristics of effective professional development. Bayar (2014) attests that while they are shorter in time commitment, they "tend to be less effective" as they offer little to no impact on

teacher skills (p. 321).). Sheninger (2014) added traditional methods of professional development lack connection and conversation and attests that “connectedness should be the standard, not just an option in education” (p. 124). The use of social media to augment learning is a relatively new and growing area, and there is very little research on the use of social networking sites to promote professional development (Kind & Evans, 2014). In the digital age, individuals can freely exchange and have instant access to information (Kind & Evans, 2014; Merriam & Bierema 2014). Parker (2013) argued, technology has not only infused every aspect of society, but it is substantially changing how we communicate, think and learn.

Meaningful professional development goes far beyond learning a new way of doing things and principals play a key role in the professional development of the teachers they lead. This is not only evident in the work of Desimone and Garet (2015) when they stated "teachers are more likely to use ideas and strategies from PD when they are aligned with leadership priorities" (p. 257) but also in this research. Data from the teacher survey suggested that if a principal is on social media, their teachers are more familiar with the use of social media as a professional development tool but are more likely to use it. This data also revealed teachers believe that Twitter allows them to collaborate with like-minded individuals increasing their knowledge base. While this data is powerful in itself, one of the most insightful interpretations of the data was found when the data collected suggested that teachers from the group who was being led by a principal who uses social media for professional development did not need more personalized learning opportunities in relation to the group of teachers whose principal was not on social media.

Technology facilitates learning in a way that is meaningful to adults: timely, relevant, and self-directed (Meriam & Bierema, 2014). While not all principals in this research have much experience using social media as a platform for professional development, all of them understand the importance of meeting their teacher's specific needs. As indicated in research, variety is key to professional development as "teachers vary considerably in their response to the same professional development (Desimone & Garet, 2015, p. 255) and should be calibrated to meet the needs of all learners (Ahlquist, 2014). Twitter allows all learners (teachers and administrators) to navigate through its platform to find information, "share resources, ask and answer questions, and debate and discuss education issues of the day" that is adapted to their current professional need (Couros & Jarret, 2012, p. 149). Teachers agree that having a leader who sets a strong example of life-long learning is vital to the development and maintenance of healthy and intellectual and professional habits. Another teacher highlights that they believe that if a principal is silent in their professional learning, they will have an uphill battle when it comes to creating a learning culture in his or her school. Navigating the new terrain that is the digital age, comes with both successes and challenges. It can be suggested, principals effective in personalized learning embrace the use of social media to not only highlight their learning but also empower their teachers to challenge their thinking about their learning.

Social media in schools

The data suggested there are many other benefits, besides professional development, for educators to be active on social media. For example, participants in both the principal interview and teacher survey highlighted four of Sheninger's (2014)

seven pillars of digital leadership, including communication, public relations, branding, and student engagement.

Hearn (2008) and Cho (2016) speak to the importance of leaders not only using social media as a tool to brand themselves as a professional but also as a way to brand their school's mission and vision to all stakeholders. "Visionary leadership demonstrates energy, commitment, entrepreneurial spirit, values and conviction that all children will learn at high levels, as well as inspiring and influencing others with this vision both inside and outside the school building" (Thompson, 2017, p. 7). A teacher from one school suggested that social media allows principals to "tell the story" of their building. Highlighted in the work of Shenger (2014) is this notion when he stated if leaders do not tell their story, it opens up the floodgates for someone else to tell it for them.

Ahlquist (2014) and Flanagan and Jacobsen (2003) expand this view and imply that the use social media can be a catalyst for leading change within a school as social media usage has grown from 7% to 65% in adults from the years 2005-2015 (Perrin, 2015). In a more recent study, it was found by the Pew Research Internet Project that 69% of adults in the United States use at least one social media site with a majority of users using social media on a daily basis (Pew Research Center, 2018). This increased usage of technology is changing how educators gather and disseminate knowledge. Furthermore, "technology is not just a device that is utilized as a tool. Rather technology has infused every aspect of society" (Parker, 2013, p.55).

Social media is where people get their information and where they communicate with others. Increased communication allows principals and teachers to showcase the positive aspects of their school (Whitaker, Zoul, & Casas, 2015) and communicate on a

global stage (Cho, 2016). In return, principals and educators can promote a culture of collaboration and transparency (Sheninger, 2014). This is also evident in responses from both groups of teachers and principals surveyed. Many of them suggested that one major and obvious advantage of principals using social media is that it keeps people connected and communicating. While online communication cannot “completely replace the power of face-face communication” (Whitaker, Zoul, & Casas, 2015, p. 33), principals and teachers noted that using social media allows communication to be accessible 24/7 as the platform is public. From this research, it is suggested all stakeholders view the value of the use of social media in 9-12 settings, as a platform for personalized learning and professional development.

Lack of preparation and training at the preservice leadership level

This study also focused on clarifying the importance of educating future leaders in effective professional development models in the digital age, as many leaders are unprepared for the complex issues that surround leading in the digital age (Kind & Evans, 2014; Flanagan & Jacobsen, 2003; Sheninger, 2014). Previous studies have reported, "school administrators are required to assume leadership responsibilities in areas with which they are unfamiliar, and for which they have received little training" (Flanagan & Jacobsen, 2003, p. 124). Furthermore, Ahlquist (2014) added there “exists a gap in developing competent leaders capable of leading change using social media" (p. 57). This is evident in the responses gathered in this research from principals and pre-service leadership professors. Many higher education institutions spoke to projects having many technological aspects but not specifically relating it to any of Sheninger’s (2014) pillars of digital leadership. The data suggests there is a disconnection between the knowing

difference between utilizing technology and the key components of digital leadership.

While there may be opportunities for aspiring leaders to utilize technology in their preservice leadership programs, these opportunities lack the fundamental components of digital leadership including “establishing direction, influencing others, and initiating sustainable change through the access of information, and establishing relationships to anticipate changes pivotal to school success in the future (Sheninger, 2014 p. 1).

Additionally, while the Professional Standards of Education Leaders (PSEL) standards “more fully describe a school leaders’ responsibility to develop the professional capacity of teachers and staff” (Murphy, Louis, & Smylie, 2017, p.22) and “design and implement job-embedded opportunities for professional learning collaboratively with faculty and staff (National Policy Board for Educational Administration, 2015, p. 15), the key component of leading in the digital age was omitted. One of the differences between the ISLLC and PSEL standards was the PSEL was adopted to provide a more future-oriented perspective as principals are leading in an ever-changing world. One can speculate that professors and aspiring principals could find many connections between the essential components of digital leadership and the new standards; however, an explicit connection is not as apparent. Consequently, the lack of knowledge on digital leadership will not allow professors to make those connections explicit to provide digital learning opportunities for their students. From this inquiry, data suggests the curriculum within preparatory programs must reflect understandings and demonstrations in the application of digital learning to enhance personalized teacher learning through professional development.

Conclusions

This movement to more of a personalized approach to learning can flourish (Dill, 2015) and be more transparent using social media; more specifically Twitter (Sheninger, 2014). Despite not having any formal training from their leadership programs, all four principals in this research have found a way to navigate through the digital age in their way. Specifically, principals that are using social media for professional development stated that technology has made it easier to gather knowledge that they have more control over what learning they participate. More specifically, one principal's daily routine has changed as they arrive at school early to look for learning opportunities and subjects about their professional growth. Furthermore, Sheninger (2014) and Couros and Jaret (2012) noted leaders could connect with other professionals in the field and discuss strategies to improve teaching, learning, and leadership using Twitter.

Research from this study shows that principal's commitment to personalized professional development, using Twitter, promotes a culture of collaboration and self-directed learning. Teachers, who have a leader that has a social media presence and actively uses it, perceive that there is a strong collaborative environment amongst teachers in their buildings and the increased teachers' perception about the culture of self-directed learning promoted within the school. Further results from this research, conclude that the more presence of principals on social media, the fewer teachers' need for more personalized learning in teacher professional development. In addition, one can conclude that these teachers do not have that need because they have been exposed to social media for professional development and embrace self-directed opportunities for themselves. This correlates with Sheninger's (2014) thoughts on the use of Twitter as a

platform for all educators and leaders to learn from each other outside the four walls of a conference or school building.

This research also showed there is a difference in teacher's perceptions of professional development if their principal is active on social media or not active on social media. Effective leaders inspire their staff by modeling the use of social media (Sheninger, 2014) while providing professional development opportunities for their teachers (Flanagan & Jacobson, 2003). One can interpret data collected in this research that teachers who are being led by a principal who is on social media do not need as much personalized learning opportunities as teachers who have a principal that is not only social media for professional development reasons. Furthermore, one concludes that teachers from the group whose principal has a social media presence do not feel the need for more personalized learning as it may be embedded into the school's professional development culture or their professional development practices. Researchers Forrest and Peterson (2006) stated: "adults naturally seek to direct their own educational experience (p. 16) while Knowles (1975) added that this type of learning is the "best way to learn" (p. 10). Additionally, Twitter provides a platform for learning to be continuous and at the fingers tips of all learners (Haworth, 2016; Manca & Ranieri, 2016; Sheninger, 2014). It allows educators to "share resources, ask and answer questions, debate, and discuss education issues" (Couros & Jarret, 2012, p. 149) while conversing with like-minded professionals (Cho, 2016; Sheninger, 2014).

Lastly, principals leading in the twenty-first century carry its own set of challenges as technology is changing the role of education leaders (Parker, 2013). Unfortunately, critical areas of effective leadership in this digital age are missing from

pre-service leadership programs. This is evident in data collected from preservice leadership programs. There seems to be a disconnection between what is digital leadership and the use of technology within the coursework. Additionally, two main reasons the six higher education institutions do not have digital leadership as a component of their coursework is “lack of technology skills of the professors” and “it is not linked to the standards” or a “requirement by the Department of Secondary Education (DESE).” Data collected principal interviews also show a lack of preparation for leadership to not only implement a strong professional development system as well as technology-based learning and digital leadership. Effective leaders need to be well versed in not only current technological advances (Sheninger, 2014) but also social media platforms that can be used to help grow professionals and create a self-directed professional development culture (Ahlquist, 2014, Dill, 2015). Knowing this, the data provides the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs and provide professors the necessary professional development and resources to achieve this goal.

Implications for Practice

Based on the results of the study, school districts cannot assume that principals coming out of preparation programs are prepared to navigate leading in the digital age. While they may be prepared to use technology effectively, the majority of professors at higher education institutions lack the knowledge necessary in preparing digital leaders. Not only do school districts need to be intentional in providing professional development opportunities for their administrators, but higher education intuitions also need to do the

same for their professors. Additionally, professional organizations such as MOASSP and MOAESP could offer these same professional development opportunities for professionals across the state. This multifaceted commitment to professional development will help prepare leaders to be effective in this digital age. Additionally, higher education institutions need to evaluate their course offerings and activities to ensure that digital leadership is a component within the pre-service leadership curriculum.

Implications for Research

Further examination of this research should be performed on students who are currently enrolled in or have recently finished their pre-service leadership programs. While the information was collected from current higher education institution professors, the principals studied in this research were at least ten years removed from their master's level leadership programs. Collecting data from students who have more recent experience in pre-service leadership programs, would allow a more current view on the perceptions of pre-service leadership programs and their ability to educate students on digital leadership.

Replication of this study to include both middle and elementary public schools would allow for a more diverse population and invite responses from teachers other than the secondary school setting that was used in this research. Additionally, the study could be expanded across all Missouri Principals and teachers and only utilize a web-based survey to collect data. This quantitative approach would allow the researcher to collect many responses from many different populations in an effort to collect the voice from all educators in the state of Missouri. Furthermore, research could take a qualitative

approach through the use of case study research. In doing this, the researcher would be able to identify principals who are digital leaders, observe them, and then interview the teachers they lead.

Finally, this research showed that there is a disconnect between what higher education institution professors view as digital leadership components and preparing students to use technology. A researcher could conduct a program evaluation of preservice leadership programs and their effectiveness to prepare students for leading in the digital age through the lens of Sheninger's (2014) work on digital leadership. Working through this lens would allow the researcher to have a set foundation and common language to evaluate the program's effectiveness effectively.

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SECTION SIX

SCHOLARLY PRACTITIONER REFLECTION

The dissertation process has proven to be one of the most difficult and eye-opening experiences I have ever been a part of. I knew when I started this process that I needed to pick a topic that I was passionate about and something that could impact future leaders. Professional development and technology are two passions of mine, so the topic of using social media as a professional development tool just made sense. Since I use social media personally for professional development, I was hoping that my research would show that teachers are positively impacted by that use, and ultimately their views on professional development changed.

The investigation of the literature of the essential components of professional development has provided a foundation on what is effective professional development while the information gathered on adult learning has provided a framework on how adult learners learn. This has positively impacted how I expose and organize professional development opportunities for the teachers I lead. While I strive to showcase the positive aspects of using social media for professional development, I understand that not every teacher may embrace it. What I can do is use what I learned about adult learning and create professional development opportunities for teachers that will be impactful for them. Being mindful of the six assumptions of adult learning theory will allow me to provide a framework for a more prescribed professional development training/opportunities for teachers.

Secondly, this process has opened up my eyes to how the digital age has changed leadership in schools and how much there is a disconnect between what is being taught in pre-service leadership programs and the digital landscape we expect new leaders to navigate when they are in leadership positions. Using technology through the use of

blackboard or canvas is incorporated in many aspects of pre-leadership programs, but they lack key components of what it means to be a digital leader. The work of Sheninger (2014) and Couros (2012) could be used as a framework for pre-service leadership programs to use to help prepare leaders for their future leadership positions. This includes “establishing direction, influencing others, and initiating sustainable change through the access of information, and establishing relationships to anticipate changes pivotal to school success in the future (Sheninger, 2014 p. 1). Sheninger (2014) outlined seven pillars of digital leadership, including communication, public relations, branding, student engagement/learning, professional growth/development, re-envisioning learning spaces and environments, and opportunity. There is a need for professional development opportunities for university professors to stay current with the changing times in this digital age.

Lastly, this dissertation process has pushed me personally to limits I did not think I had. The mental strain of going to bed each night thinking about my research to waking up planning out my day to find time to write was something I did not imagine. I’ve found through this process I have grown immensely as a writer, a researcher, and a leader. I value the challenges this process entails and look forward to using the skills I have developed in my daily life as a high school principal.

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APPENDIX

APPENDIX A

A1: Teacher Survey Questions

A2: Principal Survey Questions

A3: Pre-Service Leadership Professor Survey Questions

Appendix A1: Teacher Survey Questions

You are being asked to participate in a survey entitled *Leading in the Digital Age: A Digital Leaders Impact on the Professional Development Culture in a Secondary School Setting* which is being conducted by Kayla England, a doctoral student with the University of Missouri. No one, including the researcher, will be able to associate your responses with your identity. The survey should take 5 to 10 minutes to complete. Your participation is voluntary. You may choose not to take the survey, to stop responding at any time, or to skip any questions that you do not want to answer.

1. I would like to ask you to participate in a study that involves research.
2. Participation is voluntary and your decision not to participate will not involve any penalty or loss of benefits
3. For this study, teachers within a selected principal's building will be sent a web-based survey that should only take 5-10 minutes to complete.
4. The study staff may withdraw you from the study at any time after explaining to you the reason for withdrawal.
5. While on the study, there are no risks as this survey is anonymous and will not be collecting emails. All teachers within the building will be sent this survey.
6. If you agree to take part in this study, the information gathered should be beneficial to pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs. You may expect to benefit from taking part in this research to the extent that you are contributing to the professional development of upcoming school leaders.
7. We are not aware of any alternative study concerning this issue. The alternative is not to participate.
8. If you choose to participate, your identity will be kept anonymous in all phases of the research as the survey is anonymous.
9. There is no cost to me if choose to be a part of this study and may discontinue participation at any time without penalty.
10. There is no compensation given to you for participation in this study.
11. If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-3181.
12. If you have any questions about the research, please contact Kayla England via email at kayla.England@lsr7.net or the faculty advisor Dr. Barbara Martin at bmartin@ucm.edu
13. A copy of this Informed Consent form will be given to you before you participate in the research.

I have read the material above, and any questions that I have posed have been answered to my satisfaction. I voluntarily agree to participate in this study.

Yes, I agree to participate in this study

No, I do not agree to participate in this study

*If teachers click I agree to participate, it will take them to the survey, if they choose I do not agree to participate, it should exit them out.

Instruction:

Please circle a number indicating how much you agree or disagree with each of the following statements.

	Strongly Disagree 1	Disagree 2	Neutral 3	Agree 4	Strongly Agree 5
1. If there is a need for me to learn new information, I do not need a supervisor to point me in the right direction. <i>Q4</i>	1	2	3	4	5
2. I see a need for more personalized learning in teacher professional development. <i>Q2&3</i>	1	2	3	4	5
3. I am familiar or have been exposed to using Twitter as a tool for Professional Development. <i>Q2&3</i>	1	2	3	4	5
4. My principal's presence on social media directly impacts how much I use social media for personal professional development. <i>Q3</i>	1	2	3	4	5
5. It is the principal's responsibility to expose teachers to various forms of personalized learning. <i>Q2&4</i>	1	2	3	4	5
6. There is a strong collaborative environment	1	2	3	4	5

amongst teachers in my building. <i>Q2</i>					
7. It is the responsibility of the principal to promote a culture of collaboration and self-directed learning. <i>Q2</i>	1	2	3	4	5
8. There is a culture of self-directed learning promoted within the school. <i>Q2&4</i>	1	2	3	4	5
9. When educators use social media, the digital citizenship culture in schools improve. <i>Q1</i>	1	2	3	4	5
10. Twitter allows me to collaborate with like-minded individuals <i>Q2</i>	1	2	3	4	5

Open ended questions:

11. Besides professional development, what benefits have you or do you see from a principal being present on social media?

12. Besides professional development, what benefits have you or do you see from a teacher being present on social media?

Appendix A2: Principal Survey Questions

Introduction

Good Morning. I first want to thank you for taking time out of your busy schedule to meet with me and answer questions. My name is Kayla England and I am the doctoral student with the University of Missouri who will be conducting the interview. This interview will be audiotaped to ensure accuracy. My questions will focus on how a principal's presence on social media transforms the teaching and learning priorities of a school, as well as the collaborative environment between teachers. You have selected as a participant in this study due to your strong presence on social media in addition to your commitment to teaching and learning in the Clinton School District.

The interview will take less than an hour to complete. Please answer the questions as you see fit and keep in mind that there are no right or wrong answers. If any of my questions are unclear please feel free to ask for clarification. If there is anything you would like to elaborate or follow up on, please do so as well.

Questions	Information
1. Tell me your name, longevity in the profession, time spent in current role? 2. How are you familiar with using social media as a tool for professional development? If so, what platform?	Learn about participants
3. What is the first thing that comes to mind when you see the term personalized professional development? Probe: What about Professional Learning Network?	Q1
4. How do you use the information found on social media to affect the teaching and learning environment in your building? Probe: What are your expectations in regard for all teachers to have a social media presence?	Q2 & Q3
5. How has your use of social for presence improved the collaborative environment among teachers in your building? Probe: What evidence have you seen? Can you give me any examples?	Q2 & Q3
6. How do teachers utilize information that you have shared on social media in their classrooms? Probe: Do you have any information that they are sharing it with others?	Q1 & Q2

<p>7. In considering your current professional development culture in the building, what significant challenges or obstacles exist when promoting personalized professional development to change the teaching and learning environment in the building?</p>	<p>Q3</p>
<p>8. Thinking about to your principal preparation program, how were you trained on implementing a strong professional development program in a school?</p> <p>Probe: Was there any information given about personalized professional development? By whom, and why</p>	<p>Q1 & Q4</p>
<p>9. How did your principal preparation program trained you regarding the use of technology to enhance personal learning and personalized learning for teachers? Give examples</p>	<p>Q5</p>
<p>Is there anything else you would like to tell me that I have not asked about?</p>	<p>Ending Question</p>

Appendix A3: Pre-Service Leadership Professor Survey Questions

University Survey Questions

You are being asked to participate in a survey entitled Digital Leadership & Pre-Service Leadership Programs which is being conducted by Kayla England, a doctoral student with the University of Missouri. The survey should take 5 to 10 minutes to complete. Your participation is voluntary. You may choose not to take the survey, to stop responding at any time, or to skip any questions that you do not want to answer.

1. I would like to ask you to participate in a study that involves research.
2. Participation is voluntary and your decision not to participate will not involve any penalty or loss of benefits
3. For this study, teachers within a selected principal's building will be sent a web-based survey that should only take 5-10 minutes to complete.
4. The study staff may withdraw you from the study at any time after explaining to you the reason for withdrawal.
5. While in the study, the only risk would be a loss of confidentiality as this survey is not anonymous as it asks to identify your institution. University names will not be used in the dissertation and data confidentiality is of the utmost importance to the researcher. Subjects do have the option of inputting their contact information if they would like a follow-up from the researcher.
6. If you agree to take part in this study, the information gathered should be beneficial to pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs. You may expect to benefit from taking part in this research to the extent that you are contributing to the professional development of upcoming school leaders.
7. We are not aware of any alternative study concerning this issue. The alternative is not to participate.
8. If you choose to participate, your identity will be kept anonymous in all phases of the research as the survey is anonymous.
9. There is no cost to me if choose to be a part of this study and may discontinue participation at any time without penalty.
10. There is no compensation given to you for participation in this study.
11. If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-3181.
12. If you have any questions about the research, please contact Kayla England via email at kayla.england@lsr7.net or the faculty advisor Dr. Barbara Martin at bmartin@ucm.edu.

I have read the material above, and any questions that I have posed have been answered to my satisfaction. I voluntarily agree to participate in this study.

Yes, I agree to participate in this study

No, I do not agree to participate in this study

*If teachers click I agree to participate, it will take them to the survey, if they choose I do not agree to participate, it should exit them out.

1. What is your University/Intuition's Name:
2. Is there anywhere in your pre-service leadership program's coursework where there is an emphasis on how to implement a strong professional development program?
3. On a scale of 1-5, how prepared are leaders leaving your program prepared to implement a strong professional development program in the school they lead?
4. How does your program educate leaders regarding the use of technology to enhance personal learning and personalized learning for teachers?
5. On a scale of 1-5, how prepared are leaders leaving your program prepared to use technology to enhance personal learning and personalized learning for teachers?

Digital Leadership Section:

Digital Leadership, as defined by Eric Sheninger, is “establishing direction, influencing others, and initiating sustainable change through the access of information, and establishing relationships to anticipate changes pivotal to school success in the future (Sheninger, 2014 p. 1). Sheninger (2014) outlined seven pillars of digital leadership, including communication, public relations, branding, student engagement/learning, professional growth/development, re-envisioning learning spaces and environments, and opportunity.

He goes on to say Digital leadership is not about flashy tools, but a strategic mindset that leverages available resources to improve what we do, while anticipating the changes needed to cultivate a school culture focused on engagement and achievement. It is a transformed construct of leadership that grows out of the leader's symbiotic relationship with technology.

Using the definition of Digital Leadership that has been outlined, please answer the following questions.

1. Is Digital Leadership a component of any part of the coursework in the leadership program at your University or college?
2. If yes, how is Digital Leadership emphasized in the coursework?
3. If yes, how are your students able to demonstrate their knowledge about the concept of Digital Leadership?
4. If Digital Leadership is NOT a component of the coursework in your preservice leadership program, is there a specific reason this topic not addressed?

5. Lastly, would you be interested in learning more about the various ways digital leadership is changing how principals lead in the 21st century and collaborate on ideas on how to incorporate these topics within your current coursework?

APPENDIX B

B1: Teacher Informed Survey Consent

B2: Leader Informed Consent

B3: University Informed Consent

B4: University Recruitment Email

B5: Teacher Recruitment Email

Appendix B1: Teacher Survey Consent

You are being asked to participate in a survey entitled *Leading in the Digital Age: A Digital Leaders Impact on the Professional Development Culture in a Secondary School Setting* which is being conducted by Kayla England, a doctoral student with the University of Missouri. No one, including the researcher, will be able to associate your responses with your identity. The survey should take 5 to 10 minutes to complete. Your participation is voluntary. You may choose not to take the survey, to stop responding at any time, or to skip any questions that you do not want to answer.

14. I would like to ask you to participate in a study that involves research.
15. Participation is voluntary and your decision not to participate will not involve any penalty or loss of benefits
16. For this study, teachers within a selected principal's building will be sent a web-based survey that should only take 5-10 minutes to complete.
17. The study staff may withdraw you from the study at any time after explaining to you the reason for withdrawal.
18. While on the study, there are no risks as this survey is anonymous and will not be collecting emails. All teachers within the building will be sent this survey.
19. If you agree to take part in this study, the information gathered should be beneficial to pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs. You may expect to benefit from taking part in this research to the extent that you are contributing to the professional development of upcoming school leaders.
20. We are not aware of any alternative study concerning this issue. The alternative is not to participate.
21. If you choose to participate, your identity will be kept anonymous in all phases of the research as the survey is anonymous.
22. There is no cost to me if choose to be a part of this study and may discontinue participation at any time without penalty.
23. There is no compensation given to you for participation in this study.
24. If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-3181.
25. If you have any questions about the research, please contact Kayla England via email at kayla.England@lsr7.net or the faculty advisor Dr. Barbara Martin at bmartin@ucm.edu
26. A copy of this Informed Consent form will be given to you before you participate in the research.

I have read the material above, and any questions that I have posed have been answered to my satisfaction. I voluntarily agree to participate in this study.

Yes, I agree to participate in this study

No, I do not agree to participate in this study

*If teachers click I agree to participate, it will take them to the survey, if they choose I do not agree to participate, it should exit them out.

Appendix B2: Leader Consent

CONSENT FORM TO PARTICIPATE IN A RESEARCH STUDY

Researcher's Name(s): Kayla England

Project Number: 2010733

Project Title: *Leading in the Digital Age: A Digital Leaders Impact on the Professional Development Culture in a Secondary School Setting*

INTRODUCTION

This consent may contain words that you do not understand. Please ask the investigator or the study staff to explain any words or information that you do not clearly understand.

You are being asked to participate in a research study. This research is being conducted seeks to provide a substantiation that administrators using Twitter to enhance their learning will further create conditions that promote a culture of self-directed learning for their teachers. When you are invited to participate in research, you have the right to be informed about the study procedures so that you can decide whether you want to consent to participation. This form may contain words that you do not know. Please ask the researcher to explain any words or information that you do not understand.

You have the right to know what you will be asked to do so that you can decide whether or not to be in the study. Your participation is voluntary. You do not have to be in the study if you do not want to. You may refuse to be in the study and nothing will happen. If you do not want to continue to be in the study, you may stop at any time without penalty or loss of benefits to which you are otherwise entitled.

Participation is voluntary and your decision not to participate will not involve any penalty or loss of benefits.

WHY IS THIS STUDY BEING DONE?

This study seeks to provide a substantiation that administrators using Twitter to enhance their learning will further create conditions that promote a culture of self-directed learning for their teachers. Specifically, the purpose of this research is to determine whether a principal's presence on social media had a positive impact on the self-directed learning culture of teachers.

HOW MANY PEOPLE WILL BE IN THE STUDY?

We are asking four principals to participate in this study with roughly 200 teachers being sent a survey.

WHAT AM I BEING ASKED TO DO?

For this study, an interview will occur either in-person or via video/phone conference at a mutually agreed upon time, lasting approximately one hour in length. Your responses will be audiotaped and transcribed. In addition, Interviews will be coded to determine the extent of the leaders reported professional development practices aligned with Adult Learning Theory and if any relationship exists between a principal's presence on social media and teacher's self-directness in their own professional development.

HOW LONG WILL I BE IN THE STUDY?

The interview within this study will take approximately 45-60 minutes to complete. You will also be given an email to send out to the teachers within your building. This survey should take approximately 5-10 minutes for teachers to complete. You can stop participating at any time without penalty.

WHAT ARE THE BENEFITS OF BEING IN THE STUDY?

If you agree to take part in this study, the information gathered should be beneficial to pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs. You may expect to benefit from taking part in this research to the extent that you are contributing to the professional development of upcoming leaders.

WHAT ARE THE RISKS OF BEING IN THE STUDY?

While on the study, the only risk would be loss of confidentiality as audiotapes will be taken during the study that could identify you. In this case, you will be given the opportunity to view or listen, as applicable, to the audiotapes before you can give you permission for their use if you so request.

WHAT ARE THE COSTS OF BEING IN THE STUDY?

There is no cost to you if choose to be a part of this study and may discontinue participation at any time without penalty.

WHAT OTHER OPTIONS ARE THERE?

We are not aware of any alternative study concerning this issue. The alternative is not to participate.

CONFIDENTIALITY

If you choose to participate, you identity will be kept confidential in all phases of the research. For example, within the research you will be referred to as Principal of High School A/B/C/D.

In addition, if photographs, audiotapes or videotapes were taken during the study that could identify you, then you must give special written permission for their use. In that case, you will be given the opportunity to view or listen, as applicable, to the photographs, audiotapes or videotapes before you give your permission for their use if you so request.

WILL I BE COMPENSATED FOR PARTICIPATING IN THE STUDY?

There is no compensation given to you for participation in this study.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

Participation in this study is voluntary. You do not have to participate in this study.

You will also be informed of any new information discovered during the course of this study that might influence your health, welfare, or willingness to be in this study.

The study staff may withdraw you from the study at any time after explaining to you the reason for withdrawal.

WHO DO I CONTACT IF I HAVE QUESTIONS, CONCERNS, OR COMPLAINTS?

If you have any questions about the research, please contact Kayla England via email at kayla.England@lsr7.net or the faculty advisor Dr. Barbara Martin at bmartin@ucm.edu. Additionally, you may ask questions, voice concerns or complaints to the research team.

WHOM DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Campus Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573)882-3181 or umcresearchcirb@missouri.edu.

You may ask more questions about the study at any time. For questions about the study or a research-related injury, please contact Kayla England via email at kayla.England@lsr7.net or the faculty advisor Dr. Barbara Martin at bmartin@ucm.edu.

A copy of this Informed Consent form will be given to you before you participate in the research.

SIGNATURES

I have read this consent form and my questions have been answered. My signature below means that I do want to be in the study. I know that I can remove myself from the study at any time without any problems.

Signed: _____

Date: _____

Title/Position:

Contact Information:

dissertation in practice, K. England
180

Phone _____ (circle one) WORK HOME CELL

Please return to: Kayla England, 2205 Meadowlark, Harrisonville, MO 64701
Cell Phone: 816-352-7314 Email: kayla.english@lsr7.net

Appendix B3: University Informed Consent

Project Title: *Leading in the Digital Age: A Digital Leaders Impact on the Professional Development Culture in a Secondary School Setting*

You are being asked to participate in a survey entitled *Digital Leadership & Pre-Service Leadership Programs* which is being conducted by Kayla England, a doctoral student with the University of Missouri. To strengthen my research, I am collecting data from pre-service leadership programs on whether they offer coursework on implementing a strong professional development program as well as highlighting the use of technology to enhance personal learning and personalized learning for teachers. My research seeks to highlight or uncover critical areas of effective leadership that may be missing from pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs. The survey should take 5 to 10 minutes to complete. Your participation is voluntary. You may choose not to take the survey, to stop responding at any time, or to skip any questions that you do not want to answer.

1. I would like to ask you to participate in a study that involves research.
2. Participation is voluntary and your decision not to participate will not involve any penalty or loss of benefits
3. For this study, professions within a selected institution will be sent a web-based survey that should only take 5-10 minutes to complete.
4. The study staff may withdraw you from the study at any time after explaining to you the reason for withdrawal.
5. While in the study, the only risk would be a loss of confidentiality as this survey is not anonymous as it asks to identify your institution. University names will not be used in the dissertation and data confidentiality is of the utmost importance to the researcher. Subjects do have the option of inputting their contact information if they would like a follow-up from the researcher.
6. If you agree to take part in this study, the information gathered should be beneficial to pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs. You may expect to benefit from taking part in this research to the extent that you are contributing to the professional development of upcoming school leaders.
7. We are not aware of any alternative study concerning this issue. The alternative is not to participate.
8. If you choose to participate, your identity will be kept confidential in all phases of the research.
9. There is no cost to you if choose to be a part of this study and may discontinue participation at any time without penalty.
10. There is no compensation given to you for participation in this study.
11. Subject may withdraw from the study at any time without any penalty or loss of benefits

12. If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Institutional Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-3181.
13. If you have any questions about the research, please contact Kayla England via email at kayla.english@lsr7.net or the faculty advisor Dr. Barbara Martin at bmartin@ucm.edu.

I have read the material above, and any questions that I have posed have been answered to my satisfaction. I voluntarily agree to participate in this study.

Yes, I agree to participate in this study

No, I do not agree to participate in this study

*If subjects click I agree to participate, it will take them to the survey, if they choose I do not agree to participate, it should exit them out.

Appendix B4: University Recruitment Email

Hello.

My name is Kayla England. I am currently a doctoral student at the University of Missouri, under the advisement of Dr. Barbara Martin.

I am reaching out to you in hopes that you would be willing to be a participant in my doctoral study about Digital Leadership which is entitled: Leading in the Digital Age: Digital Leaders' Impact on the Professional Development Culture in a Secondary School Setting. My research study seeks to provide a substantiation that administrators using Twitter to enhance their learning will further create conditions that promote a culture of self-directed learning for their teachers. Specifically, the purpose of this research is to determine whether a principal's presence on social media has a positive impact on the self-directed learning culture of teachers.

To strengthen my research, I am collecting data from pre-service leadership programs on whether they offer coursework on implementing a strong professional development program as well as highlighting the use of technology to enhance personal learning and personalized learning for teachers. My research seeks to highlight or uncover critical areas of effective leadership that may be missing from pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs.

Your participation in the completion of this survey would be greatly appreciated. If you have any additional comments, questions, or concerns, please do not hesitate to contact me.

Survey Link: https://missouri.qualtrics.com/jfe/form/SV_9ulMuEiw7jEhDfv

Appendix B5: Teacher Recruitment Email

<<High School Name>>Teachers.

My name is Kayla England. I am currently a doctoral student at the University of Missouri, under the advisement of Dr. Barbara Martin.

I am inviting you to participate in a research study entitled: *Leading in the Digital Age: Digital Leaders' Impact on the Professional Development Culture in a Secondary School Setting*. This study seeks to provide a substantiation that administrators using Twitter to enhance their learning will further create conditions that promote a culture of self-directed learning for their teachers. Specifically, the purpose of this research is to determine if a principal's presence on social media has a positive impact on the self-directed learning culture of teachers.

Your participation would include completing a 5-10 minute web-based survey. This survey can be found at https://missouri.qualtrics.com/jfe/form/SV_d6EwynrHdZAiYg5. If you choose to participate, your identity will be kept anonymous in all phases of the research as the survey is anonymous.

Attached you will find a document that outlines the Waiver of Documentation of Consent. Please do not hesitate to contact me with any questions or concerns about participation either by phone at (816) 352-7314 or by email at kayla.england@lsr7.net. In addition, you are also welcome to contact the dissertation advisor for this research study, Dr. Barbara Martin, who can be reached at 660-543-8823 or by email at bmartin@ucmo.edu.

Thank you for your time and I hope that you will chose to fill out this survey. The information gathered should be beneficial to pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs.

Survey Link: https://missouri.qualtrics.com/jfe/form/SV_d6EwynrHdZAiYg5

Have a great end of your school year!

APPENDIX C

C1: Gatekeeper Permission for Administrator and Educator Participation Letter

C2: Gatekeeper Permission for Administrator and Educator Participation Form

C3: Appendix C3: IRB Approval

Appendix C1: Gatekeeper Permission for Administrator and Educator Participation Letter

Dear <name>,

I would like to request your permission to invite applicable educators in your program to participate in a research study entitled: *Leading in the Digital Age: Digital Leaders' Impact on the Professional Development Culture in a Secondary School Setting*. I am examining a principal's presence on social media and the impact on the teaching and learning environment in the school. Interviews will be coded to determine the extent their reported professional development practices aligned with Adult Learning Theory and if any relationship exists between a principal's presence on social media and teacher's self-directness in their own professional development. The information gathered should be beneficial to pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs. This study is part of my dissertation research for a doctoral degree in Educational Leadership and Policy Analysis from the University of Missouri-Columbia.

For the study, the high school principal will be asked to complete a 30-minute interview and a randomly selected group of teachers within their building will be sent an electronic survey that should take about 15 minutes. No personal or identifying information will be collected from these educators. I am seeking your permission as the Superintendent of Schools to contact the administrators and educators at the high school for their participation in this study. A copy of the interview protocol, teacher survey, and informed consent forms are attached for your review.

Participation in the study is completely voluntary. The participants may withdraw from participation at any time they wish without penalty, including in the middle of or after completion of the interview. Participants' answers will remain confidential, anonymous, and separate from any identifying information. The researcher will not list any names of participants in her dissertation or any future publications of this study.

Please do not hesitate to contact me with any questions or concerns about participation either by phone at (816) 352-7314 or by electronic mail at kayla.england@lsr7.net. In addition, you are also welcome to contact the dissertation advisor for this research study, Dr. Barbara Martin, who can be reached at 660-543-8823 or by email at bmartin@ucmo.edu.

If you choose to allow me to contact administrators and educators regarding participation in this study, please complete the attached permission form. A copy of this letter and your written consent should be retained by you for future reference.

Thank you for your time and consideration.

Sincerely,
Kayla England
Doctoral Candidate

Appendix C2: Gatekeeper Permission for Administrator and Educator

Participation Form

I, _____, grant permission for administrators and educators within our district's high school to be contacted to participate in the study, *Leading in the Digital Age: A Digital Leaders Impact on the Professional Development Culture in a Secondary School Setting* conducted by Kayla England, doctoral candidate at the University of Missouri.

By signing this permission form, I understand that the following safeguards are in place to protect faculty choosing to participate:

- All participation is voluntary, and may be withdrawn at any point before culmination of the study.
- All responses will be used for dissertation research and for potential future journal publications.
- All identities will be kept confidential in all phases of the research.
- An interview will occur with each administrator either in-person or via videoconference, lasting approximately one hour in length. Interviews will be recorded, transcribed, and coded to determine the extent of the leaders reported professional development practices aligned with Adult Learning Theory and if any relationship exists between a principal's presence on social media and teacher's self-directness in their own professional development.
- A survey to measure teacher perceptions of social media as a professional development tool will be sent to principals using Qualtrics.
- The information gathered should be beneficial to pre-service leadership programs and further attempt to provide the necessary research for universities to include the use of social media as a professional tool for principals within the curriculum of their leadership programs.
- There is no cost to the district to be a part of this study and may discontinue participation at any time without penalty.

Please keep the consent letter and a copy of the signed consent form for your records. If you choose to grant permission for educators in your school district to participate in this study, please complete this *Administrative Permission for Program Participation Form*, please return it to Kayla England as soon as possible.

If you have any questions about the research, please contact Kayla England via email at kayla.England@lsr7.net or the faculty advisor Dr. Barbara Martin at bmartin@ucm.edu.

If you have any questions regarding your rights as a participant in this research and/or concerns about the study, or if you feel under any pressure to enroll or to continue to participate in this study, you may contact the University of Missouri Campus Institutional

dissertation in practice, K. England
188

Review Board (which is a group of people who review the research studies to protect participants' rights) at (573) 882-9585 or umcresearchcirb@missouri.edu.

I have read the material above, and any questions that I have posed have been answered to my satisfaction. I grant permission for administrators and educators in my program to be contacted and invited to participate in this study.

Signed: _____ Date: _____

Title/Position: _____

Contact Information:

Phone _____ (circle one) WORK HOME CELL

**Please return to: Kayla England, 2205 Meadowlark, Harrisonville, MO 64701
Cell Phone: 816-352-7314 Email: kayla.England@lsr7.net**

Appendix C3: IRB Approval



Institutional Review Board
University of Missouri-Columbia

190 Galena Hall
Columbia, MO 65201
573-882-3181
irb@missouri.edu

May 15, 2018

Principal Investigator: Kayla R. (MU-Student) England
Department: Educational Leadership-EDD

Your IRB Application to project entitled Leading in the Digital Age: A Digital Leaders Impact on the Professional Development Culture in a Secondary School Setting was reviewed and approved by the MU Institutional Review Board according to the terms and conditions described below:

****NOTE: You will need to submit an amendment to upload the other two signed permission letters from the schools before you are allowed to enter those sites and conduct research. You will need to have IRB approval prior to entering those school districts.**

IRB Project Number	2010733
IRB Review Number	234683
Initial Application Approval Date	May 14, 2018
IRB Expiration Date	May 14, 2019
Level of Review	Expedited
Project Status	Active - Open to Enrollment
Expedited Categories	45 CFR 46.110.a(f)(6) 45 CFR 46.110.a(f)(7)
Risk Level	Minimal Risk
Type of Consent	Written Consent Consent with Waiver of Documentation
HIPAA Category	No HIPAA
Internal Funding	Personal funds

The principal investigator (PI) is responsible for all aspects and conduct of this study. The PI must comply with the following conditions of the approval:

1. No subjects may be involved in any study procedure prior to the IRB approval date or after the expiration date.
2. All unanticipated problems must be reported to the IRB on the Event Report within 5 business days of becoming aware of the problem. Unanticipated problems are defined as events that are unexpected, related or possibly related to the research, and suggests the research places subjects or others at a greater risk of harm than was previously known or recognized. If the unanticipated problem was a death, this is reportable to the IRB within 24 hours on the Death Report.
3. On-site deaths that are not unanticipated problems must be reported within 5 days of

awareness on the Death Report, unless the study is such that you have no way of knowing a death has occurred, or an individual dies more than 30 days after s/he has stopped or completed all study procedures/interventions and required follow-up.

4. All deviations (non-compliance) must be reported to the IRB on the Event Report within 5 business days of becoming aware of the deviation.
5. All changes must be IRB approved prior to implementation unless they are intended to reduce immediate risk. All changes must be submitted on the Amendment Form.
6. All recruitment materials and methods must be approved by the IRB prior to being used.
7. The Continuing Review Report (CRR) must be submitted to the IRB for review and approval at least 30 days prior to the project expiration date. If the study is complete, the Completion/Withdrawal Form may be submitted in lieu of the CRR.
8. Securely maintain all research records for a period of seven years from the project completion date or longer depending on the sponsor's record keeping requirements.
9. Utilize the IRB stamped consent documents and other approved research documents located within the document storage section of eCompliance. These documents are highlighted green.

If you are offering subject payments and would like more information about research participant payments, please click here to view the MU Business Policy and Procedure:

http://bppm.missouri.edu/chapter2/2_250.html

If you have any questions, please contact the IRB at 573-882-3181 or irb@missouri.edu.

Thank you,
MU Institutional Review Board

VITA

Kayla England was born in Centralia, Missouri to Randy and Tori England. She graduated in 2000 from Centralia High School, in Centralia, Missouri. In 2004, she received a Bachelor of Science in Education from Missouri State University and earned a Master degree in Secondary School Administration in 2010 from the University of Central Missouri. Kayla continued her education career and obtained a Doctorate in Educational Leadership and Policy Analysis from the University of Missouri – Columbia in 2018.

Kayla has spent her entire career working in the public school system, more specifically in secondary high school. After spending 7 years as a physical education teacher and coach at Harrisonville High School in Harrisonville, Mo, Kayla transitioned into her first school administration role as the assistant principal at Clinton High School in Clinton, Mo in 2012. Currently, Kayla is the assistant principal at Lee's Summit West High School in Lee's Summit Missouri and has been there since 2016. After spending seven years in the classroom and now seven as an assistant principal, Kayla understands the value in attending and providing effective professional development opportunities for herself and her colleagues. She has given presentations on the topic of using technology and social media for professional development to teachers and school administrators in high schools across the state, at state professional conferences and even to pre-service teachers at the University of Central Missouri. Kayla intends on using her own experiences and the knowledge gathered from this dissertation to impact pre-service leadership programs so leaders are better prepared to lead in this digital age.

Kayla currently resides in Harrisonville, MO.