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AN INVESTIGATION OF PRINCIPAL LEADERSHIP BEHAVIORS AND
IMPLEMENTATION OF ADULT LEARNING STRATEGIES
ON THE PROFESSIONAL LEARNING ENVIRONMENT
OF A K-12 SCHOOL

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ABSTRACT

The purpose of this quantitative study was to explore the influence of principal leadership behaviors and potential of utilizing adult learning strategies on the development of a school's professional learning environment (PLE). The intention was also to determine if principals considered themselves prepared to develop and sustain such an environment. Research shows that principals and teachers perceive professional development needs and results differently. To obtain perspective from both groups, two separate surveys were administered. The results from this dissertation came from 262 principals and 433 teachers employed in K-12 public schools in Indiana. With the survey completed by principals, the focus was to determine if principals considered themselves prepared to be leaders of adult learners and well adept at developing a school PLE. Efficacy in developing and sustaining a PLE as well as efficacy in andragogical practices were analyzed to determine if they could result in a variance in a school's professional learning environment. The survey completed by teachers focused on teacher perception of principal leadership behaviors and the use of adult learning strategies. The impact of a principal's leadership behaviors and use of adult learning strategies were analyzed to determine if the two variables could result in the variance in a school's professional learning environment. Results of the study found that there is a perceived need for additional training for principals in developing a PLE as well as understanding more about adult learning theory. Additionally, this research suggests that efficacy in professional learning environment and efficacy in adult learning strategies influence a school's professional learning environment.

Upon analysis of data provided by teachers, this dissertation concludes that principal leadership behaviors and implementation of adult learning strategies also influences a school's professional learning environment. The purpose of this research is to provide possible insight into specific behaviors and practices that may support the development and sustainability of a professional learning environment and that this information can also be used to encourage and support future principal development.

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CHAPTER 1

INTRODUCTION

“These are exciting, difficult, and contentious times, and the principal is at dead center of all of it” (Fullan, 2008b, p. viii). Since the implementation of the No Child Left Behind Act of 2001, pressure for high levels of student achievement has skyrocketed as well as the expectations of extraordinary performance at all levels, district, school, classroom, and student (Fullan, 2009). This high level of expectation has significantly increased the complexity of the principalship (Fullan, 2008a). According to Sparks and the National Staff Development Council (2002),

Expectations for principals continue to increase. Principals today are expected to create learning communities in their schools and to engage the broader school community in creating and achieving a compelling vision for its schools, which typically serve increasingly diverse student populations. (p. 7-2)

Teachers too are in the center of educational reform as they must carry out the “ambitious education reform initiatives that hinge, in large part, on the qualifications and effectiveness of teachers” (Garret, Porter, Desimone, Birman, & Yoon, 2001, p. 916). As teachers are to perform at high levels, it is imperative that school administrators serve as instructional leaders with a focus on student learning and constructing learning communities among faculty and stakeholders (Downs, 2000).

In October 2015, the Professional Standards for Educational Leaders (formerly ISLLC) were published by the National Policy Board for Educational Administration (NPBEA). The authors of the new standards considered the relevancy of professional learning at a high enough level that they afforded the process its own standard. Standard 6, Professional Capacity of School Personnel, states that administrators should “develop teachers’ and staff members’ professional knowledge, skills, and practice through differentiated opportunities for learning and growth, guided by understanding of professional and adult learning and development” (NPBEA, 2015, p.16). Furthermore, Standard 6 asserts that administrators are to “empower and motivate teachers and staff to the highest level of professional practice and to continuous learning and improvement” (NPBEA, 2015, p.16).

Motivating and inspiring teachers to be actively involved and engaged in continuous learning and improvement requires a specialized approach. After all, teachers are adults, not children. According to Knowles (1990), adults learn differently than children, bringing with them different background knowledge, experiences, and expectations. Rock (2002) applied this to K-12 professional learning stating, “Each teacher, new as well as experienced, brings to professional development a unique set of skills and needs.” (p. 65). Leading adult learning and creating the necessary learning environment takes skill. Knowles contended,

None but the humble become good teachers of adults. In an adult class the student’s experience counts for as much as the teacher’s knowledge. Indeed, in some of the best adult classes it is sometimes difficult to discover who is learning most, the teacher or the students. (p. 101)

Leadership behaviors may also impact teacher motivation as learners as well as in the development of a collaborative learning environment. Instructional leadership leads to greater

student achievement than transformational leadership and is often touted as the preferred practice in education. Robinson, Lloyd, and Rowe (2008) reported an overall effect size of .42 on student achievement when studying the impact of instructional leaders compared to an effect size of .11 when researching transformational leaders (Hattie, 2015). However, though Printy, Marks, and Bowers (2009) found instructional leadership played a major role in the successful schools that they studied, the researchers also found that a principal's transformational leadership approach appeared to be a critical precondition. Similarly, both Fullan (2008a) and Hallinger (2003) suggested transformational practices are essential in achieving long-term change and reform. Given that there are so many different definitions for instructional and transformational leadership, as well as some overlapping characteristics of the two theories, knowing which specific behaviors and applying them might help principals in the successful motivation of teachers as well as in developing a professional learning environment.

Another concern relating to education today is the limited amount of time available for professional learning in K-12 schools (Archibald, Cogshall, Croft, & Goe, 2011; Bill & Melinda Gates Foundation, 2014; Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Servais, Derrington, & Sanders, 2009; Wheatley, 2002; Yendol-Hoppey & Dana, 2010). When comparing schedules and time constraints between teachers in the United States and their colleagues throughout the world, teachers in the United States are afforded considerably less time to develop their craft (Darling-Hammond et al., 2009). In a study on how high-achieving countries develop teachers coordinated by the Stanford Center for Opportunity Policy in Education, there was a significant difference in the amount of time that teachers in the United States had for collaboration and continual learning compared to other Organisation for Economic Co-operation and Development member countries (Darling-Hammond et al., 2009). According

to the report, the structure of the workday was different as well. In the United States, teachers are provided, on average, three to five hours a week for planning, whereas, other countries provided teachers with 15 to 25 hours for preparation (Darling-Hammond et al., 2009). This preparation period in other countries included “time for educators to work with fellow teachers, prepare and assess lessons, develop assessments, observe colleagues, and meet with students and parents” (Darling-Hammond et al., 2009, p. 3).

Sparks (2002), in his work with the National Staff Development Council, called for a redesign of teacher workdays to ensure significant improvements in teaching and student learning. Wheatley (2002) agreed, stating that if schools are to be learning communities it is necessary to allow teachers time for study and collaboration during the work day. “If we want our world to be different, our first act needs to be reclaiming time to think” (Wheatley, 2002, p. 99).

Statement of the Problem

Today’s school administrator is expected to be a leader of adult learning and creator of a culture of learning in a very limited time frame. Due to the critical nature of this aspect of the principalship, it is important to determine if additional training for future and current school level administrators is necessary. Should it be deemed important, it may be vital for universities and district personnel to determine what practices and behaviors should be addressed so principals may best support teachers and staff members as well as influence building culture. This study sought to determine what administrative behaviors best influence a school’s professional learning environment by studying the two most common leadership styles in education, instructional and transformational leadership styles, as well as investigating andragogical practices and behaviors. As the purpose of creating a professional learning environment is about

improving teaching and learning for the benefit of students, looking for indicators of leadership practices that may impact student outcome is somewhat similar in scope to research completed by Robinson et al. (2008) while completing their meta-analysis of leadership types and their impact on student achievement. Robinson et al. (2008) compared empirical studies on transformational and instructional leaders in hopes that “practitioners can move beyond a general focus on the impact of leadership, to examining and increasing the frequency and distribution of those practices that make larger positive differences to student outcomes” (Robinson et al., 2008, p. 637). Leadership behaviors relating to adult learning that have been found through previous research by Knowles and DuFour was also studied to determine their potential impact on a school’s professional learning community.

Purpose of the Study

Rogers stated, “If there is one truth about modern man, it is that he lives in an environment which is continually changing, and therefore the aim of education must be the facilitation of learning” as cited by Knowles (1990, p. 77). Whether the result of federal and state mandates or if it is the importance of keeping up with our ever-changing world, ensuring that effective and relevant curriculum knowledge and instructional practices are in place and continually evolve is a critical component of school leadership. Because of the significance placed on ensuring this change occurs is a responsibility of building principals, it is important to determine if administrators in public K-12 schools are prepared to be leaders of adult learning. Additionally, as a professional learning environment does not occur in a vacuum but in a relationship with the adult participants, it is also important to determine if there is a relationship between leadership behaviors of a principal and the use of andragogical (adult learning) practices on development and implementation of a professional learning environment. To do this it is

important to obtain the information from both the principal as well as the teacher. Only the administrator can speak to personal efficacy necessary in developing and leading a professional learning environment. Likewise, only the teachers who play the role of adult learners can share whether a principal's leadership behaviors and andragogical practices impact how they react and view the professional learning environment in their school. If research suggests that principals do not feel prepared to be leaders of adult learners and professional learning environments (PLE), and if data confirms that specific leadership behaviors and adult learning practices impact a professional learning environment, then this information may help universities and district personnel in determining coursework and professional development for building level principals.

Research Questions

Research Questions 1, 2, and 3 were connected to the survey instrument administered to principals. Questions 4, 5 and 6 applied to the survey instrument that was administered to teachers in public schools in Indiana (K-12).

1. Do principals believe there is a need for additional training in leading adult learners (andragogy)?
2. Do principals believe there is a need for additional training in the development and implementation of a professional learning environment?
3. Do the composite scores of a principal's efficacy of andragogy (adult learning) and developing a professional learning environment explain a significant amount of variance in the school's professional learning environment's composite score?
4. Do teachers identify specific leadership behaviors when describing their school principal's leadership role in professional learning?

5. Do teachers identify specific andragogical behaviors when describing their principal's adult learnings strategies?
6. Do the composite scores of research-based andragogical practices and leadership behaviors explain a significant amount of variance in a school-wide professional learning environment's composite score?

Null Hypotheses

H₀1: The composite scores of a principal's efficacy of andragogy (adult learning) and developing a professional learning environment do not explain a significant amount of variance in the school's professional learning environment's composite score.

H₀2: The composite scores of leadership behavior and andragogical practices do not explain a significant amount of variance in a school-wide professional learning environment's composite score.

Definitions

Andragogy: This refers to the art and science of helping adults learn (Knowles, 1990).

Andragogical practices: This refers to, and may be interchanged with, adult learning practices and strategies (Knowles, 1990).

Instructional leadership: This refers to leadership that focuses "on creating a learning climate free of disruption, a system of clear learning objectives, and higher expectations for teachers and students" (Robinson et al., 2008, p. 638).

Principal: This refers to the head building administrator for the school setting. Building level administrator may be used interchangeably with the term principal.

Principal efficacy: This refers to the comfort level a school principal expresses about a suggested subject matter (NPBEA, 2015).

Professional learning environment (PLE): This refers to a school-wide culture of professional learners focused on continual professional development directly related to student learning. The framework for subgroups of the school's professional learning environment was not limited to a particular format (for example, educators in the PLEs subgroups do not have to meet specifically with grade or subject levels).

Schools: This represents any kindergarten through twelfth grade configuration. This includes elementary, intermediate, middle, and high school but it is not limited to those frameworks. Only Indiana public schools were surveyed.

Transformational leadership: This refers to a style of leadership that is built upon inspiration, shared organizational vision and goals, encouragement of problem solving and building the leadership capacity of followers (Bass & Riggio, 2006).

Significance of the Study

As stated in the 2015 Professional Standards for Educational Leaders developed by the NPBEA, building principals are called upon to be instructional leaders in the buildings that they serve. One of the expectations of a principal as an instructional leader is to have the skills necessary to develop a culture of continual learning and to be able to provide and guide teacher and staff development (NPBEA, 2015). The NPBEA published standards that clearly express the need for an administrator to have an understanding of andragogy (how adults learn). Furthermore, the authors provided fine points within the standards detailing that a building

administrator should know how to motivate faculty to high levels of continual learning and improvement (NPBEA, 2015).

When conducting the research for the literature review a significant amount of information relating to professional learning communities and the influence of a principal's leadership behaviors on student achievement was available. However, research relating to a principal's knowledge and use of andragogy as well as the influence of specific leadership behaviors on the development of professional learning communities was limited. Thus, the goal of this study is to find clues from a principal's leadership behavior, andragogical knowledge, and efficacy in leading adult learners that may result in improving professional learning environments of public schools in the future.

Limitations

As with many online surveys, there were limitations that may impact this study. Participation in the survey was optional, thus the sample was limited to the population willing to respond to the survey. Honesty and genuine transparency of the respondents were out of the control of the researcher. The building principal's survey was based on his or her own perception. The teacher survey was based on his or her own perception as well. Concerns over anonymity may impact the willingness of teachers to openly share their opinion of the building principal's leadership behaviors, knowledge of andragogy, and the quality of the PLE in the building where they were employed. Additionally, it was possible that a building principal may have been concerned about the anonymity of their response and overstate their knowledge level of how adults learn and the quality of the building's PLE. Confounding variables had not yet been determined. Participation rates adhered to the minimum expectations established through Power Analysis.

Delimitations

This study limited the predictors for analysis of leadership to the five instructional leadership behaviors that have the greatest effect size on student achievement as presented by Robinson et al. (2008) and two transformational behaviors found through research to have an impact on student achievement as well. Numerous other leadership behaviors may impact a professional learning environment that are not included in this study. Likewise, this study limited the research of andragogical characteristics to only those presented by Knowles and DuFour. Only public schools in Indiana were surveyed and the study was not limited to specific grade level settings or a school's socio-economic status. Socioeconomic status, age, race, and ethnicity of respondents were not taken into account. All responses were based upon a six-point Likert scale rather than options for agreeability of participants.

Compilation of the Study

This dissertation is structured into five chapters. The first chapter includes the statement of the problem, purpose of the study, research questions, definitions of variables and key terminology, significance of the study, limitations, and delimitations. The second chapter, Review of Literature, includes a compilation of research based literature addressing instructional leadership theory, transformational leadership theory, concerns about transformational leadership in education, the argument for transformational leadership in education, consideration of a hybrid of both transformational and instructional leadership, an overview of professional development in K-12 schools, a review of professional learning communities in K-12 schools, and andragogy. In Chapter 3, research design and methodology are outlined. The beginning of Chapter 3 leads in with an introduction, the purpose of the study, and chapter organization. Next the research questions, null hypotheses, survey design, trustworthiness in data collection, and data source are

presented. Chapter 3 concludes by stating the limitations, delimitations, method of analysis, and a brief summary. Chapter 4 includes the research findings of both the survey completed by the building administrator and the survey completed by teachers. Both descriptive and inferential statistical results are presented. The results of the two hypotheses are also included. The final chapter includes a more detailed representation of the study as well as implications for potential use that the data presents. Chapter 5 concludes with recommendations for future studies and concluding remarks.

CHAPTER 2

REVIEW OF LITERATURE

This review of literature begins with the study of two leadership models, the instructional leadership model and the transformational leadership model. The selection of the two conceptual models is based on their popularity within the field of education leadership as shown through empirical studies (Heck & Hallinger, 1999; Robinson et al., 2008). This study of leadership will also include empirical research comparing the two theories as well as give consideration to hybrids that reflect upon the possibility that a principal practice both instructional and transformational leadership styles (Hallinger, 2003; Marks & Printy, 2003). The literature review will then pursue the concepts of professional development and professional learning communities as well as the potential that principals may have to influence K-12 school adult learning culture. Chapter 2 will conclude with a review of andragogy.

Instructional Leadership

Instructional leadership has been a popular leadership style since the 1980s where evidence of such practices materialized during research of effective poor urban elementary schools (Edmonds, 1979; Hallinger & Murphy, 1985). The administrators who exhibited these characteristics were strong, directive, and focused on turning their schools around (Edmonds, 1979; Hallinger, 2003, 2005; Hallinger & Murphy, 1985). Though instructional leadership was developed in the context of urban schools in need of school reform, its success encouraged the

development of policy reforms to advance schools through improving school leadership (Barth, 1990; Hallinger, 2005). There was a dissatisfaction with instructional leadership during parts of the 1990s but by 2000, instructional leadership returned in popularity in the United States, manifested by education reform focused on accountability and performance standards (Hallinger, 2003, 2005).

Hallinger and Murphy (1985) developed a model for instructional leadership that included three dimensions and 10 functions. The instructional leadership model, which has been used more frequently in instructional leadership empirical studies than any other, presents the three dimensions of instructional leadership as “defining the school’s mission, managing the instructional program, and promoting a positive school learning climate” (Hallinger & Murphy, 1985, p. 225). Each of the dimensions has several functions. Listed as functions under “defining the school’s mission” are “framing the school’s goals and communicating the school’s goals” (Hallinger & Murphy, 1985, p. 225). The two functions focus on the principal’s role to ensure there are clear, measurable, and time-sensitive goals that are concentrated on the academic growth of students (Hallinger & Murphy, 1985). Hallinger and Murphy also highlighted the expectation of the instructional leader to communicate the goals effectively. The second dimension in Hallinger and Murphy’s instructional management model is managing the instruction program. “Supervising and evaluating instruction, coordinating the curriculum, and monitoring student progress” (Hallinger & Murphy, 1985, p. 221) are three expectations of the instructional leader in the second dimension. This also includes that a school leader is deeply involved and knowledgeable about the school’s instructional program (Edmonds, 1979; Hallinger & Murphy, 1985). The third dimension of Hallinger and Murphy’s instructional management model is promoting a positive school learning climate. Functions within “this

dimension include protecting instructional time, promoting professional development, maintaining high visibility, providing incentives for teachers, and providing incentives for learning” (Hallinger & Murphy, 1985, p. 223). Originally, all of the responsibilities were expected to be the sole responsibility of the school principal. However, the instructional leadership model has grown to include shared leadership (Hallinger & Murphy, 1985).

Another description of instructional leadership was presented by Blasé and Blasé (1999). Blasé and Blasé described instructional leadership as having high expectations for developing professional growth among faculty. Blasé and Blasé consider the instructional leader as one who encourages self-reflection, is highly visible, protects instructional time, praises faculty, and encourages change and autonomy to allow teachers control over their professional responsibilities (Blasé & Blasé, 1999).

A final definition of instructional leadership was presented by Hattie (2015). According to Hattie, instructional leadership refers to leadership that focuses on creating a learning climate free of disruption, a system of clear learning objectives, and higher expectations for teachers and students. When discussing instructional leadership Hattie’s research presents five leadership behaviors that attribute the highest effect size (ES).

1. Leaders who believe their major role is to evaluate their impact (ES = .91).
2. Leaders who get everyone in the school working together to know and evaluate their impact (ES = .91).
3. Leaders who learn in an environment that privileges high-impact teaching and learning (ES = .84).
4. Leaders who are explicit with teachers and students about what success looks like (ES = .77).

5. Leaders who set appropriate levels of challenge and who never retreat to “just do your best” (ES = .77). (Hattie, 2015, p. 38)

The five instructional leadership behaviors focus on designing effective programs and continually evaluating the level of student learning. It requires leadership that develops a school climate where “everybody learns, learning is shared, and critique isn’t just tolerated, but welcomed” (Hattie, 2015, p. 38). Hattie also viewed instructional leaders as high-impact leadership that has multiple leaders. High-impact student learning requires teams of teachers, students, parents, and environment members, all working in collaboration (Hattie, 2015). It is necessary to develop a culture that if an intervention does not provide the necessary impact, it will be changed. Hattie stated the importance of developing a common agreement about what student achievement is as an important step. He also recommended senior staff members regularly conduct walk-throughs and observations that focus on what students are learning rather than on what teachers are teaching (Hattie, 2015). Hattie encouraged leaders to work collaboratively to clarify what counts as evidence and then use that evidence as a guide for deciding which interventions to keep and which should be eliminated. Leaders may find that determining what needs to be eliminated is a difficult task but necessary (Hattie, 2015). “Instructional leadership is as much about choosing what not to do as choosing what to do, based on student achievement for all students” (Hattie, 2015, p. 38).

Transformational Leadership

Another leadership style frequently practiced and theorized in education is transformational leadership (Heck & Hallinger, 1999; Robinson et al., 2008). The transformational leadership model was originally presented by Burnes (1978) and then applied to education by Leithwood in 1994 (as cited in Marzano, Waters, & McNulty, 2005). In their book

Transformational Leadership, Bass and Riggio (2006) presented the idea that transformational leadership was an expansion of the transactional model of leadership as it included transactions or exchanges between the leader and the followers, though it differed from the transactional model because the transformational approach was intended to create greater outcomes. Bass and Riggio further compared transformational leadership to charismatic leadership. Though charisma is an aspect of transformational leadership, it is only one characteristic of the transformational leader. “Transformational leadership involves inspiring followers to commit to a shared vision and goals for an organization or unit, challenging them to be innovative problem solvers, and developing followers’ leadership capacity via coaching, mentoring, and provision of both challenge and support” (Bass & Riggio, 2006, p. 4). Bass and Riggio shared these important components of effective leadership transformational leadership:

Leadership is charismatic such that the follower seeks to identify with the leader and emulate him or her. The leadership inspires the follower with challenge and persuasion, providing a meaning and understanding. The leadership is intellectually stimulating, expanding the follower’s use of his or her abilities. Finally, the leadership is individually considerate, providing the follower with support, mentoring and coaching. (p. 5)

Similar to Leithwood (1992), Bass and Riggio (2006) presented the four characteristics of transformational leadership as idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Idealized influence depicted the leader as a role model whose followers would want to emulate who was “admired, respected, and trusted” and demonstrated “high standards of ethical and moral conduct” (Bass & Riggio, 2006, p. 6). Inspirational motivation included leadership behaviors that motivate, inspire, and “bring meaning and challenge to work” (p. 6). Furthermore, the authors shared that inspirational motivation

encouraged enthusiasm and optimism and was in an environment where leaders expressed express clear expectations that followers would want to follow to show their commitment to the goals. The third characteristic presented by was intellectual stimulation. Bass and Riggio (2006) described intellectual stimulation as

a practice where leaders encourage their “followers’ efforts to be innovative and creative by questioning assumptions, reframing problems, and approaching old situations in new ways. Creativity is encouraged. There is no public criticism of individual members’ mistakes. Followers are encouraged to try new approaches, and their ideas are not criticized because they differ from their leaders’ ideas”. (p. 6)

The final characteristic, individualized consideration, included the expectation that the transformational leader be a coach to individual followers and develop followers to their highest potential. The leader accepted individual differences and approached each follower differently. Some followers could be allowed more autonomy. Some followers would require more of a transactional approach (Bass & Riggio, 2006).

Even more so than the varied characteristics between different instructional leadership descriptions, the operational definition of the transformational leadership theory is very diverse depending on the author. The variances in definitions are believed to be in response to both empirical evidence and criticism of transformational leadership in education (Yukl, 1989). As cited by Bass and Riggio (2006), Burnes initially created the transformational leadership theory for use in business, not education. Because the model was originally designed for business may explain some of its limitations. Moolenaar, Daly, and Slegers (2010) defined the basis of transformational leadership as “a leader’s ability to increase organizational members’ commitment, capacity, and engagement in meeting goals” (Leithwood & Jantzi, 2006; Marks &

Printy, 2003; Moolenaar et al., 2010). Moolenaar et al. (2010) found through their research that vision building, individual consideration, and intellectual stimulation were the foundations of transformational leadership in education. Cunningham and Cordeiro (2009) presented transformational leaders as those who “support employees, develop followers, help map new directions, mobilize resources, facilitate, and respond to organizational challenges” (p. 210).

Leithwood and Jantzi (2005) created an instrument to survey the impact of transformational leadership practices based on Bass’s model of transformational leadership. There are four primary categories. Each category has three behaviors. Transformational leadership, which included vision building, individualized consideration, and intellectual stimulation, teacher commitment to change, which included capacity beliefs and context beliefs, and then extra effort. The studies of this research, which compared Dutch and Canadian teachers, found that individualized consideration and extra effort had the weakest impact on teachers and vision building and intellectual stimulation had the greatest impact (Leithwood & Jantzi, 2005).

There are additional definitions and frequently stated characteristics of transformational leadership worth noting. According to Hattie and Yates (2009), “transformational leaders refers to those principals who engage with their teaching staff in ways that inspired them to new levels of energy, commitment, and moral purpose such that they work collaboratively to overcome challenges and reach ambitious goals” (p. 83). Moolenaar et al. (2010) stated that vision building, individual consideration, and intellectual stimulation were the foundations of transformational leadership in education. Jung and Avolio (2000) highlighted capacity building as an important part of transformational leadership with administrators frequently aspiring to motivate above the achievement goal.

The Argument Against Transformational Leadership

Robinson et al. (2008) completed a meta-analysis comparing instructional leadership and transformational leadership. The researchers compared levels of student achievement from schools who were led by one (or more than one) administrator who was transformational or instructional in approach. The results of this study are considered important because 80% of school administrators align to transformational characteristics (Hattie, 2015). Robinson et al. reported an overall effect size of .42 when studying instructional leaders and an effect size of .11 when researching transformational leaders (Robinson et al., 2008; Hattie, 2015). According to the researchers, transformational leaders are more focused on relationships than on educational work (Robinson et al., 2008). The researchers stated that devotion, cohesiveness, and sharing an inspiring vision do not achieve the same results as focusing on academic work (Robinson et al., 2008). Robinson et al.'s data were used by Hattie in his work to demonstrate instructional leadership's advantages when compared to transformational leadership practices (Hattie, 2015).

The Arguments for Transformational Leadership

Though the research confirming a causal relationship between instructional leadership and student achievement is significant, there may be some benefits to consideration of transformational applications as well. Hauserman and Stick (2013) studied teacher perception of principal leadership styles and whether transformational practices increased teacher efficacy. During the study, the higher the principal scored in transformational leadership the more positive the scores that were recorded (Hauserman & Stick, 2013). Teachers were found to collaborate more with a highly transformational leader and less with a leader who was rated lower on the transformational scale (Hauserman & Stick, 2013). Other characteristics found of highly transformational principals included that they were stronger disciplinarians, held students to a

higher level of accountability, used distributed leadership, were more open to innovation, provided resources, were respectful, and trusted their faculty as professionals (Hauserman & Stick, 2013). This study provided insight to what researchers consider characteristics of transformational leadership and shed light on what teachers found to be most important (Hauserman & Stick, 2013). Additionally, it brought up the notion of disciplinarian as a transformational attribute, which may be of interest for future research considerations (Hauserman & Stick, 2013).

Collective teacher efficacy may be a benefit of transformational leadership. Demir (2008) studied the relationship of transformational leadership practices and collective teacher efficacy. Collective teacher efficacy refers to “the perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students” (Demir, 2008, p. 93). According to Ross and Gray (2006), “research has demonstrated that transformational leadership contributes to teacher’s self-efficacy, collective efficacy, and collaborative culture. A principal that encourages teachers to collaborate is likely to increase collective teacher efficacy” (p. 105). Demir (2008) found that collective efficacy could be related to student achievement. As cited by Demir (2008), Bandura stated that “the stronger the faculty’s shared beliefs in their instructional efficacy, the better the students performed academically” (p. 95). Higher levels of collective efficacy were associated with higher levels of sense of purpose and supported groups when overcoming difficult situations (Goddard & Skrla, 2006). Additionally, Ross and Gray (2006) cited Bass and Avolio that transformational leaders, when compared to transactional leaders, improved performance by developing leadership skills in others and through increased job satisfaction.

Bass and Riggio (2006) defended transformational leadership for its motivational power. Followers are inspired to do more than what was originally intended or even thought possible. The bar is set higher with challenging expectations and the achievements are typically greater. Furthermore, the transformational leader develops future leaders by coaching and mentoring leadership in others (Bass & Riggio, 2006).

Moolenaar et al. (2010) contended that transformational leaders support and encourage change through developing a vision by setting goals, providing individual consideration through individual support, and intellectual stimulation through discussion and professional development. Leithwood and Jantzi (2005) cited increased confidence, greater levels of innovative potential, and shared responsibilities and risks within team members when trying new strategies. Hallinger (2003) identified mission-building activities as having the greatest influence of instructional leadership. This behavior, Hallinger noted, is the most “transformational” of the instructional leadership behaviors. Hallinger concluded that “relatively few studies find a relationship between the principals’ hands-on supervision of classroom instruction, teacher effectiveness, and student achievement (p. 333).

Finally, Fullan (2009) argued in favor of transformational leadership stating:

Despite the impressive results of Instructional Leadership, they do not represent deep or lasting reforms. Indeed, one can improve literacy and numeracy scores in the short run, while the moral and working conditions of teachers deteriorates over the mid to long run. To accomplish lasting reform we need fundamental transformation in the learning cultures of schools and of the teaching profession itself. In brief, the role of the principal as instructional leader is too narrow a concept to carry the freight of the kinds of reforms that will create the schools we need for the future. (pp. 1-2)

Consideration of a Hybrid That Would be Both Transformational and Instructional

When considering any theory, the context may also play a part in the success of implementation. Hallinger (2003) and others, though proponents of instructional leadership, expressed concern about instructional leadership, especially in the context of a secondary school where a principal's expertise over all subject matters is limited (Barth, 1990; Lambert, 1998). Hallinger shared the differences between transformational and instructional leadership that may impact instructional leadership success. First, instructional leadership is based upon a top-down leadership style and is more directive whereas transformational applies more of a bottom-up approach to school improvement. Secondly, instructional leadership is focused more on first-order change, whereas transformational has a greater propensity toward second order change. Finally, transformational is more of a transactional approach to leadership (Hallinger, 2003).

In 2003, Hallinger suggested that educational leaders consider applying a combination of both instructional and transformational leadership. The researcher viewed the level of importance of instructional leadership dependent upon the context of the school (Hallinger, 2003). The initial framework of instructional leadership focused on the role of the principal as the center and controlling, supervising and developing curriculum and instruction with a focus on control and coordination, supervising and evaluating (Hallinger & Murphy, 1985). Limitations to the role of instructional leader, similarly to many leadership roles, depend on the context (and culture; Hallinger & Murphy, 1985). The narrow focus of instructional leadership must be a consideration. Due to the managerial role of instructional leadership (or sometimes called instructional management) and the role context and culture play in education, Hallinger suggested including transformational practices along with instructional leadership in order to achieve second-order change (Hallinger, 2003).

So what exactly are the leadership behaviors and characteristics important to develop a culture of professional learners? It may depend on the school. According to Hallinger (2005), studying leadership without considering the context surrounding the administrator is pointless. Hallinger views effective leadership as responsive to changing needs and the context of the school and foresaw a need for an “integrative model of educational leadership” (p. 235). Though instructional leadership may be socially acceptable terminology, which pieces of the instructional leadership pie truly impact student achievement or the development of a professional learning environment? According to Barth (1990), it may be possible that effective instructional leadership may also find its focus from transformational characteristics as well.

Barth suggested educators too become transformational in their approach. “Principals who exercise effective instructional leadership are those who have the capacity to motivate teachers to step out beyond the boundaries of their classrooms to work toward the transformation of the school from a workplace into a learning place” (Hallinger, 2005, p. 232). According to Hallinger (2005), research has suggested that “defining a school mission and creating a positive school culture” (p. 230) is becoming more prevalent and integrated into a school principal’s leadership behaviors. Though characteristic of instructional leadership this behavior may also require a leader to present transformational characteristics. For example, it may require a leader to “engage with staff in ways that inspire to new levels of energy and commitment” (Hattie, 2015 p. 38). Sparks (2002) contended that fundamental choices have a moral component and that these decisions would have a significant effect on primary and secondary choices made by others. Moral purpose supports an educator’s individual and collective efficacy to improve practice (Sparks, 2002).

The question remains if anyone has really been solely an instructional leader, especially in secondary schools as a principal's expertise over all subject matters is limited (Barth, 1990; Lambert, 1998). As mentioned earlier, Hallinger (2003) further shared the differences between transformational and instructional leadership that may impact instructional leadership success as the negativity of top-down leadership being more directive, citing transformational leadership applies more of a bottom-up approach. Additionally as instructional leadership is focused more on first-order change, transformational leadership results in greater second order change.

Marks and Printy (2003) published a study that may have merit when reflecting upon leadership characteristics. The researchers compared shared instructional leadership and transformational leadership. They began their study based on the view that the traditional instructional leadership model was outdated and that it was essential to engage teachers in collaborative dialogue and that principals and educators should interact around "central areas of curriculum, instruction, and assessment" (p. 392). In shared instructional leadership, teachers and administrators collaborate on "professional growth and instructional improvement" (Marks and Printy, 2003, p. 374). One of the responsibilities of the school principal is that time is set aside for learning. However, teachers are equally responsible for taking responsibility for their own learning. Marks and Printy described transformational leaders as principals who are able to develop followers' fullest potential, be able to raise cognizance of the importance of organizational goals, as well as inspire educators to be selfless and more focused on the common good. Their research questions looked into the relationship between transformational and shared instructional leadership, how "schools with varying approaches to leadership differ according to demographics, organization, and performance" (p. 378) and "the effect of transformational and shared instructional leadership on school performance" (p. 378) play on teaching practices and

student achievement. The qualitative and quantitative study looked at the relationship between shared instructional leadership and transformational leadership behaviors. Marks and Printy found that schools fell into three of four quadrants. The four quadrants included strong transformational leadership and strong shared leadership, strong transformational leadership and low levels of shared instructional leadership, high levels of shared instructional leadership and low levels of transformational leadership, and low levels of both. The researchers showed that schools fell into three of the four categories. The one category that none of the schools fell into was the high level of shared instructional leadership and low levels of transformational leadership. Marks and Printy concluded that it might not be possible to have a school be led with shared instructional leadership without a leader that has high levels of transformational leadership as well.

Professional Development in K-12 Schools

Scholars from the American Institute for Research compared 1,300 studies on professional development (Guskey & Yoon, 2009). Unfortunately, only nine studies met the “standards of credible evidence” (Guskey & Yoon, 2009, p. 496) specified by the What Works Clearinghouse, a US Department of Education program. According to Guskey and Yoon (2009), this research provided insight on the “complex relationship between professional development and improvement in student learning” (p. 495). Even with the limited number of studies, the analysts from the American Institute for Research were still able to acquire valuable data. Some of the data surprised them. According to Guskey and Yoon, “These shared characteristics were not what many would have guessed, and several differ from those factors frequently noted as contributing to the effectiveness of professional development endeavors” (p. 496). Of the nine professional development programs, all included either workshops or summer institutes. The

workshops were all based on research-based practices. They also provided opportunities for teachers to adapt the strategies to their own classroom. Their second finding was the importance of an outside expert. All nine of the programs did not use a train-the-trainer model, nor did they rely on the use of instructional coaches. The study showed that school-based professional development found that teachers were more likely to return to practices that they already felt comfortable using (Guskey & Yoon, 2009). The third factor to successful professional development was in relationship to time. Professional development that showed the highest level of student achievement included 30 or more contact hours. The fourth factor also related to time as the research showed the importance of follow-up, as almost all had structured and sustained follow-up that continued after the main activities (Guskey & Yoon, 2009). The fifth discovery found there was not a particular common activity that was better for professional development. The sixth and final finding was about content. All successful professional development programs related to subject specific content or pedagogic practices (Guskey & Yoon, 2009). The professional development centered directly on enhancing teachers' content knowledge and pedagogical practices (Guskey & Yoon, 2009).

According to Firestone, Hayes, Robinson, and Shalaby (2008), a focus on teaching rigorous standards supports teacher development the most in professional learning opportunities because it develops content knowledge, instructional practices, and is aligned to education reform. The movement toward continual adult learning in primary and secondary schools has grown and by 2008, 40 states had adopted the NSDC's Standards for Staff Development (Darling-Hammond et al., 2009). Darling-Hammond et al. (2009) shared key findings about professional learning. Some of their discoveries such as implementing a collaborative approach to professional learning were found to promote school change that extended beyond the

individual classroom. Additionally, Darling-Hammond et al. concluded that “effective professional development is intensive, ongoing, and connected to practice, [and] focuses on the [teacher] and learning of specific academic content” (p.3).

Though Darling-Hammond et al. (2009) reported practices that can improve professional development, they also shared negative teacher feedback on professional development. Often teachers felt professional development was not useful, that there was little time focused on designing curriculum and the ability to share practices, and that teachers were not receiving training in special education (Darling-Hammond et al., 2009). Furthermore, United States teachers must pay for much of their own professional development. This is not surprising as the United States falls far behind in financially supporting such learning opportunities (Darling-Hammond et al., 2009). Teachers in the United States are given significantly less time each week to collaborate and develop high quality curriculum; the U.S. government does not invest in professional development like other countries.

In 2014, the Bill and Melinda Gates Foundation engaged the Boston Consulting Group to research professional development for educators. Over 1,300 educators, professional development leaders, principals, and thought leaders participated in the study. The consulting group reported that “The way in which schools and districts deliver professional learning is highly fragmented and characterized by key disconnects between what decision-makers intend and the professional learning teachers actually experience” (Bill and Melinda Gates Foundation, 2014, p. 3). Though the report expressed negative results of professional development, there were aspects that identified what was considered successful by the publishers of the study. For example, though many reported dissatisfaction with the current state of collaboration, the study also delved into what would be the ideal state of collaborative professional learning experience.

Researchers reported that the ideal environment would energize, be supportive, and provide hands-on or scenario based experiences. Teachers wanted to be inspired and “energized to go back to my classroom” (Bill and Melinda Gates Foundation, 2014, p. 7). They also considered the ideal situation as one where they felt supported and felt accountable to “show up and help each other” and to “bounce ideas off of each other” (Bill and Melinda Gates Foundation, 2014, p. 7).

Additionally, hands-on/scenario based practices of specific activities, brainstorming, and giving items to teachers in small pieces were considered important (Bill and Melinda Gates Foundation, 2014). Another segment of the survey offered insight on what worked in collaboration from the point of view of teachers who responded that they found collaboration positive. Highest marks went to “discussing each other’s experiences, frustrations, and ideas” [and] “planning a specific lesson” (Bill and Melinda Gates Foundation, 2014, p. 8). This same group of survey respondents also considered alignment “to curriculum standards/expectations” and the “development of teaching skills and content knowledge” (Bill and Melinda Gates Foundation, 2014, p. 8) as important. Reviewing student data received a significant level of support from this group as well. On the bottom of the list were “debriefing student behavior issues” [and] “communicating rules, procedures, compliance” (Bill and Melinda Gates Foundation, 2014, p. 8).

The authors of the Bill and Melinda Gates Foundation (2014) research on professional development defined a strong collaborative environment as one that had a consistent, planned time built into the master schedule, included “shared instructional responsibilities”, and “a positive culture around collaboration” (Bill and Melinda Gates Foundation, 2014, p. 8).

Participants who reported involvement in strong collaborative environments reported high levels

of perceived effectiveness, the ability to differentiate, “dramatically higher satisfaction with day-to-day work”, and the ability to implement the Common Core (Bill and Melinda Gates Foundation, 2014, p 8). Garet et al. (2001) also cited collective participation as a key indicator that supported previous predictions that educator collaboration was important when linked with coherent professional development activities.

The Boston Consulting Group (BCG) reported barriers to effective professional development as reported by teachers and administrators (Bill and Melinda Gates Foundation, 2014). Teachers conveyed that the greatest barriers were time, the ability to fund the professional development of their choice, lack of customization to their content and skill development needs, and a lack of continuity of professional development. Administrators also considered time the greatest restraint and added lack of training and resources as barriers to effective professional development (Bill and Melinda Gates Foundation, 2014).

Though the BCG report cited barriers and an overall impression that professional development was not effective, the Bill and Melinda Gates Foundation (2014) shared implications from other studies that they believe were significant, yet lacking in enough empirical research. One recommendation that came out of the study included further research on professional development that was content specific and extending professional development over a longer period of time. The use of “active learning” techniques and collaborative teams that use data for instructional decision making was also an area that the foundation thought should be investigated further (Bill and Melinda Gates Foundation, 2014). Additionally, the foundation considered the practices of coaching and collaboration as having promise (Bill and Melinda Gates Foundation, 2014).

Garet et al. (2001) reported similar and empirical results in their analysis of data collected as part of the evaluation of the Eisenhower Professional Development Program, which included responses from teachers nationwide. Their study reviewed “form, duration, and collective participation” of teacher professional development as well as “content focus, active learning opportunities, and coherence” (Garet et al., 2001, p. 930). In the study, the authors used time span and contact hours to measure duration. The results from the study performed by Garet et al. reported similar finding to the recommendations by the Bill and Melinda Gates Foundation (2014). According to Garet et al.,

Our results indicate that sustained and intensive professional development is more likely to have an impact, as reported by teachers, than is shorter professional development. Our results also indicate that professional development that focuses on academic subject matter (content), gives teachers opportunities for “hands-on” work (active learning) and is integrated into the daily life of the school (coherence), is more likely to produce enhanced knowledge and skills. (p. 935)

Yendol-Hoppey and Dana (2010) shared that given limited financial resources and high-stakes accountability, time for professional development has been squeezed. Yendol-Hoppey and Dana (2010) cited Barth (1990) that school administrators need to participate in the same professional development as teachers and need to be viewed as “head learners” (p. 29). As time is always a constraint, the two authors contended that administrators should acknowledge that time will always be an issue but not allow the concern to disrupt the commitment to the important work that professional development entails (Yendol-Hoppey & Dana, 2010). Yendol-Hoppey and Dana (2010) encouraged principals to look at ways to restructure time, though they admitted that releasing students early and adjusting the scheduled professional days within a

calendar may require district level decision making abilities. However, providing for weekly planning periods and extracting a few minutes from each day may be possibilities a building level principal could accomplish (Yendol-Hoppey & Dana, 2010). They also encouraged principals to look at how they used current staff members that are not classroom teachers, such as paraprofessionals and volunteers to work with students purposefully while teachers are participating in professional development. They even suggested having a day of related arts where students would rotate throughout art, music, physical education, and other related arts classes (Yendol-Hoppey & Dana, 2010).

Salazar (2008) advised building principals to focus on the mission, have high expectations for every student, build communities of adult learners, remember the importance of teachers, and create a system for continual improvement. “Schools can be more successful and can have greater impact, but there’s no getting there without visionary leadership” (Salazar, 2008, p. 21). This focus on vision aligns with instructional leadership (Hallinger & Murphy, 1985) and transformational leadership theory by Leithwood and Jantzi (2005) as well as the meta-analysis completed by Robinson et al. (2008). Salazar (2008) challenged everyone in schools to work toward the common goal and be part of the solution in ensuring that all students learn and that there is equity in the learning environment. In high-impact schools, there should be a focus on collaboration, professional education and development (Salazar, 2008). Faculty meetings should be productive; study groups and professional development are integral to the way the building works (Salazar, 2008). Using data to make instructional decisions and looking at student work are important in successful schools. According to Salazar, effective schools work collaboratively in an environment where excellence is the expectation.

Professional Learning Communities in K-12 Schools

“A professional learning community is composed of collaborative teams whose members work interdependently to achieve common goals linked to the purpose of learning for all” (DuFour, DuFour, Eaker, & Many, 2006, p. 3). The focus is on both teacher and student learning. DuFour and Fullan (2013) described a high performing professional learning community (PLC) as having six characteristics:

1. Shared mission (purpose), vision (clear direction), values (collective commitments), and goals (indicators, timelines, and targets), which are all focused on student learning.
2. A collaborative culture with a focus on learning.
3. Collective inquiry into best practice and current reality.
4. Action orientation or “learning by doing”.
5. A commitment to continuous improvement.
6. A results orientation. (DuFour & Fullan, 2013, p. 14)

DuFour and Fullan (2013) ensured that readers understood that “PLCs are about people, practices, and process- they are not a program” (p.16). DuFour (2004), one of the primary developers of PLCs, continually expressed concerns at the overuse of the term and the potential for ambiguity that it causes. DuFour does not want the practice of PLCs to be lost and to become simply just another initiative.

Linder, Post, and Calbrese (2012) agreed with Robinson et al. (2009) on the potential of PLCs and their positive effect on teachers and student achievement. With routine and continual participation, relationships form, increasing connection to school, developing ownership and buy-in on what is learned (Linder et al., 2012). Additionally, in the meta-analysis research

conducted by Robinson et al. (2008) “promoting and participating in teacher learning and development” (p. 663) yielded a large average effect size of 0.84 standard deviations. The study showed a correlation between the level of active participation by the administrator in teacher learning and development, the higher the student outcome. Robinson et al. cited that since potential for teacher professional learning is endless, goal setting is critical and should play an important part in determining what professional learning experiences are implemented (p. 667). Principals who are involved will have a deeper understanding of conditions and curriculum (Robinson et al., 2008).

DuFour (2004) attributed successful PLCs to a focus on what he calls big ideas. The first big idea, ensuring all students learn, is frequently noted as a framework for PLC groups. It is based on the assumption that the purpose of education is on student learning, not simply being taught (DuFour, 2004). DuFour’s model was focused on three questions. “What do we want each student to learn? How will we know when each student has learned it? And how will we respond when a student experiences difficulty in learning?” (DuFour, 2004, p. 8). DuFour contended that the answer to the third question is what makes a PLC school different than a customary school (DuFour, 2004). The author listed his second big idea as a “culture of collaboration” (DuFour, 2004, p.9). DuFour expressed concern about how teachers continue to work in isolation. He championed the notion that educators embrace teamwork and be engaged in a continual cycle of questioning that would promote team learning (DuFour, 2004, 2011). Through this, DuFour challenged education leaders and educators to require collaboration. DuFour did not agree that professionalism means that educators should be free to do what they wish, something that he views is currently occurring in education (DuFour, 2011). DuFour contended that in other professional fields, working collaboratively with colleagues is the

expectation, not an option (DuFour, 2011). The third big idea in PLCs is focusing on results. It is important for everyone in the school to be working together, by “identifying the current level of student achievement, establishing a goal to improve the current level, working together to achieve that goal, and providing periodic evidence of progress” (DuFour, 2004, p. 9). Through this process, DuFour challenged schools to not fall victim of the “DRIP syndrome-Data Rich/Information Poor” (DuFour, 2004, p.10), a situation often resulting from the collection of data but not using it effectively to support student learning.

Servage (2008) proposed that PLCs become a model for school change and reform. If the focus could move from a data focus and standardized test growth, teachers would have the time and opportunity to be transformative and impact pedagogical change. Servage (2008) stated that within the PLC model, this time and space is embedded and given some priority: a distinct if fledgling shift in the structure of the North America school day. And, though not all schools are characterized by warm and trusting collegiality required for authentic and transformative dialogue, the professional learning community model has provided a focus on its importance as a precondition to change. (p. 74)

Owen (2014), in her qualitative study of successful PLCs, found the nurturing effect of the principal to be an important component. Through shared leadership there is successful delegation and collaboration on decision making. Administrators pose questions and set parameters as well as provide information and training. Best of all, “school improvement is viewed as a collective responsibility” (Owen, 2014, p. 68).

In their investigation of learning communities, Sackney, Walker, and Mitchell (2005) described learning communities from Mitchell and Sackney’s (2001) previous work as “a group of people who take an active, reflective, collaborative, learning oriented and growth promoting

approach toward the mysteries, problems, and perplexities of teaching and learning” (p. 10). The researchers spent three years focusing on personal, interpersonal and organizational capacity of schools that had changed their practices and had created strong professional learning communities. In the qualitative portion of their study, the researchers ascertained central findings on professional learning communities in schools. One aspect presented was that successful learning community schools had a shared understanding and that conversations throughout the building were focused on teaching and learning (Sackney et al., 2005). The principal had a vision and promoted it throughout. There was also a high level of investment by the staff in the success of the students and the vision. The faculty showed vitality and eagerness. Reflective practices were used. Though not wealthy districts, the resources were adequate and creative ways to come up with resources were found. According to Sackney et al., staffs in the highly effective learning community schools used current research based practices. Faculty, students, and family members were given opportunities to learn. In high capacity learning community schools, teachers were continually improving their teaching and learning, there was a high level of student engagement, and school leadership was distributed. Furthermore, the schools all

had a sense of vision as to the type of school they were trying to create; they all fostered improved teaching and learning; they all worked to develop a learning community environment; and they all exhibited high energy, commitment, and involvement. Furthermore, administrators encouraged others to take a leadership initiative and provided opportunities for recognition and celebration of accomplishments of all stakeholder groups. (Sackney et al., 2005, p. 14)

Sackney et al. concluded that the staff had “moved beyond strategic thinking to systemic thinking” (p. 14).

DuFour and Fullan (2013) acclaimed that “a distinguishing characteristic of a professional learning community is its unrelenting focus on learning- not only for students, but also for the adults who serve them” (p. 54). Leadership should “focus on creating the processes and culture that enables educators to learn continually as part of their routine professional practice” (p. 54). According to DuFour and Fullan (2013), the best learning would occur when it

- Is job embedded, occurring in the workplace rather than in workshops
- Engages people in the work rather than listening to presentations about the work
- Is collective rather than individual
- Is aligned with the system’s goals rather than the pursuit of random interests
- Is evaluated on the basis of results (p. 54)

Similar to many practices and initiatives in education over the years, the term “job embedded” is often used but not clearly defined. Croft, Coggshall, Dolan, Powers, and Killion (2010), in research for the National Comprehensive Center for Teacher Quality, explained that job-embedded professional development (JEPD) is professional development based on daily teaching practices and intended to improve content-specific instructional practices and designed to improve student learning. Generally, JEPD occurs at the building or classroom level during the workday. What is being studied and learned by the educators can be directly used or implemented immediately in the classroom. Croft et al. also stated that high quality JEPD would align with student achievement, state standards and school wide improvement goals. Though JEPD can be individually completed, it is often conducted through formal and informal social interactions throughout the school. Though sometimes an instructional coach or an outside

consultant may play a part of JEPD, they are not a requirement and not the expected norm.

According to the authors, professional learning communities, when developed as specific times for collaborative groups to meet, can be a good setting for JEPD. The researchers expressed value in learning in a social setting because, through conversations, everyone can learn from one another (Croft et al., 2010).

Andragogy (Adult Learning)

Aristotle, Plato, and Socrates were legendary teachers and adult learners of the past, yet little research on adult learning was conducted until recently (Knowles, 1990). The world has changed significantly since 400 BC, but the need for continual growth and development continues. Demand for higher learning has flourished, beginning in the mid-1900s, supported by adult learners, private foundations, and government (Maher, 2002). This expectation was predicted by philosopher Whitehead in 1931 when he theorized that, because people were living longer and culture was changing rapidly, there will be a need for people to become lifelong learners and to progress at a higher level (Peterson & Deal, 1998). Schon (1971) reiterated the importance of adult learning, citing that continuous state of change we live in does not provide a stable state, and that people and institutions must be in continual processes of transformation.

Lindeman and Knowles were two important researchers who influenced contemporary adult learning (as cited in Nixon-Ponder, 1995; Maher, 2002). Lindeman (1885-1953) believed that adult coursework should not be facilitated in an authoritative way and should be less formal than the traditional classroom setting (Nixon-Ponder, 1995). He also felt the learning process should be more cooperative and that large, lecture hall settings were not as conducive to adult learning (Nixon-Ponder, 1995). Lindeman contended that adult learning should focus on situations and not subjects and he did not condone the use of textbooks (Knowles, 1990).

Additionally, Lindeman viewed humility as an important characteristic for an adult facilitator (Knowles, 1990).

Knowles (1990), who appreciated the work of Lindeman, is often credited with developing the framework for adult education today (Maher, 2002). Knowles did not create the term andragogy but his definition of the term, “the art and science of helping adults learn” (p. 54), is often used. Knowles based his work on some “key assumptions” from Lindeman, including the internal motivation of adults to learn, that adults share a “life-centered” orientation to learning, learning should be experiential, adult learners have a “deep need to be self-directing” (p. 31), and that there are greater differences in adults than children due to life experiences.

Knowles (1990) also used Lindeman’s work as part of his andragogical model. The andragogical model is founded on six assumptions.

1. *The need to know.* Adult learners need to know why they are learning something before they begin (Knowles, 1990, p. 58). These students also need to know why it is important and what the benefits will be for them.
2. *The learners’ self-concept.* An important aspect of a learner’s self-concept is their ability to self-direct (Knowles, 1990, p. 58). It is very important for educators to be recognized and respected as mature adults and not children. Adult students need to be viewed as responsible and capable of decision making (Knowles, 1990; Somers, 1988).
3. *The role of the learners’ experience.* Adults come into the classroom with more life experience. The experiences will increase the diversity in the group, including “background, learning style, motivation, needs, interests, and goals” (Knowles, 1990, p. 58). The teacher should use this experience to use this diversity to their advantage. This higher level of background experiences has the potential for a negative impact because

humans accumulate “mental habits, biases, and presuppositions that tend to cause us to close our minds to new ideas, fresh perceptions, and alternative ways of thinking” (Knowles, 1990, p. 59). Educators must also remember the role of a learner’s experience because that experience defines who that adult is. A child, on the other hand, perceives an experience as “something that happened to them” (Knowles, 1990, p. 60).

4. *Readiness to learn.* Adults come into the classroom already prepared to learn. This is different than younger learners who may be at different stages of development.
5. *Orientation to learning.* Adults are more “life-centered” than children who view school with more of a “subject-centered” viewpoint (Knowles, 1990, p. 61). Facilitators should apply learning into the context of “real-life situations” (Knowles, 1990, p. 61).
6. *Motivation.* Though motivators like advancement in the workplace and increase in income are important to adult learners, the primary source of motivation is intrinsic. Knowles includes job satisfaction, self-esteem, and quality of life as three motivators for adult learners (Knowles, 1990).

Rogers viewed the teacher in an adult education environment as more of a facilitator and found it was important that there was a personal relationship between the facilitator and the learner (as cited in Knowles, 1990). This relationship must include three “attitudinal qualities: (1) realness or genuineness, (2) non-possessive caring, prizing, trust, and respect, and (3) empathic understanding and sensitive and accurate listening” (Knowles, 1990, p. 78).

Rogers developed these guidelines for facilitating learning:

1. The facilitator has much to do with setting the initial mood or climate of the group or class experience.
2. The facilitator helps to elicit and clarify the purposes of the individuals in the class as

well as the more general purposes of the group.

3. He relies upon the desire of each student to implement those purposes which have meaning for him as the motivational force behind significant learning.
4. He endeavors to organize and make easily available the widest possible range of resources for learning.
5. He regards himself as a flexible resource to be utilized by the group.
6. In responding to expressions in the classroom group, he accepts both intellectual content and the emotionalized attitudes, endeavoring to give each aspect the approximate degree of emphasis which it has for the individual or the group.
7. As the acceptant classroom climate becomes established, the facilitator is able increasingly to become a participant learner, a member of the group, expressing his views as those of one individual only.
8. He takes the initiative in sharing himself with the group - his feelings as well as his thoughts in ways which do not demand or impose but represent simply the personal sharing which students may take or leave.
9. Throughout the classroom experience, he remains alert to the expressions indicative of deep or strong feelings.
10. In his functioning as a facilitator of learning, the leader endeavors to recognize and accept his own limitations. (as cited in Knowles, 1990, pp. 78-79)

Learning conditions are also important to the success of adult learning. The expectations are intrinsic, extrinsic, as well as kinesthetic. These conditions are determined by the facilitator. Knowles (1990) outlined the characteristics of necessary learning conditions and facilitator expectations (Table 1) to help leaders ensure the conditions are met.

Table 1

The Role of the Teacher

Conditions of Learning	Principles of Teaching
The learners feel a need to learn.	<ol style="list-style-type: none"> 1. The teacher exposes students to new possibilities of self-fulfillment. 2. The teacher helps each student clarify his own aspirations for improved behavior. 3. The teacher helps each student diagnose the gap between his aspiration and his present level of performance. 4. The teacher helps the students identify the life problems they experience because of the gaps in their personal equipment.
The learning environment is characterized by physical comfort, mutual trust and respect, mutual helpfulness, freedom of expression, and acceptance of differences.	<ol style="list-style-type: none"> 5. The teacher provides physical conditions that are comfortable (as to seating, smoking, temperature, ventilation, lighting, decoration) and conducive to interaction (preferably, no person sitting behind another person). 6. The teacher accepts each student as a person of worth and respects his feelings and ideas. 7. The teacher seeks to build relationships of mutual trust and helpfulness among the students by encouraging cooperative activities and refraining from inducing competitiveness and judgmentalness. 8. The teacher exposes his own feelings and contributes his resources as a co-learner in the spirit of mutual inquiry.
The learners perceive the goals of a learning experience to be their goals.	<ol style="list-style-type: none"> 9. The teacher involves the students in a mutual process of formulating learning objectives in which the needs of the students, of the institution, of the teacher, of the subject matter, and of the society are taken into account.
The learners accept a share of the responsibility for planning and operating a learning experience, and therefore have a feeling of commitment toward it.	<ol style="list-style-type: none"> 10. The teacher shares his thinking about the options available in the designing of learning experiences and the selection of materials and methods and involves the students in deciding among these options jointly.

The learners participate actively in the learning process.	11. The teacher helps the students to organize themselves (project groups, learning-teaching teams, independent study, etc.) to share responsibility in the process of mutual inquiry.
The learning process is related to and makes use of the experience of the learners.	12. The teacher helps the students exploit their own experiences as resources for learning through the use of such techniques as discussion, role playing, case method, etc. 13. The teacher gears the presentation of his own resources to the levels of experience of his particular students. 14. The teacher helps the students to apply new learning to their experience, and thus to make the learnings more meaningful and integrated.
The learners have a sense of progress toward their goals.	15. The teacher involves the students in developing mutually acceptable criteria and methods for measuring progress toward the learning objectives. 16. The teacher helps the students develop and apply procedures for self-evaluation according to these criteria.

Note. Adapted from “The adult learner: The neglected species,” by M. Knowles, 1990, pp. 85-87. Copyright 1990 by Houston, Texas: Gulf Publishing.

Along with facilitator behaviors, Knowles (1990) found Lindeman’s theory on characteristics of organizations as they compare the differences in static and innovative systems important (Knowles, 1990). The implications of Lindeman’s work may also be valuable in the development of professional learning communities and other forms of teacher development. When comparing the structure and atmosphere in an organization Lindeman portrayed static organizations as rigid and focused on maintaining departments, traditions, and by-laws, and innovative structures as more flexible, and could have movable departmental lines (Knowles, 1990). The atmosphere in a static organization is more task-centered, less personal, and reserved in comparison to the innovative organization atmosphere being “people centered, caring, warm, informal, intimate, and trusting” (Knowles, 1990, p. 69).

What may have also been important to this research study is the philosophy and attitude of management. In a static organization, Lindeman cited the “function of management is to

control personnel through coercive power” (as cited in Knowles, 1990, p. 69). Furthermore, the atmosphere is more cautious, focused on personnel selection, less willing to share resources, and a “low tolerance for ambiguity” (Knowles, 1990, p. 69). In an innovate organization the philosophy and attitude of management is more to “release the energy of personnel” (Knowles, 1990, p. 69). Power is used to support colleagues (Knowles, 1990). Innovate organizations are more supportive of risk-taking and consider errors part of the learning experience (Knowles, 1990). There is a focus on “personnel development,” “interdependency,” and “developing and using resources” (Knowles, 1990, p. 69). Ambiguity is also more accepted in an innovative organization (Knowles, 1990). There are extreme differences between decision-making and communication practices in a static organization compared to an innovate organization. Whereas decision making in a static organization is more top-down and treated as final, in an innovative organization decision making relates more to the specific participants, are made more collaboratively, and are often based on problem-solving (Knowles, 1990). Similarly, communication in a static organization communication is more restricted and comes from the top of the organization compared to the multi-directional flow and acceptance of feelings in an innovative organization (Knowles, 1990).

Using his adult learning theory model, Knowles (1990) provided the following implications for presenters.

1. “Presenters recognize participants as self-directing ... and treat them accordingly” (Knowles, 1990, p. 194).
2. The facilitator is a “learning reference.” “They should “tell it like it is” and stress “how I do it” rather than tell participants what they should do” (Knowles, 1990, p. 194).
3. Presenters should avoid talking down to students and try to meet the students where they

are at (Knowles, 1990).

4. It is important to use the adult student's life experience as not doing so could create a feeling of rejection (Knowles, 1990).
5. Finding the "gaps" in the adult learner's knowledge is where learning will occur (Knowles, 1990, p. 195).
6. Ensure that all questions are respected and not considered stupid (Knowles, 1990).
7. The focus is on "student learning rather than on teachers teaching" (Knowles, 1990, p. 195).
8. Participatory strategies like "problems to be solved, case histories, and critical incidents generally offer greater learning opportunity than 'talking to them'" (Knowles, 1990, p.195).

Knowles (1990) framed a leadership style around creativity. Knowles' theory was developed through his research relating to Lindeman's concept of static and innovate systems and inspiring energy levels in personnel (Knowles, 1990). Creative leadership is a style of leadership that focuses on formulating creative energy within the people that you lead (Knowles, 1990). He began by observing leaders to determine what leadership characteristics that "releasing leaders" possessed that "controlling leaders" did not (Knowles, 1990). He also reviewed literature on "human behavior, organizational dynamics, and leadership to find out what support it contains for this way of viewing the concept of leadership" (Knowles, 1990, p. 186). After his study, Knowles came up with the following behavioral characteristics of creative leaders:

1. Creative leaders make a different set of assumptions (essentially positive) about human nature from the assumptions (essentially negative) made by controlling leader

- (Knowles, 1990, p. 183). Knowles found that creative leaders were more apt to have faith, delegate, and offer more challenging opportunities.
2. Creative leaders accept as a law of human nature that people feel a commitment to a decision in proportion to the extent that they feel they have participated in making it (Knowles, 1990, p. 186).
 3. Creative leaders believe in and use the power of self-fulfilling prophecy (Knowles, 1990, p. 186). This leadership style believes that if you believe in someone they will meet your expectations (Knowles, 1990, p. 186).
 4. Creative leaders highly value individuality (Knowles, 1990, p. 186). Knowles perceives that performance will increase if people are “operating on the basis of their unique strengths, talents, interests, and goals” (p. 186). Knowles adds to this philosophy that he believes a creative leader has a different purpose in life than the controlling leader. They see the purpose of all life activities-work, learning, recreation, civic participation, worship- to be to enable each individual to achieve his or her full and unique potential. The creative leader considers helping people achieve this level of self-actualization as one of his or her missions.
 5. Creative leaders stimulate and reward creativity (Knowles, 1990, p. 187).
 6. Creative leaders are committed to a process of continuous change and are skillful in managing change (Knowles, 1990, p. 187).
 7. Creative leaders emphasize internal motivators over external motivators (Knowles, 1990, p. 187).
 8. Creative leaders encourage people to be self-directing (Knowles, 1990, p. 190).

In a more recent study, and applying andragogy to professional development, Croft et al.

(2010) expressed the importance of using research based knowledge of adult learning when working with educators. According to the research collected, teachers learn best “when self-directed, building new knowledge upon preexisting knowledge, and are aware of the relevance and personal significance of what they are learning” (Croft et. al, 2010). All of their recommendations align to the andragogical model. Additionally, Croft et al. (2010) recommended that principals continually state the importance of continual learning and create a culture that views it as an essential component. Administrators should set goals and objectives both for student achievement and teacher development. Finding time for teachers to learn that is within the work day and not during their planning time is also an important expectation for the building principal as was selecting talented teachers internally to lead. Providing training, resources and incentives to the facilitators is also an important role of the principal. Finally, principals and teachers alike should always use data to evaluate the effectiveness of the professional development and support change and growth (Croft et al., 2010).

Summary

According to Sparks (2002) in his work for the National Staff Development Council, “expectations for principals continue to increase. Principals are expected today to create learning communities in their schools and to engage the broader school community in creating and achieving a compelling vision for its schools, which typically serve increasingly diverse student populations” (Sparks, 2002, p. 72). The question remains if, 13 years after Sparks wrote this, collegiate and district level programming has been able to develop building level administrators to become highly effective instructional leaders of adult learning in primary and secondary schools. Many states have adopted NSDC’s Standards for Staff Development (Darling-Hammond et al., 2009). Additionally, the NPBEA revised the professional standards for

educational leadership programming (formerly ISLLC) stating that administrators should be prepared to “develop teachers’ and staff members’ professional knowledge, skills, and practice through differentiated opportunities for learning and growth, guided by understanding of professional and adult learning and development” (NPBEA, 2015, p.16) as well as be able to “empower and motivate teachers and staff to the highest levels of professional practice and to continuous learning and improvement” (NPBEA, 2015, p.16).

This literature review attempts to uncover the characteristics of both transformational and instructional leadership theories along with identifying key components of professional learning communities and professional development often orchestrated by school administrators. Additionally, the literature review studies andragogical theory. Through this study of literature, the intention is to define not only the theories but pull out the characteristics and behaviors that may play an important role in a building level administrators ability to lead K-12 faculty as adult learners. This knowledge may support the development of educational programming to prepare future building level administrators to be successful leaders of adult learning and developers of professional learning communities.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

The review of literature began with attention to two popular leadership styles in education today, instructional and transformational. As there is an overlap in behaviors between both instructional and transformational leadership, the focus was placed more on the specific instructional and transformational leadership behaviors that have shown through research, to have a strong impact. Honing in on what research suggests are the strongest behaviors instead of specifically instructional or transformational leadership, the study was to determine which specific behaviors best encourage faculty learning. The five instructional leadership characteristics developed by Hattie (2015) as well as two transformational characteristics from Sackney et al. (2005) and Leithwood and Jantzi (2005) were used as predictor variables. Adult learning also served as a predictor variable. As teachers are adults, this research study sought to determine if there is a relationship between the predictor variables of adult learning strategies and the criterion variable of a professional learning community. The andragogical strategies developed by Knowles (1990) and DuFour (2004), as well as results from research by Robinson et al. (2008) served to determine if a principal's andragogical knowledge, or use of strategies, can serve as a predictor of the strength of a school's professional learning community.

The review of literature provided an extensive body of research on PLCs, which was used to develop the criterion variable of a school's professional learning environment strength. The

survey instrument included the indicators of a successful PLC stated by DuFour and Fullan (2013) as well as other research based results from Fullan et al. (2006), DuFour and Fullan (2013), and Sackney et al. (2005).

Purpose of the Study

The purpose of this quantitative study was to determine if principals are prepared to be leaders of adult learning and to substantiate if there is a relationship between a principal's leadership behaviors and andragogical (adult learning) knowledge on the development of a school's overall professional learning environment. Should this study show a need for additional training for administrators, this information may help universities and school districts determine coursework and professional development for building principals. This study consisted of two separate surveys. The first survey instrument investigated if principals believe future administrators would benefit from more education on leading adult learners and if their personal efficacy in this area correlates to the level of their school's professional learning environment. The second survey instrument sampled K-12 teachers to determine if leadership behaviors and adult learning practices impact the quality of a professional learning environment.

Chapter Organization

Chapter 3 provides the framework for the research study and guides the reader through the process should someone want to repeat the nonexperimental study again in the future. Here you will find the research questions and an explanation of how the survey is constructed. Trustworthiness of the survey instrument will be discussed as it is important for reliability and validity of the data. Detailed information on the data sources and background information on the selection process of the questions are included. Chapter 3 also presents the data collection methods and will specify procedures, and identify the protocols to be utilized throughout the

research process. Additionally, the data collection procedures is included to ensure accuracy. Limitations and delimitations of the process are stated. Finally the method of analysis are discussed.

Rationale for Research Design

The framework of this dissertation consists of two quantitative studies. According to Ary, Jacobs, and Sorensen (2010), quantitative research has dominated the field of education research and is useful to study relationships such as cause and effect. Both quantitative studies use correlation research, a form of nonexperimental research where data about two or more variables is compared to determine if there is some form of relationship. The decision to use a correlation approach is based upon the desire to see if there is a relationship between leadership behaviors and/or adult learning strategies on the development of a professional learning environment. Ary et al. explained that this relationship is termed a correlation and may be positive or negative. If there is a direct correlation then the relationship is a positive correlation. If there is an inverse relationship the result is termed a negative correlation. The numeric index used to present the degree of relationship is called the coefficient of correlation (Ary et al., 2010).

Additionally, the rationale for having two separate samples and surveys is to obtain not only the perspective of the building principal but also view the overall development and implementation of a school's professional learning environment from the perspective of the teacher. The building principal's input is critical for the core component of leadership efficacy. Does the building principal feel he or she is prepared to successfully lead adult learners? This is important information for universities to know because the Professional Standards for Educational Leaders (formerly ISLLC) states that programs are to prepare administrators to be

able to “develop teachers’ and staff members’ professional knowledge, skills, and practice through differentiated opportunities for learning and growth, guided by understanding of professional and adult learning and development” (NPBEA, 2015, p. 16). Furthermore, principals are to “empower and motivate teachers and staff to the highest levels of professional practice and to continuous learning and improvement” (NPBEA, 2015, p. 16). Teacher input is equally critical because, along with the principal, they are the learners and members of the professional learning environment. Determining how and what leadership behaviors and adult learning strategies affect a PLE may support future leaders in PLE development.

Research Questions

Research Questions 1, 2, and 3 were connected to the survey instrument administered to principals. Questions 4, 5 and 6 apply to the survey instrument that was administered to teachers in public schools in Indiana (K-12).

1. Do principals believe there is a need for additional training in leading adult learners (andragogy)?
2. Do principals believe there is a need for additional training in the development and implementation of a professional learning environment?
3. Do the composite scores of a principal’s efficacy of andragogy (adult learning) and developing a professional learning environment explain a significant amount of variance in the school’s professional learning environment’s composite score?
4. Do teachers identify specific leadership behaviors when describing their principal’s leadership role in professional learning?
5. Do teachers identify specific andragogical behaviors when describing their principal’s adult learnings strategies?

6. Do the composite scores of research-based andragogical practices and leadership behaviors explain a significant amount of variance in a school-wide professional learning environment's composite score?

Null Hypotheses

H₀1: The composite scores of a principal's efficacy of andragogy (adult learning) and developing a professional learning environment do not explain a significant amount of variance in the school's professional learning environment's composite score.

H₀2: The composite scores of leadership behavior and andragogical practices do not explain a significant amount of variance in a school-wide professional learning environment's composite score.

Survey Design

Looking at the effect of leadership behaviors and andragogical knowledge on a school's professional learning environment seems to be unique as a similar study was not discovered during the literature review. Because there is limited research on andragogy and its impact on teachers as adult learners, this study required the development of survey questions. The survey questions were aligned to theory on teacher development, leadership, and professional learning communities. This strong application of theory in the survey design is to limit researcher bias. The only questions that are not linked directly to theory are demographic questions and basic principal self-efficacy questions used to collect background knowledge that may prove beneficial to the study.

The research included two separate surveys of two independent samples. Though some of the same questions are asked to both samples, there was not be any inferential comparisons

between the two groups. The study did not compare principal responses to the responses of K-12 classroom teachers from the same building. Both surveys were based upon a 6-point Likert scale. As regression was used, independent variables were identified as predictor variables and the dependent variable were represented by the criterion variable. The decision to select a 6-point scale came through the study of research. According to the work of Chomeya (2010), Likert's 6-point scale provides greater discrimination and reliability values when there are several variables involved. Additionally, the 6-point scale also reduced deviation for personal decision making (Chomeya, 2010).

Survey 1 was completed by principals. The first two sets of questions sought to determine the principal's level of efficacy in the role of leader of adult learning in his or her building. The hope was to uncover if principals think there would be a benefit to additional coursework for future administrators on andragogy and on the development and nurturing of a school's professional learning environment. This was completed through descriptive statistics, where raw scores from the 6-point Likert scale are organized or summarized to make them more manageable (Ary et al., 2010; Gravetter & Wallnau, 2013). Through the use of SPSS I determined the mean, median, mode, frequency and standard deviation.

The third set of questions in Survey 1 was used to create the composite score for a school's professional learning environment. This composite score was used as the criterion variable. The questions were derived from the six characteristics of high performing PLCs according to DuFour et al. (2006) and eight other researcher groups and theorists.

The three sets of questions were used to answer the first hypothesis. The first hypothesis was designed to determine if the composite scores of a principal's efficacy of andragogy (adult learning) and developing a professional learning environment explain a significant amount of

variance in the school's professional learning environment composite score. The data were examined through multiple regression for a relationship among the predictor variables of an administrator's efficacy in developing and nurturing a professional learning environment (PLE) and their andragogical knowledge to determine the best possible weighting that would yield to the maximum variance of the criterion variable of a school's PLE (Ary et al., 2010).

The final set of questions on Survey 1 provide demographic information to allow the researcher to determine if years of experience, age, location of school, or size of district impacts the composite score of the school's professional learning environment. Descriptive statistics were used. Mean and standard deviation were collected.

Survey 2 was completed by classroom teachers and sought to determine whether specific leadership and adult learning strategies are observable by educators within the building. Additionally, the surveyor sought to determine if leadership behaviors and adult learning strategies may impact the strength of a school's professional learning environment. Teachers were asked a series of questions relating to a principal's leadership characteristics and additional questions on their observation of use of andragogical (adult learning) practices by the principal. Teachers were also be asked to respond to questions relating to the professional learning environment in their building. As with all of the question responses other than demographics, the survey was based on a 6-point Likert scale.

The first two sets of questions in Survey 2 were developed to uncover how leadership behaviors and adult learning strategies are observed by educators. The first set of questions is developed from statements connected to instructional leadership characteristics from Robinson et al. (2008) and the meta-analysis of Hattie and Yates (2009) that are linked to student

achievement. Additional questions relating to leadership was also included and are comprised from research through Sackney et al. (2005), Leithwood and Jantzi (2005), DuFour (2004), and Robinson et al. (2008). The second series of questions identify adult learning strategies that have been found to be successful through research. The second series of questions is comprised from the six assumptions of the andragogical model by Knowles (1990) as well as practices presented by DuFour (2004), Croft et al. (2010), Garet et al. (2001), and Robinson et al. (2008). The responses of all questions in Series 1 and 2 were analyzed using descriptive statistics by analysis of the mean, median, mode, and standard deviation of the responses.

The third set of questions address the perception of a school's current professional learning environment by the educator. The data were used to create the composite score for a school's professional learning environment. The same series of questions on a professional learning environment were used as in Survey 1, but were adjusted for the different sample's response. This time I was seeking to interpret the characteristics of a school's professional learning environment through the lens of the teacher and not the building administrator.

Through inferential statistics, responses to questions in the first three sections of Survey 2 were also used to answer the second hypothesis. The second hypothesis is designed to determine if the composite scores of instructional leadership behaviors and adult learning strategies, explain a significant amount of variance in the school's professional learning environment's composite score. The composite score of a PLE as composed through the teacher responses were used as the criterion variable in Survey 2. Similar to the first hypothesis, the data was examined through multiple regression to determine the best possible weighting that would yield to the maximum variance of the criterion variable of a school's PLE (Ary et al., 2010). Though it may be

interesting, principal and educator scores were not compared within the same building as participant names, schools, and school district information were not be collected.

The final set of questions in Survey 2 provided demographic information to allow me to determine if years of experience, age, location of school, or size of district impacts the composite score of the school's professional learning environment. Linear regression was used to provide insight on their impact on a school's professional learning environment.

Trustworthiness in Data Collection

The survey instrument is researcher created and is located in Appendix A. Thoughtful consideration was given to all components and thorough processes were completed before final distribution of the instruments to ensure validity and reliability. All questions have been selected through research conducted in Chapter 2. The instruments went through an evaluation process by members of the Greensburg PhD cohort as well as group 11 in the second cohort of Indiana Principal Leadership Institute. Members were asked to review the questions and give feedback as to whether the combination of the questions fairly represented the desired variable when formulated into a composite score.

Statistically, the composite scores were checked for reliability of the questions through the use of the Cronbach's alpha. With Cronbach's alpha, I calculated both "the variance within the item and the covariance between a particular item and any other item on the scale" (Field, 2013, p. 708). "Covariance is a measure of strength of association which has not upper or lower limits" (Gray & Kinnear, 2012, p. 317). If the Cronbach's Alpha test score is at the recommended level of .7 or higher, then the composite score is acceptable statistically. If the score does not meet the .7 requirement, the researcher looked at the questions to determine if there are some bad questions as an individual participant's score response levels on each

question within the group should be somewhat consistent for an effective composite score to result (Ary et al., 2010; Gravetter & Wallnau, 2013).

Should the Cronbach's alpha score not reach the recommended level of .7, the option to complete an exploratory factor analysis may be considered. Exploratory factor analysis can be used "to determine the number and nature of the factors necessary to account adequately for the correlation in the R-matrix" (Gray & Kinnear, 2012, p. 603). Through Statistical Package for the Social Sciences (SPSS), scatterplots were created. Collinearity was determined by reviewing the shape created by the two variables. The more elliptical the scatterplot, the greater the collinearity (Field, 2013). Field explained that the shape of the scatterplot is measured by lines that are called eigenvectors which measure the length and width of the scatterplot shape. The number of eigenvectors will be contingent on the number of variables and each eigenvector has a specific length. To do this, "the axes is rotated to facilitate the interpretation of the results of the factor analysis" (Gray & Kinnear, 2012, p. 603). This length of each eigenvector is called the eigenvalue (Field, 2013). As each eigenvector represents a different factor, the eigenvalue measures the variance that is accounted by each factor. (Gray & Kinnear, 2012). Gary and Kinnear (2012) explained that the eigenvalues can be converted to a measure of the proportion of the total variance by dividing the total number of tests in the battery. SPSS extracts each factor, starting with the factor that has the largest variability. The process continues until the variance is negligible (Gray & Kinnear, 2012). Greatest collinearity would be explained by the variable's that divided together are closest to one. Variables showing negligible collinearity (close to 0) would be of greater concern (Field, 2013). This very lengthy computation is best completed through SPSS (Fields, 2013; Gray & Kinnear, 2012).

This survey was created based on leading research on education leadership, andragogy (adult learning), and professional learning communities found within the review of literature in Chapter 2. The criterion variable in all hypotheses is the professional learning environment composite score. This composite score was generated from responses to questions that also come directly from leading research presented in Chapter 2. The PLE composite score was generated separately for both surveys but comprised of the same questions. Principal and teacher responses were independent of one another. This is important because I was not looking at how principals and teachers perceive the same PLE but was looking for a relationship between the various dependent variables and an explanation of variance in the criterion variable of PLE.

Data Source

The data were derived from the responses to the two surveys. For the first survey, an Excel database was requested from the Indiana Department of Education that included the school, principal, and email addresses. Any principals of a public school in Indiana comprised of at least one grade level between (and including) kindergarten through twelfth grade may participate. Principals were sent Survey 1. The survey was open to any principal of one or more of the 1,928 public schools in Indiana. Teachers in the buildings are also eligible. As the study was not developed to compare teacher and principal responses, no attempt was made to ensure that both the administrator and the teachers in the same building participate.

For the purpose of this study, a building principal was the building leader of any type of public school in Indiana. Assistant principals were not part of the study unless they are currently filling the role of principal. Public school is defined as any school that educates students in the general education setting, includes one or more grade levels between kindergarten and twelfth grade, and whose primary revenue source of income for their general fund is provided by the

State of Indiana. All Indiana public school principals working in buildings were invited to participate in the study.

The second survey was sent electronically to public education teachers in Indiana who are directly teaching in a building that houses students that are in kindergarten to 12th grade. Excel database was requested from the Indiana Department of Education email addresses and were similar in format as the one requested for Survey 1 but included the teacher's name, not principals. Eligible participants for Survey 2 included teachers who are not currently in the role of principal. All 59,863 Indiana teachers were eligible to participate in the study regardless of the same factors listed in the previous paragraph for the building principal.

Power analysis was used to determine sample size return rate using the online application <http://raosoft.com/sample.html> and were checked for accuracy using <http://systemsurvey.com/sscat.htm>. The confidence levels selected were chosen as 95% and 5% are traditionally selected for behavior research (Zar, 1984). The responses were calculated through the use of SPSS, version 23.

It is the responsibility of the researcher to protect participants of a research project (Drew, Hardman, & Hosp, 2008). It is important to take precautions and necessary considerations to protect confidentiality and follow regulations from data collection. In this research project, consent was asked and participation was voluntary. Participant names and the name of the employers was not collected. Anyone completing the survey could abandon completion of the survey at any time. IP addresses were not collected.

Data Collection Methods

Data was collected via email, using the Qualtrics survey instrument which combines differential survey questions to set up a base level of understanding. Both surveys were

distributed once approval was obtained through Institutional Review Board (IRB) and the Bayh College of Education's Office of the Dean, and after the survey instrument was validated. The survey instrument was distributed electronically through email. The survey remained open for a three-week period. A follow up email was sent out after two weeks to members of the sample population, thanking everyone if they have already participated and also stating that if they have not had a chance to participate that there was still time left to respond. After three weeks, as the necessary minimums had been received, the survey window was closed. If the required number of participants had not been achieved, the window would have been extended for an additional time as advised by the chairperson of the committee.

Procedures to protect participants were in place. A cover letter (email introduction) was developed to assure confidentiality and anonymity for participants. The data were collected and maintained on a password-protected laptop computer. District names as well as principal and teacher names were not collected. Based upon IRB regulations, the data will be permanently deleted after three years.

Data Procedures

Once the surveys were received, the data were imported from Qualtrics to the SPSS, version 23. Responses from the survey were coded and tabulated. Using SPSS to complete the formulas, mean, median, variance, and standard deviation were equated to provide summarized values. Composite scores and linear regression was completed as reliability was met. Building principals were not linked to teacher responses.

Drawn from data collected from Survey 1 (completed by the principal), composite scores were created to serve as predictor variables of a principal's efficacy of andragogy (adult learning) and for developing a PLE. A composite score was developed through survey responses

to serve as the criterion variable for professional learning environment. Similarly, using the data collected from Survey 2 (completed by teachers), responses were used to create composite scores that served as predictor variables for leadership behaviors and adult learning characteristics. Also corresponding to Survey 1, a composite score were developed through survey responses to serve as the criterion variable for PLE.

Limitations

As with many surveys, there are limitations that may impact this study. Participation in the survey is optional, thus the sample was limited to the population willing to respond to the survey. Honesty and genuine transparency of the respondents are out of the control of the researcher. Concerns over anonymity may impact the willingness of teachers to openly share their opinion of the building principal's leadership behaviors, knowledge of andragogy, and the quality of the PLE in the building where they are employed. Additionally, it is possible that a building principal may be concerned about the anonymity of their response and overstate their knowledge level of how adults learn and the quality of the buildings PLE. The building principal's responses were based on his or her own perception. The teacher responses were based on his or her own perception as well. Confounding variables have not yet been determined. Participation rates adhered to the minimum expectations established through power analysis.

Delimitations

This study limits the predictors for analysis of leadership to the five instructional leadership behaviors that have the greatest effect size on student achievement as presented by Robinson et al. (2008) and research from four other theorists representing both instructional and transformational behaviors that, found through research, have an impact on student achievement.

There are numerous other leadership theories and behaviors that may impact a professional learning environment that are not included in this study. Likewise, this study limits the research of andragogical characteristics to primarily those by Knowles, though three other theorists are also represented. There may be other adult learning strategies that have not been included. Restrictions on professional learning theory is also limited by research presented in Chapter 2. Only public schools in Indiana were surveyed and the study was not limited to specific grade level settings or a school's socio-economic status. All responses were based upon a 6-point Likert scale rather than options for agreeability of participants.

Method of Analysis

Both surveys were analyzed independently. Other than the demographic questions, all survey questions in this study are based upon a 6-point Likert scale. Both survey sample calculators were set to a 95% confidence level and a confidence interval of 5. The confidence levels selected were chosen as 95% and 5%, traditionally selected for behavior research (Zar, 1984). The alpha level was set at .05 for all tests.

In this section of Chapter 3 I reviewed each question (or set of questions) independently and explain the statistical approach that was used. The first two questions are descriptive and the remaining three are inferential. The inferential questions align with the hypotheses presented earlier. As all three hypotheses have been developed to uncover a variance which could present itself as either an increase or a decrease in the criterion variable, two-tailed hypothesis tests were performed. The two-tailed hypotheses test is the most accepted hypotheses testing procedure and is used when the direction of the effect is not stated (Gravetter & Wallnau, 2013).

1. Do principals believe there is a need for additional training in leading adult learners (andragogy)?

2. Do principals believe there is a need for additional training in the development and implementation of a professional learning environment (PLE)?

Questions 1 and 2 are descriptive. Differential data analysis calculating the mean, median, mode, and standard deviation of the descriptive data to determine the level of principal efficacy for leading adult learners and for the development and implementation of a professional learning environment was completed.

3. Do the composite scores of a principal's efficacy of andragogy (adult learning) and developing a professional learning environment explain a significant amount of variance in the school's professional learning environment's composite score?

The statistical design for Question 3 includes two predictor variables and one criterion variable and correlates to the first hypothesis. The data came from Survey 1. The predictor variables are composite scores of a principal's efficacy in implementing a professional learning environment and for andragogy (adult learning). The criterion variable was the composite score of professional learning environment. Through inferential statistical analysis, the output concluded whether they explain a significant amount of variance within the criterion variable. Multiple regression was used to study the shared variance and the predictability of the variables. According to Gravetter and Wallnau (2013), multiple regression is the process of using several predictor variables to obtain a more accurate prediction (p. 572). In addition, multiple regression allowed the researcher to analyze the contribution of each variable as well as their relationship to one another. The F distribution was used to test for significance of the regression (Gravetter & Wallnau, 2013). The multiple correlation coefficient, represented by R , tested for the degree of the relationship, with the total variance in the criterion variable denoted by R^2 (Gravetter & Wallnau, 2013).

4. Do teachers identify specific leadership behaviors when describing their principal's leadership role in professional learning?
5. Do teachers identify specific andragogical behaviors when describing their principal's adult learnings strategies?

Questions 4 and 5 are descriptive. Differential data analysis calculating the mean, median, mode, and standard deviation of the descriptive data to determine the perception of leadership behaviors and adult learning strategies as observed by a K-12 public school teacher.

6. Do the composite scores of research-based andragogical practices and leadership behaviors explain a significant amount of variance in a school-wide professional learning environment composite score?

Multiple regression was used to study the contribution of leadership and adult learning strategies individually as well as their relationship to one another on the variance of a professional learning environment. The data was from Survey 2, completed by K-12 teachers. In Question 6 and the second hypothesis, the predictor variables are leadership behaviors and adult learning strategies. The criterion variable is PLE.

In the second hypothesis, which aligns to Question 6, the correlation coefficient (R) was equated to determine the strength of the relationship between the composite score of leadership behavior and the composite score of professional learning environment. As in Hypothesis 1, the F distribution was used to test for significance of the regression (Gravetter & Wallnau, 2013). The amount of variance in the criterion variable may be explained by the predictor variable through the coefficient of determination (R^2), allowing for an unbiased representation of the sample. The standard error of estimate was used to measure the variability in the points on the regression line (Ary et al., 2010; Gravetter & Wallnau, 2013).

Summary

In review, Chapter 3 began by taking the purpose of the study and the theory from the literature review and explaining how the study was achieved by stating the statistical procedures, responsibilities, and decision making that is necessary. The research questions and hypotheses were presented along with the statistical approaches. Confirmation of high standards for not only the survey instrument but also for implementation were stated. Limitations and delimitations were also shared.

CHAPTER 4

RESEARCH FINDINGS

Introduction

This chapter includes the statistical results of the study. In accordance to the processes outlined in Chapter 3, two surveys were developed to collect data aligned to the six research questions and two hypotheses within this dissertation. Both surveys were emailed to two distinctly different samples in order to obtain the perspectives from both the administrators coordinating the PLE as well as teachers who are the co-participants of the professional learning environment. The criterion variable, PLE, was composed of the same questions and constructs in both studies. However, since the surveys were looking for different data from each population, the remaining variables and constructs within the surveys were unique and aligned to the individual population.

The process of data collection began after Chapters 1, 2, and 3 were approved through IRB and the Bayh College of Education. Procedures outlined in Chapter 3 were followed to ensure compliance and statistical accuracy. The Indiana Department of Education was the source for both email lists. A 6-point Likert-type scale was used for both. The survey window was open for three weeks and did not need to be extended as sufficient samples were achieved for both surveys.

The principal and teacher survey results will be presented separately but will use the

same organizational structure. Beginning with the administrator survey, the analysis will start with a brief overview of the survey and population. The chapter will then transition into more documentation of the processes used to determine reliability as well as descriptive and inferential results. Survey data from the principal survey will be presented as it applies to research questions 1, 2 and 3, which includes the first null hypothesis. This data will be presented, followed by a brief summary of the principal data. The teacher survey research will be presented next using the same format. The teacher survey will be used to synthesize the data for questions 4, 5, and 6, which includes the second null hypothesis. Additionally, a brief comparison, providing mean difference between principal and teacher PLE constructs will be presented.

Research Questions

1. Do principals believe there is a need for additional training in leading adult learners (andragogy)?
2. Do principals believe there is a need for additional training in the development and implementation of a professional learning environment?
3. Do the composite scores of a principal's efficacy of andragogy (adult learning) and developing a professional learning environment explain a significant amount of variance in the school's professional learning environment's composite score?
4. Do teachers identify specific leadership behaviors when describing their school principal's leadership role in professional learning?
5. Do teachers identify specific andragogical behaviors when describing their principal's adult learnings strategies?

6. Do the composite scores of research-based andragogical practices and leadership behaviors explain a significant amount of variance in a school-wide professional learning environment's composite score?

Building Administrator Survey

The principal survey was created to find the answers to the first three research questions. The survey were distributed using Qualtrics. Through a written request on December 15, 2016 to the Indiana Department of Education Office, a mailing list was provided through the Department of Legal Affairs. Using this distribution list provided by the Indiana Department of Education, all public school principals in Indiana were sent a survey in February, 2017. The mailing list included 1,859 email addresses. The total sample included 262 administrators which represents 14% of the total requests issued.

Reliability

The Building Level Administrator's Survey provides both descriptive and inferential data. As this study is composed of composite scores used for the inferential tests, Cronbach's Alpha was used to test for reliability. A reliability score of $\alpha = .70$ or greater was needed to insure reliability within the formation of each composite score. Reliability statistics were calculated for the two predictor variables and the one criterion variable. The reliability statistic for the variables, principal's efficacy in andragogy and a principal's efficacy in developing a PLE, were tested using Cronbach's alpha. A principal's efficacy in andragogy was calculated at $\alpha = .86$. A principal's efficacy in developing a PLE came out as $\alpha = .77$. Both scores were deemed reliable and were able to meet the reliability required for this quantitative study. The third variable, the criterion variable, school's PLE, was calculated at $\alpha = .90$, which also

demonstrated sufficient reliability to form a composite score.

Descriptive Analysis

Descriptive data was collected from principals that participated in the survey ($N = 262$). Years of experience was one of the demographic indicators. According to the analysis, the various categories of years of experience were fairly evenly represented. Principals with 5 years or less of participation accounted for $N = 67$ (25.5%) of the population surveyed. Principals with 6 to 10 years of experience represented $N = 77$ (29.4%) and principals with 11 to 15 years of experience represented $N = 57$ (21.8%) of the survey population. Administrators with greater than 15 years of experience accounted for $N = 60$ (23%) of principals completing the survey.

Descriptive data was also collected to determine the grade level make-up of the buildings that principals were leading. Respondents selected from elementary, junior high, high school, or kindergarten through 12th grade. Though each category other than kindergarten- 12th grade, $N = 2$ (.8%), had a sizable sample size, the largest sample came from elementary principals, $N = 145$ (55.3%). Junior high school principals represented $N = 44$ (16.8%) and high school principals $N = 71$ (27.1%) of the surveyed population.

Survey participants represented rural, suburban, and urban communities. The largest segment of the population cited by principals came from rural communities $N = 114$ (43.5%). Suburban administrators represented the second largest category $N = 84$ (32.1%) followed by urban administrators $N = 64$ (24.4%).

Information was collected on a school's Title I participation to help provide a snapshot of a school's socio-economic status. The survey population represents a sizable sample of both Title I Schools and Non-Title I Schools. There were slightly more Title I schools, $N = 154$ (58.8%), than non-Title I funded schools, $N = 107$ (40.8%), that participated in the survey.

The demographic data provided a foundation for comparing the effect of efficacy in andragogy and efficacy in developing a PLE within the various subgroups. Table 2 provides data comparing years of experience and administrator efficacy in andragogy and developing a PLE. When reviewing the years of experience that a principal had at the time of completing the survey, the mean score of principal efficacy in andragogy (<1 year of experience, $M = 4.2$; > than 15, $M = 4.59$) increased with experience and their efficacy developing and sustaining a PLE (<1 year of experience, $M = 4.28$; > than 15 = $M = 4.73$). The mean scores for years of their experience also increased when responding to questions relating to their school's PLE ($M = 3.89$; > than 15, $M = 5.07$). There was a slight dip in mean scores submitted by principals with 11 to 15 years of experience in all three categories.

Table 2

Principal Survey - Years of Administrative Experience

Years	<u>Efficacy-Andragogy</u>			<u>Efficacy-PLE</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
< 1 year	4.28	.42	3	4.28	.59	3	3.89	.84	3
1 to 5 years	4.29	.74	64	4.52	.72	64	4.8	.77	64
6 to 10 years	4.53	.63	77	4.65	.57	64	4.9	.68	77
11 to 15 years	4.35	.69	57	4.56	.59	57	4.97	.66	57
> 15 years	4.59	4.73	60	4.73	.60	60	5.07	.53	60

District size presented in Table 3 showed some variance between efficacy scores based on the size of the district. School districts composed of less than 1000 students presented a mean lower than all four other population groups (Andragogy $M = 4.25$; PLE Development $M = 4.26$; PLE $M = 4.87$). The highest mean score came from principals employed in districts with 5,000-

10,000 students (Andragogy $M = 4.65$; PLE Development $M = 4.82$; PLE $M = 5.13$). In both columns, years of experience and the size of district, mean scores in andragogy were consistently less than those in efficacy in developing a PLE. Both efficacy in andragogy or efficacy in developing and sustaining a PLE did not have as high of mean score when compared to the mean of the principal's perception of the state of their school's PLE.

Table 3

Principal Survey - Size of District Student Population

District Size	<u>Efficacy-Andragogy</u>			<u>Efficacy-PLE</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
< 1,000	4.25	.64	25	4.26	.71	25	4.37	.99	25
1,001 - 2,000	4.48	.76	64	4.68	.62	64	4.93	.65	64
2,001 - 5,000	4.33	.80	64	4.55	.65	64	4.86	.60	64
5,001 - 10,000	4.65	.58	54	4.82	.53	54	5.13	.45	54
> 10,000	4.46	.60	56	4.56	.55	55	5.0	.70	55

There was limited consistency of efficacy of andragogy and development of PLEs based upon building configuration as noted in Table 4. However, one mean that stands out is that of the junior high principals, who scored their efficacy in andragogy and PLE development lower ($M = 4.25$, $M = 4.49$) than elementary administrators ($M = 4.46$, $M = 4.65$) and high school principals ($M = 4.54$, $M = 4.65$). This trend continued when comparing a school's professional learning environment as elementary school principals ($M = 4.98$) rated their school's professional learning environment higher than both junior high ($M = 4.80$) and high school ($M = 4.88$).

Table 4

Principal Survey - Building Configuration

<u>Building</u>	<u>Efficacy-Andragogy</u>			<u>Efficacy-PLE</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Elementary	4.46	.68	145	4.65	.61	145	4.98	.63	145
Junior High	4.25	.74	44	4.49	.73	44	4.80	.77	44
High School	4.54	.71	71	4.65	.59	72	4.88	.72	72
K-12	5.08	.59	2	4.83	.71	2	4.39	.55	2

Location of a district had an impact on principal efficacy in andragogy, PLE development as well as a principal's rating of their school's professional learning environment. Table 5 shows rural school principals rated their efficacy in andragogy ($M = 4.36$), PLE development ($M = 4.55$) and the current state of their school's PLE ($M = 4.81$) lower than both suburban and urban principals. The mean scores for both rural and urban administrators were similar. Suburban principals ($M = 4.52$) and urban principals ($M = 4.52$) had identical means in efficacy and in andragogy. In efficacy of developing a professional learning environment, the means were very close with suburban ($M = 4.66$) and urban ($M = 4.65$). Similarly, the mean representing their perception of their school's current PLE were very close as well (suburban, $M = 4.99$; urban, $M = 5.01$).

Table 5

Principal Survey - Community Classification

Community	<u>Efficacy-Andragogy</u>			<u>Efficacy-PLE</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Rural	4.36	.78	114	4.55	.68	114	4.81	.71	114
Suburban	4.52	.65	84	4.66	.60	84	4.99	.62	84
Urban	4.52	.59	64	4.65	.54	64	5.01	.69	64

Principals were also asked if their school qualified for Title I services. The question was used to determine establish the socio-economics status (SES) of a building to obtain an idea of the level of poverty within a school. Data on principal efficacy of andragogy, developing and sustaining a school's PLE as well as the quality of the principal's PLE are presented in Table 6. Title I school principals scored their efficacy in andragogy ($M = 4.5$), leadership ($M = 4.66$), and school PLE higher ($M = 4.96$) than schools that did not receive Title I funding. (andragogy $M = 4.38$; PLE development $M = 4.54$; and school PLE $M = 4.86$).

Table 6

Principal Survey - Title I Services

Services	<u>Efficacy-Andragogy</u>			<u>Efficacy-PLE</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Title 1 Services	4.50	.66	154	4.66	.60	154	4.96	.62	154
No Title 1	4.38	.75	107	4.54	.65	107	4.86	.76	107

Number of certified staff members somewhat mirrored the results found with the size of district. Presented in Table 7, the second highest category for certified staff, 61-75 provided the

highest scores for efficacy in andragogy ($M = 4.63$) and developing a professional learning environment ($M = 4.79$). However, the results did not follow through to the perception of the state of the school's current professional learning environment, where their composite score of a school's PLE ($M = 4.67$) was the second lowest score.

Table 7

Principal Survey - Number of Certified Staff Members

Staff Number	<u>Efficacy-Andragogy</u>			<u>Efficacy-PLE</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
15 or less	4.35	.61	13	4.54	.84	13	4.60	1.13	13
16-30	4.40	.74	94	4.57	.64	94	4.85	.63	94
31-45	4.48	.73	81	4.64	.59	81	4.96	.71	81
46-60	4.41	.58	34	4.56	.68	34	4.93	.67	34
61-75	4.63	.63	13	4.79	.55	13	4.67	.44	13
> 75	4.57	.71	27	4.69	.53	27	5.13	.57	27

Research Questions and Responses Related to Principal Survey

The principal survey was designed to explore the following questions:

1. Do principals believe there is a need for additional training in the development and implementation of a professional learning environment (PLE)?
2. Do principals believe there is a need for additional training in leading adult learners (andragogy)?

Four focal questions from the survey provided data to help researchers study the principal's perception of need for additional training and development of a PLE. Likert-scale

percentages were recorded. Through the responses, the researcher was seeking to gather principal perception of current and possible need for future training of administrators on developing and sustaining a PLE as well as the importance of PLE development in their current role as principal.

The first survey question related to how well college prepared the principal to create a highly effective school-wide professional learning environment. Principals responded *strongly disagree*, $N = 19$ (7.3%); *disagree*, $N = 45$ (17.2%); *somewhat disagree*, $N = 60$ (22.9%); *somewhat agree*, $N = 89$ (34.0%); *agree*, $N = 41$ (15.6%); and *strongly agree* $N = 8$ (3.1%). The result is that 52.7% of administrators believe that the courses they took in college prepared them to create an effective school-wide PLE. However, the strength of agreement was not as high since the largest category of respondents responded *somewhat agree*, $N = 89$ (34%), $M = 3.43$.

The second question was used to determine if principals thought that colleges should better prepare principals to be leaders of a professional learning environment of a school (NPBEA, 2016, p.16). The survey responses to this construct were *strongly disagree*, $N = 1$ (.4%); *disagree*, $N = 2$ (.8%); *somewhat disagree*, $N = 4$ (1.5%); *somewhat agree*, $N = 42$ (16.0%); *agree*, $N = 103$ (39.3%); and $N = 103$ (39.3%) for *strongly agree*. Looking at these data, 97.3% of principals believe colleges should better prepare administrators to be leaders of a school's professional learning environments. The greatest number of responses came from both *strongly agree* and *agree*, $M = 5.19$.

The third construct focused on whether school districts expected principals to be able to develop and sustain a school wide professional learning environment. Principals responded *strongly disagree*, $N = 1$ (.4%); *disagree*, $N = 2$ (.8%); *somewhat disagree*, $N = 4$ (1.5%); *somewhat agree*, $N = 20$ (7.6%); *agree*, $N = 132$ (50.4 %); and *strongly agree*, $N = 103$ (39.3%).

The results show 97.3% of principals believe that it is an expectation in their district for principals to be able to develop and sustain a school wide professional learning environment.

Once again, the greatest number of responses were *agree* and *strongly agree*, $M = 5.25$.

The final survey question used to develop an understanding of the first research question focused on whether principals believed it was very important for a principal to know how to develop and nurture a PLE. The responses to this question were *somewhat disagree*, $N = 1$ (.4%); *somewhat agree*, $N = 8$ (3.1%); *agree*, $N = 92$ (35.1 %); and *strongly agree*, $N = 161$ (61.5%). 99.6% of principals surveyed agreed that it is important for a principal to know how to develop and nurture a professional learning environment.

The second research question was used to explore if principals believed there was a need for additional training in leading adult learners (andragogy). Once again, differential data analysis was used to calculate the Likert-scale percentages for each of the six levels on the scale as well as the mean, and standard deviation. Four questions studied principal responses about the knowledge of learning adult learning theory.

The first question was used to determine if administrators believed the courses that they took in college provided the necessary background in adult learning strategies to enable me to be highly successful in developing teacher's professional knowledge, skills, and practice. Principal responses were *strongly disagree*, $N = 10$ (3.8%); *disagree*, $N = 61$ (23.3 %); *somewhat disagree*, $N = 60$ (22.9 %); *somewhat agree*, $N = 97$ (37.0 %); *agree*, $N = 29$ (11.1 %); and *strongly agree*, $N = 5$ (1.9%). 50 % of principals felt that college provided the necessary background in adult learning strategies. However, and similarly to the question about current university preparation levels on developing a school wide PLE, the largest Likert scale response was *somewhat*, $M = 3.34$.

The second survey question was used to uncover if principals believed colleges should better prepare principals on adult learning theory and practice (NPBEA, 2016, p.16). Principal responses to this question were *strongly disagree*, $N = 1$ (.4%); *disagree*, $N = 1$ (.4%); *somewhat disagree*, $N = 4$ (1.5%); *somewhat agree*, $N = 46$ (17.6%); *agree*, $N = 123$ (46.9%); and *strongly agree*, $N = 86$ (32.8%). 97.3% of principals believe that colleges should better prepare principals on adult learning theory and practice, $M = 5.09$.

The third survey question delved into whether principals believed that it was important for a principal to know how to lead teachers (adults) in professional learning (NPBEA, 2016, p.16). The responses from this question were *disagree*, $N = 1$ (.4%); *somewhat disagree*, $N = 1$ (.4 %); *somewhat agree*, $N = 8$ (3.4%); *agree*, $N = 88$ (33.6%); and *strongly agree*, $N = 162$ (61.8%). 98.8% of principals surveyed cited that it was important for a principal to know how to lead adults in professional learning, $M = 5.57$.

The final question was used to seek information on whether adult learning knowledge and skills were expected from them by their district office. The responses from this question were *disagree*, $N = 8$ (3.05 %); *somewhat disagree*, $N = 18$ (6.87 %); *somewhat agree*, $N = 45$ (17.18 %); *agree*, $N = 150$ (57.25 %); and *strongly agree*, $N = 41$ (15.65 %). 90.1 %, $M = 4.76$ of principals believed that andragogical knowledge and practices were important to their superiors.

Inferential Statistics

Inferential statistical practices were used to evaluate the first hypothesis:

H_01 : The composite scores of a principal's efficacy of andragogy (adult learning) and developing a professional learning environment do not explain a significant amount of variance in the school's professional learning environment's composite score.

The predictor variables for the first null hypothesis were the composite score of principal efficacy in adult learning strategies ($M = 4.45$, $SD = .70$) and the composite score of principal efficacy in creating a professional learning environment ($M = 4.61$, $SD = .62$). The criterion variable was the composite score of the school-wide professional learning environment ($M = 4.92$, $SD = .68$). Multiple regression was used to study the shared variance and the predictability of the variables.

The composite score for efficacy in andragogy was composed of six constructs about principal comfort levels and knowledge of adult learning. Principals ($N = 262$) responded on a 6-point Likert scale. Mean and standard deviation are presented in Table 8. The first question asked if principals felt prepared to develop teachers' and staff members' professional knowledge, skills, and practice through differentiated opportunities for learning and growth. Administrators responded as *disagree*, $N = 1$ (.38 %); *somewhat disagree*, $N = 10$ (3.8 %); *somewhat agree*, $N = 78$ (29.66 %), *agree*, $N = 130$ (49.43 %), and *strongly agree*, $N = 44$ (16.73%). The second question assessed their level of understanding of professional and adult learning and development. Administrators responded to those questions with *strongly disagree*, $N = 1$ (.38 %); *disagree*, $N = 4$ (1.52%); *somewhat disagree*, $N = 13$ (4.94 %); *somewhat agree*, $N = 85$ (32.32 %); *agree*, 122 (46.39 %); and *strongly agree*, $N = 38$ (14.45%). The third question related to a principal's ability to empower and motivate teachers and staff to their highest level of professional practice and continuous learning and improvement. Principals' responses to this construct were *disagree*, $N = 1$ (.4%); *somewhat disagree*, $N = 6$ (2.3 %); *somewhat agree*, $N = 69$ (26.3%); *agree*, $N = 142$ (54.2 %); and *strongly agree*, $N = 130$ (16.8 %). The fourth question was designed to determine if principals thought that college coursework provided the necessary background in adult learning strategies to enable them to be highly successful in

developing teachers' professional knowledge, skills, and practice. The results from question three were *strongly disagree*, $N = 10$ (3.8%); *disagree*, $N = 61$ (23.3 %); *somewhat disagree*, $N = 60$ (22.9 %); *somewhat agree*, $N = 97$ (37.0 %); *agree*, $N = 29$ (11.1 %); and *strongly agree*, $N = 5$ (1.9%). The fifth question focused on the construct of the expectation of a principal's background from their district office. Principal responses were *disagree*, $N = 8$ (3.1%); *somewhat disagree*, $N = 18$ (16.9 %); *somewhat agree*, $N = 45$ (17.2 %); *agree*, $N = 150$ (57.3 %); and *strongly agree*, $N = 41$ (15.6%). Finally, the last question related to the administrators' understanding of differences between adult and student learning strategies. The responses were *strongly disagree*, $N = 1$ (.4%); *disagree*, $N = 19$ (7.3 %); *somewhat disagree*, $N = 21$ (8 %); *somewhat agree*, $N = 95$ (36.3 %); *agree*, $N = 104$ (39.7 %); and *strongly agree*, $N = 22$ (8.4%).

Table 8.

Principal Survey – Efficacy in Adult Learning Practices

<u>Construct</u>	<u>N</u>	<u>M</u>	<u>SD</u>
Prepared to develop teachers professionally	262	4.78	.61
Strong understanding of adult learning and development	262	4.66	.75
Prepared to “empower and motivate teachers”	262	4.8	.53
Classroom application	262	3.96	1.37
College prepared me to be successful in adult learning	262	3.34	1.26
I have background knowledge in adult learning	262	4.76	.82
Encouraged own objectives	262	4.07	1.4
<u>Differences between adult and children learning</u>	<u>262</u>	<u>4.03</u>	<u>1.03</u>

The second predictor variable was developed to study principal efficacy in developing a professional learning environment. This composite score was established through principal responses ($N = 262$) to six questions. The composite score of a principal's efficacy in developing a professional learning environment did show a statistical variance in a school's PLE, $\alpha = .001$. Mean and standard deviation are presented in Table 9. The first question asked about a principal's background knowledge in leading professional learning. Their responses were *disagree*, $N = 3$ (1.1%); *somewhat disagree*, $N = 13$ (5.0%); *somewhat agree*, $N = 99$ (37.8%); *agree*, $N = 112$ (42.7 %); and *strongly agree*, $N = 35$ (13.4%). The second question was used to understand a principal's confidence in working with student data and collaborating with teachers to improve student achievement. The responses were *disagree*, $N = 1$ (.4%); *somewhat disagree*, $N = 5$ (1.9%); *somewhat agree*, $N = 57$ (21.8%); *agree*, $N = 119$ (45.4%); and *strongly agree*, $N = 80$ (30.5%). The next question studied a principal's opinion of whether college coursework had prepared them to create a school-wide professional learning environment. Principal responses were *strongly disagree*, $N = 19$ (7.3%); *disagree*, $N = 45$ (17.2%); *somewhat disagree*, $N = 60$ (22.9%); *somewhat agree*, $N = 89$ (34.0%); *agree*, $N = 41$ (15.6%); and *strongly agree*, $N = 8$ (3.1%). The final question asked principals if their staff would consider them the "lead learner" as an active participant in all aspects of our schools professional learning environment. With this question principals responded as *disagree*, $N = 4$ (1.5%); *somewhat disagree*, $N = 10$ (3.8%); *somewhat agree*, $N = 77$ (29.4%); *agree*, $N = 129$ (49.2%); and *strongly agree*, $N = 41$ (15.6%).

Table 9. Principal Survey – Efficacy in Creating and Sustaining a PLE

Construct	<i>N</i>	<i>M</i>	<i>SD</i>
Background knowledge in leading professional learning.	262	4.62	.67
Confidence in working with data with teachers	262	5.04	.63
Whether college coursework had prepared them to create a	262	3.43	1.53
Would staff would consider you the “lead learner”	262	4.74	.68
PLE is collective and collaborative	262	4.92	.80
PLE is job embedded and relevant	262	4.93	.82

The third composite score represents the criterion variable, professional learning environment. The nine constructs used to create the PLE composite score are the same used in the teacher survey. Question 1 asked whether the school’s PLE had a common mission, vision, and set of goals that all focus on student learning. The responses were *strongly disagree*, $N = 2$ (.8%); *disagree*, $N = 4$ (1.5%); *somewhat disagree*, $N = 13$ (5.0%); *somewhat agree*, $N = 47$ (7.9%); *agree*, $N = 119$ (45.4%); and *strongly agree*, $N = 77$ (29.4%). The next question asked if the principal believed staff in the school were committed to continuous improvement which drives our school’s PLE (Owen, 2014). The results from this question were *strongly disagree*, $N = 2$ (.8%); *disagree*, $N = 1$ (.4%); *somewhat disagree*, $N = 10$ (3.8%); *somewhat agree*, $N = 67$ (25.6%); *agree*, $N = 130$ (49.6%); and *strongly agree*, $N = 52$ (19.8%). Question 3 focused on whether staff in the school actively participated in PLE. Principal responses were *strongly disagree*, $N = 1$ (.4%); *somewhat disagree*, $N = 12$ (4.6%); *somewhat agree*, $N = 43$ (16.4%); *agree*, $N = 140$ (53.4 %); and *strongly agree*, $N = 66$ (25.2%). The fourth construct delved into

the principal's active participation in all learning and development. Principal responses were *strongly disagree*, $N = 2$ (.8%); *disagree*, $N = 2$ (.8%); *somewhat disagree*, $N = 1$ (.4%); *somewhat agree*, $N = 21$ (8.0%); *agree*, $N = 24$ (47.3%); and *strongly agree*, $N = 114$ (43.5%).

Next, principals were asked to respond to whether there was protected and set time for teachers to regularly collaborate and work on professional learning. Principals responded *strongly disagree*, $N = 4$ (1.5%); *disagree*, $N = 9$ (3.4%); *somewhat disagree*, $N = 12$ (4.6%); *somewhat agree*, $N = 25$ (9.5%); *agree*, $N = 82$ (31.3%); and *strongly agree*, $N = 129$ (49.2%). The construct of the usefulness of the time and energy spent in professional learning was next.

Principals responded *strongly disagree*, $N = 2$ (.8%); *disagree*, $N = 2$ (.8%); *somewhat disagree*, $N = 1$ (.4%); *somewhat agree*, $N = 42$ (16%); *agree*, $N = 145$ (55.3%); and *strongly agree*, $N = 69$ (26.3%). Principals next responded to whether their school's PLE had a strong coordination and integration across teams/teacher subgroups within the school. Responses were *strongly disagree*, $N = 4$ (1.5%); *disagree*, $N = 5$ (1.9%); *somewhat disagree*, $N = 23$ (8.8%); *somewhat agree*, $N = 72$ (27.5%); *agree*, $N = 124$ (47.3 %); and *strongly agree*, $N = 34$ (13.0%). (Printy, Mark, & Brower, 2008). Following that question, principals then were asked if the culture of shared leadership and collective learning was highly effective. The responses were *strongly disagree*, $N = 3$ (1.1%); *disagree*, $N = 6$ (2.3%); *somewhat disagree*, $N = 7$ (2.7%); *somewhat agree*, $N = 66$ (25.2%); *agree*, $N = 128$ (48.9%); and *strongly agree*, $N = 52$ (19.8%).

The ninth and final construct delved into whether professional development in the principal's building focused on teaching high learning standards, builds content and pedagogical knowledge, models preferred instructional practices, is rigorous, and aligned to reform initiatives. Administrator responses to that question were *strongly disagree*, $N = 2$ (.8%); *disagree*, $N = 7$ (2.7%);

somewhat disagree, $N = 13$ (5.0%); *somewhat agree*, $N = 76$ (29.0%); *agree*, $N = 119$ (45.4 %); and *strongly agree*, $N = 44$ (16.8%).

Simultaneous multiple regression was used to evaluate the extent that principal efficacy in adult learning and efficacy in developing and sustaining a professional learning environment can predict the variance in a school's professional learning environment. Assumptions of multiple regression were met. The plot of residuals confirmed linearity as the model was within reasonable size of ± 2 on both axes. Tolerance statistic was calculated at .45 indicating appropriate levels of inter-correlation between variables. Through SPSS the Durbin-Watson test was completed and the independence of residuals were acceptable at 1.79. For this assumption to be met the value resulting from the Durbin-Watson test should be between 1 and 3. The closer to 2, the stronger the assumption. Normality of residuals was met through SPSS using a histogram of residuals and a normal probability plot, both indicating a reasonable normality of residuals.

Results of the simultaneous regression indicated that the linear composite of the efficacy in adult learning and efficacy in developing and sustaining a professional learning environment explain a significant amount of variance in a school's overall professional learning environment, $R^2 = .48$, $R^2_{adj} = .48$, $F = 118.85$, $p < .001$. Specifically, this model accounted for 48% of variance in a school's professional learning environment. The relatively small standard error of estimate of .07 provides further evidence of the effectiveness of this predictive model. However, only one of the predictors demonstrated statistical significance in predicting a school's overall professional learning environment. Efficacy in developing and sustaining a professional learning environment is a significant predictor of a school's overall professional learning environment, $t(2) = 10.02$, $p < .001$.

Table 10

Principal Survey ANOVA School Professional Learning Environment

Model	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig</i>
Regression	58.02	2	29.01	118.85	.000
Residual	63.22	259	.24		
Total	121.25	261			

The regression coefficients for professional learning environments presented in Table 11 include the beta weight for both variables. Efficacy in developing and sustaining a PLE $b = .73$, $p = .001$ tells us that one unit of increase in efficacy of developing a sustaining a PLE may predict to raise the PLE score by .73 units. The statistical tests of the partial regression coefficients for efficacy in adult learning strategies was not significant, $p = .69$.

Table 11

Principal Survey - Regression Coefficients for Professional Learning Environments

Variable	<i>b</i>	<i>S_B</i>	<i>B</i>	<i>t</i>	<i>Sig</i>
Efficacy in Andragogy	.03	.07	.03	.40	.69
Efficacy in developing a PLE	.73	.07	.67	10.02	.000

Note: $R^2 = .48$; $R^2_{adj} = .48$; $N = 262$; $p < .001$

Classroom Educator Survey

The Classroom Educator Survey was designed to seek information from classroom teachers in public, K-12 schools which corresponds to the final three research questions in the

study. Similarly to the principal survey, the mailing list was acquired through the Department of Legal Affairs within the Indiana Department of Education. The distribution list included 60,348 email addresses. The survey was created using Qualtrics and sent through Indiana State University email. Over a three week period in February 2017, 31,500 surveys were randomly emailed to addresses from the distribution list. At the close of the period, $N = 433$ (1.4%) surveys were completed.

Reliability

Other than the demographic related items, the remaining questions were randomly presented through the survey. Reliability statistics were calculated for the two predictor variables and one criterion variable. Cronbach's alpha was used to test reliability in the composite scores of leadership behaviors, adult learning strategies, and PLE. With Cronbach's alpha, reliability is met with $\alpha = .70$ or greater. The reliability statistic for the predictor variable representing a principal's use of andragogical practices consisted of a composite score of eight constructs and resulted in $\alpha = .91$. The second predictor variable, principal leadership attributes, was comprised from nine constructs and tested at $\alpha = .95$. The composite score for the criterion variable, a school's PLE, was composed of nine constructs and computed at $\alpha = .91$. With all three composite variables testing above $\alpha = .70$, the initial standard of reliability for composite scores was met.

Descriptive Statistics

Descriptive data were collected from teachers who participated in the survey, $N = 433$. Years of experience was one of the demographic indicators. Both educators who had been teaching for 5 years or less and those teaching between 6 and 10 years were represented by the same number of participants in the sample, $N = 65$ (15%). Teachers who had been practicing 11

to 15 years, $N = 81$ (18.7%), though greater than the first two categories, was significantly smaller than the category that represented teacher with more than 15 years of experience, $N = 222$ (51.3%).

Descriptive data were also collected to determine the type of building in which the educators were teaching. Respondents could select among elementary, junior high, high school, or kindergarten through 12th grade. Elementary school teachers, $N = 158$ (36.6%), and high school teachers, $N = 169$ (39%), represented the largest two categories; junior high, $N = 89$ (20.6%), and kindergarten through 12th grade, $N = 17$ (3.9%), had the least amount of participation in the survey.

When reviewing the district community classifications, suburban educators, $N = 175$ (40.4%), represented the greatest number of participants. Rural, $N = 121$ (27.9%), and urban teachers, $N = 136$ (31.4%), were closer together. All three categories were well represented. Teachers employed in schools that received Title I services, $N = 302$ (69.7%), greatly outnumbered participating teachers from schools not receiving Title I funding, $N = 124$ (28.6%).

The final demographic data collected responded to the number of staff members in the building. Schools with 15 or fewer teachers, $N = 21$ (4.8%); 16-30 teachers, $N = 96$ (22.2%); and 31-45 teachers, $N = 133$ (30.7%) represented the smallest schools. Educators employed in larger schools included teachers working in buildings with 46-60 teachers, $N = 70$ (16.2%); 61-75 teachers, $N = 34$ (7.9%); and greater than 75, $N = 79$ (18.2%) represented the largest building categories.

To ascertain an understanding of the sample, $N = 433$, further demographic data were collected. Mean scores and standard deviation of the adult learning composite score ($M = 3.98$; $SD = 1.1\%$) and as well as the composite score for principal leadership strategies ($M = 4.23$; $SD =$

1.17%) were computed as well as for the criterion variable, PLE = ($M = 4.08$; $SD = 1.01$). The mean and standard deviation was also calculated for leadership, andragogy, and a school's PLE based upon individual demographic focal points.

The first demographic indicator was based upon years of teaching experience and is presented in Table 12. As only one teacher completed the survey with less than 1 year's experience, that data will not be used at this time. However, it is consistent that teachers with the next level of experience, 1 to 5 years, ranked their administrators' leadership ($M = 4.51$) and andragogical skills ($M = 4.19$) higher than educators with more experience. Teachers with 1 to 5 years of experience also scored their school's PLE higher as well ($M = 4.31$).

Table 12

Teacher Survey - Years of Teaching Experience

Number of Years	Leadership			Andragogy			School PLE		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
< 1 year	5.11	-	1	4.50	-	1	4.89	-	1
1 to 5 years	4.51	1.09	64	4.19	1.02	64	4.31	.97	64
6 to 10 years	4.27	1.45	65	3.9	1.09	65	3.83	1.02	65
11 to 15 years	4.2	1.21	81	3.87	1.1	81	3.94	1.03	81
> 15 years	4.36	1.17	222	3.98	1.14	222	4.13	.98	222

When reviewing Table 13, results from the descriptive data collected relating to the number of students in the district was somewhat inconsistent with mean scores increasing and decreasing with the total number of students reported. Andragogy data were not linear and not in agreement with a school's overall PLE score. All categories of number of students reported higher leadership scores than the means of a school's overall PLE. However, school andragogy

schools were not consistent. Smaller schools of less than 2000 reported andragogy scores higher than a school's overall PLE. Teachers employed in larger districts reported PLE scores higher than andragogical behaviors observed.

Table 13

Teacher Survey - Size of District Student Population

<i>Number of Students</i>	<u>Leadership</u>			<u>Andragogy</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
< 1,000	4.52	.89	53	4.0	1.0	53	3.98	.89	53
1,001 - 2,000	4.58	1.03	61	4.26	.86	61	4.21	.89	61
2,001 - 5,000	4.18	1.21	111	3.88	1.14	111	4.0	1.07	111
5,001 - 10,000	4.55	1.02	92	4.02	1.07	92	4.26	.93	92
> 10,000	4.14	1.36	115	3.9	1.24	115	4.0	1.09	115

Next the data were desegregated based upon grade levels or type of building the teachers worked in (Table 14). K-12 buildings teachers ($N = 17$) scored their principals andragogical ($M = 5.05$) and leadership ($M = 4.39$) skills significantly higher than the more common building configurations and is presented in Table 12. Elementary principals ($N = 158$) were scored as the second highest (Andragogy $M = 4.34$; Leadership $M = 3.99$) as well as their school's current PLE ($M = 4.20$). Though the andragogy mean scores between junior high teachers and high school were very similar, there was a greater difference in the school's PLE composite scores between junior high ($M = 4.02$) and high school ($M = 3.95$) results.

Table 14

Teacher Survey - Building Configuration

<u>Building</u>	<u>Leadership</u>			<u>Andragogy</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Elementary	4.34	1.92	158	3.99	1.13	158	4.20	1.01	158
Junior High	4.25	1.17	89	3.93	1.03	89	4.02	.97	89
High School	4.32	1.16	169	3.95	1.14	169	3.95	1.02	169
K-12	5.08	.59	17	4.39	.90	17	4.51	.87	17

Type of community impacted the mean in the teacher assessment as presented in Table 15. The rural district teachers rated principal leadership behaviors ($M = 4.56$) and andragogical strategies ($M = 4.16$) higher than both suburban and urban teachers. Rural teachers ($M = 4.12$) scored their school's current PLE similarly to that of suburban teachers ($M = 4.14$). Urban educators consistently scored administrators lower in both leadership behaviors ($M = 4.09$) as well as andragogy ($M = 3.74$) and the state of the school's PLE ($M = 3.96$).

Table 15

Teacher Survey - Community Classification

<u>Community</u>	<u>Leadership</u>			<u>Andragogy</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Rural	4.56	.97	121	4.16	.97	121	4.12	.94	121
Suburban	4.3	1.15	175	4.03	1.10	175	4.14	1.0	175
Urban	4.09	1.30	136	3.74	1.20	136	3.96	1.07	136

Breaking down leadership behaviors and andragogical skills between schools with Title I Services ($N = 302$) and schools without ($N = 124$) provided little difference as the mean for Title

1 schools ($M = 4.35$) was the same as achieved by schools not receiving Title I services. This data, available in Table 16, shows that andragogical skills were reported between Title I schools ($M = 3.98$) and non-Title I schools ($M = 4.02$) were pretty consistent. Similarly, Title I schools reported a similar PLE ($M = 4$) scores when compared to that of non-Title I schools ($M = 4.03$).

Table 16

Teacher Survey - Title I Services

Services	<u>Leadership</u>			<u>Andragogy</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
Title 1 Services	4.35	1.19	302	3.98	1.12	302	4.10	1.00	302
No Title 1	4.35	1.13	124	4.02	1.06	124	4.03	1.04	124

Table 17 presents data on teachers' perception of principal leadership and andragogical practices were rated higher in smaller schools than in larger ones. Teachers employed in smaller buildings rated their administrators leadership ($M = 4.88$), andragogical skills ($M = 4.44$), and the school's overall PLE ($M = 4.45$) higher than all other school sizes. Mean scores in andragogy consistently represented the lowest mean between the categories, with leadership scores always the highest within all school sizes. The largest representation of number of certified staff members who completed the survey were from buildings with 31-45 certified staff members ($N = 133$) followed by schools with 16-30 certified staff members ($N = 96$). Schools with fewer than 15 certified staff members represented the least amount surveyed ($N = 21$), followed by schools with 61-75 staff members ($N = 34$).

Table 17

Teacher Survey - Number of Certified Staff Members

Number of Staff	<u>Leadership</u>			<u>Andragogy</u>			<u>School PLE</u>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>
15 or less	4.88	.86	21	4.44	1.05	21	4.45	1.08	21
16-30	4.28	1.27	96	4.02	1.10	96	4.08	1.01	96
31-45	4.38	1.07	133	4.02	1.07	133	4.14	.93	133
46-60	4.39	1.08	70	3.94	1.03	70	4.11	.99	70
61-75	4.0	1.33	34	3.63	1.17	34	3.77	1.21	34
> 75	4.34	1.22	79	3.94	1.19	79	3.98	1.01	79

Teacher Research Question Data

Research Questions 4 and 5 are descriptive. Differential data analysis calculating the mean, median, mode, and standard deviation of the descriptive data was collected. The purpose was to understand the sensitivity of leadership behaviors and adult learning strategies as observed by a K-12 public school teacher.

The fourth research question was designed to determine if teachers identify specific leadership behaviors when describing their principal's leadership role in professional learning. Presented in Table 18, the mean and standard deviation for the composite score used to represent leadership was calculated ($N = 433$, $M = 4.23$, $SD = 1.17$). Leadership scores with the greatest means included principal's perceived as evaluating their own impact ($M = 4.48$, $SD = 1.34$), a collaborative principal ($M = 4.36$, $SD = 1.54$), and having a shared vision ($M = 4.32$, $SD = 1.23$). The responses that principals were scored lower in overall were being explicit about what

success looks like ($M = 4.16$, $SD = 1.41$), engaging in collaborative dialogue with teachers ($M = 4.11$, $SD = 1.38$), and providing intellectual stimulation ($M = 4.01$, $SD = 1.42$).

Table 18

Teacher Survey – Leadership Behaviors Observed

<u>Leadership Behaviors</u>	<u>N</u>	<u>SD</u>	<u>M</u>
Collaborative Principal	430	1.54	4.36
Hattie- evaluate impact	432	1.34	4.48
Explicit about success	433	1.41	4.16
Level of challenge	433	1.33	4.23
Shared vision	431	1.23	4.32
Intellectual Stimulation	433	1.42	4.01
Encourages challenging status quo	433	1.40	4.20
Principal teacher relation	432	1.40	4.24
Collaborative dialogue	431	1.38	4.11

The fifth research question was used to explore whether teachers identify specific andragogical behaviors when describing their principal's adult learnings strategies. This data, found in Table 19, shows that the overall mean for the combined constructs used to represent observed use of adult learning strategies was calculated ($M = 3.98$, $SD = 1.1$). Principals were scored highest by teachers in ensuring that staff knows the objective ($M = 4.52$, $SD = 1.18$), creating a PLE where teachers feel respected ($M = 4.14$, $SD = 1.49$), and encouraging teachers to

develop their own objectives ($M = 4.07$, $SD = 1.4$). Overall scores for principals were lower in the constructs of allowing teachers to have a role in planning PLE's ($M = 3.68$, $SD = 1.57$), recognizing teacher experience ($M = 3.79$, $SD = 1.46$), creating an environment where teachers can learn on their own terms ($M = 3.84$, $SD = 1.37$), and learning including active participation ($M = 3.84$, $SD = 1.33$).

Table 19

Teacher Survey – Adult learning constructs

Construct	<i>N</i>	<i>SD</i>	<i>M</i>
Know objective	432	1.18	4.52
On our own terms	431	1.37	3.84
Teacher experience recognized	433	1.46	3.79
Classroom application	433	1.37	3.96
Active participation	433	1.33	3.85
Respect	431	1.49	4.14
Encouraged own objectives	433	1.40	4.07
Role in planning	433	1.57	3.68

Inferential Statistics

The second hypothesis in this study was developed to determine whether adult learning practices and leadership behaviors have an effect on a school wide PLE and responds to the sixth question of the research study. This information was obtained through the survey completed by

teachers as to obtain their perspective. The hypothesis was:

Ho2: The composite scores of research-based andragogical practices and leadership behaviors do not explain a significant amount of variance in a school-wide professional learning environment composite score.

The predictor variables for the second hypotheses were the composite score of leadership behaviors ($M = 4.23$; $SD = 1.17\%$) and the composite score of adult learning strategies ($M = 3.98$; $SD = 1.1\%$). Data on the composition of leadership strategies is available in Table 18. The constructs that are used in the composition of the predictor variable, adult learning strategies are found in Table 19. The criterion variable was the composite score of the school-wide professional learning environment ($M = 4.08$; $SD = 1.01$).

The nine constructs used to create the PLE composite score were the same used in the principal survey. The first question addressed whether a school's PLE has a common mission, vision, and set of goals that all focus on student learning. Teachers responded *strongly disagree*, $N = 17$ (3.9%); *disagree*, $N = 34$ (7.9%); *somewhat disagree*, $N = 52$ (12%); *somewhat agree*, $N = 114$ (26.3%); *agree*, $N = 133$ (30.7%); and *strongly agree*, $N = 81$ (18.7%). The second question was used to explore if staff members in the school were committed to continuous improvement and if it drove their school's PLE. The results were *strongly disagree*, $N = 2$ (.8%); *disagree*, $N = 1$ (.4%); *somewhat disagree*, $N = 10$ (3.8%); *somewhat agree*, $N = 67$ (25.6%); *agree*, $N = 130$ (49.6%); and *strongly agree*, $N = 52$ (19.8%). Third, teachers were asked if staff in their school actively participated in our PLE. The responses to the third question were *strongly disagree*, $N = 8$ (1.8%); *somewhat disagree*, $N = 22$ (5.1%); *somewhat agree*, $N = 6$ (15.5 %); *agree*, $N = 147$ (33.9 %); and *strongly agree*, $N = 60$ (13.9%). In the next question, teachers were asked if the building principal is an active participant in all learning and development. Teachers responded

strongly disagree, $N = 25$ (5.8%); *disagree*, $N = 38$ (8.8%); *somewhat disagree*, $N = 45$ (10.4%); *somewhat agree*, $N = 125$ (28.9%); *agree*, $N = 123$ (28.4%); and *strongly agree*, $N = 76$ (17.6%).

In Question 5, the inclusion of protected and set time for teachers to regularly collaborate and work on professional learning was asked. The responses to this question were *strongly disagree*, $N = 33$ (7.6 %); *disagree*, $N = 44$ (10.2%); *somewhat disagree*, $N = 44$ (10.2%); *somewhat agree*, $N = 79$ (18.2%); *agree*, $N = 117$ (27%); and *strongly agree*, $N = 116$ (26.8%). The next question related to the time and energy spent in professional learning at our school being useful.

Responses included *strongly disagree*, $N = 21$ (4.8%); *disagree*, $N = 53$ (12.2 %); *somewhat disagree*, $N = 51$ (11.8 %); *somewhat agree*, $F = 152$ (35.1%); *agree*, $N = 120$ (27.7 %); and *strongly agree*, $N = 36$ (8.3 %). The sixth construct was strong coordination and integration across teams/teacher subgroups within the school. Teachers responded *strongly disagree*, $N = 28$ (6.5 %); *disagree*, $N = 69$ (15.9 %); *somewhat disagree*, $N = 90$ (20.8%); *somewhat agree*, $N = 122$ (28.2 %); *agree*, $N = 91$ (21 %); and *strongly agree*, $N = 33$ (7.6 %). Next, teachers were asked whether their school's professional learning environment had a culture of shared leadership and collective learning. Responses were *strongly disagree*, $N = 18$ (4.2 %); *disagree*, $N = 51$ (11.8 %); *somewhat disagree*, $N = 76$ (17.6 %); *somewhat agree*, $N = 134$ (30.9 %); *agree*, $N = 111$ (25.6 %); and *strongly agree*, $N = 42$ (9.7 %). In the final question, teachers responded to the focus on professional development on teaching high learning standards, building content and pedagogical knowledge, modeling preferred instructional practices, being rigorous, and alignment to reform initiatives. Their responses to Question 9 were *strongly disagree*, $N = 20$ (4.6 %); *disagree*, $N = 57$ (13.2 %); *somewhat disagree*, $N = 66$ (15.2 %); *somewhat agree*, $N = 140$ (32.2 %); *agree*, $N = 111$ (25.6 %); and *strongly agree*, $N = 37$ (8.5 %).

Simultaneous multiple regression was used to study the shared variance and the predictability of the variables. Assumptions of variables for multiple regression were met. The plot of residuals confirmed linearity as the model was within reasonable size of ± 2 on both axes. Tolerance statistic was calculated at .297 indicating appropriate levels of inter-correlation between variables. Through SPSS the Durbin-Watson test was completed and the independence of residuals were acceptable at 1.72. Normality of residuals was met through SPSS using a histogram of residuals and a normal probability plot, both indicating a reasonable normality of residuals.

Results of the simultaneous regression, presented in Tables 20 and 21, indicated that principal leadership behaviors and adult learning strategies do predict a variance in a school's overall PLE, $R^2 = .78$, $R^2_{adj} = .78$, $F(2, 430) = 768.99$, $p < .001$. Specifically, this model accounted for 78% of variance in a school's PLE. The relatively small standard error of estimate of .40 provides further evidence of the effectiveness of this predictive model. Leadership behaviors observed in principals by educators is a significant predictor of a school's overall PLE, $t(2) = 7.59$, $p < .001$. Andragogical practices observed in principals by educators is also a significant predictor of a school's overall PLE, $t(2) = 14.57$, $p < .001$.

Table 20

Teacher Survey - ANOVA School Professional Learning Environment

<i>Model</i>	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig</i>
Regression	341.1	2	170.55	768.75	.000
Residual	95.4	430	.22		
Total	436.5	432			

The regression coefficients for professional learning environments presented in Table 21 includes the unstandardized weight for both variables. A principal's andragogical behaviors, $b = .55$, implies that one unit of increase in andragogical behaviors may predict a .55 rise in a school's professional learning environment. Additionally, a principal's leadership behaviors, $b = .27$, suggest that a one unit increase in leadership behaviors may predict a .27 increase in a professional learning environment. Both statistical tests for partial regression coefficients passed significance, $p < .001$. SPSS calculated the standard regression coefficient for both observed leadership behaviors, $B = .32$, and andragogical practices, $B = .60$. The standardized partial regression coefficient puts all predictors on the same metric (using z-scores) to compare the overall impact that each predictor variable has on the criterion variable.

Table 21

Teacher Survey - Regression Coefficients for Professional Learning Environments

Variable	<i>b</i>	<i>S_B</i>	<i>B</i>	<i>t</i>	Sig
Leadership Behaviors observed	.27	.04	.31	7.59	.000
Andragogical Strategies observed	.55	.04	.60	14.57	.000

Note: $R = .88$; $R^2 = .78$; $R^2_{adj} = .78$; $N = 433$; $p < .001$

Comparison Between Principal and Teacher Perception of a School's Professional Learning Environment

This section compared the criterion variable of both hypotheses. Both surveys had different predictor variables which were looked at to analyze their impact on the criterion variable, PLE. With the principal survey, the goal was to determine an administrator's level of efficacy in developing and sustaining a school's professional learning environment and their efficacy and knowledge in using adult learning strategies. In the survey completed by classroom teachers, the survey was designed to look at leadership style and the use of andragogical skills. Though the predictor variables were unique between the two surveys, the constructs used to develop the PLE composite score were the same between the two.

When reviewing principal and teacher mean composite scores based upon years of experience in the role, the results were relatively linear for principals. With the exception of teachers with only 1 to 5 years of experience ($M = 4.3$), the composite score for the PLE rose linearly with teachers as well. These data show that principal and teacher perception of a

school's PLE increased with years of experience. The PLE composite score for principals with 1 to 5 years of experience ($M = 4.8$) rose for principals with more than 15 years of experience ($M = 5.07$). Without including newer teachers, the trend was similar with teacher experience, where teachers with 6 to 10 years of experience ($M = 3.8$) increased with years of experience as noted with the teachers with more than 15 years of experience ($M = 4.13$).

Both elementary principals ($N = 145$, $M = 4.98$) and teachers ($N = 158$, $M = 4.2$) scored their school's professional learning environment higher than junior high and high school. At the junior high level, principals scored their school's PLE ($N = 44$, $M = 4.8$) and teachers rated it lower ($N = 89$, $M = 4.02$). The greatest difference was observed between high school principals ($N=72$, $M = 4.88$) and high school teachers ($N = 169$, $M = 3.95$).

The mean PLE score for schools with 15 or fewer staff members presented less of a difference between the scores of principals ($N = 13$, $M = 4.60$) and teachers ($N = 21$, $M = 4.45$). The greatest difference came from schools with the most certified staff members. Interestingly, the principals in this category ranked their PLE's the highest of all categories ($N = 27$, $M = 5.13$) but the teachers working in the largest schools scored their PLE's second lowest ($N = 79$, $M = 3.98$).

Data found in Table 22 presents the difference between means from the principals' view of PLEs and teachers' views based upon district location. The largest difference in means was found in scores between the urban principal ($N = 64$, $M = 5.01$) and urban teachers ($N = 136$, $M = 3.96$). Both rural ($N = 121$, $M = 4.12$) and suburban ($N = 175$, $M = 4.14$) teachers were very close. However, suburban principals scored their PLE .19 higher than their rural counterpart.

Table 22

Principal and Teachers Survey Comparison – Type of Community

	Principal	Teacher	
Community	<i>M (N)</i>	<i>M (N)</i>	Mean Difference
Rural	4.81 (114)	4.12 (21)	.69
Suburban	4.99 (84)	4.14 (175)	.85
Urban	5.01 (64)	3.96 (136)	1.05

When reviewing the results of the eight PLE constructs separately, the greatest difference in scores between the principal ($M = 5.32$, $SD = .70$) and educators ($M = 4.18$, $SD = 1.39$) was found in the construct of principal participation in PLE. Principals viewed their participation at a much higher level than teachers. Perception of the usefulness of a school's professional learning environment resulted in the second greatest difference between administrators ($M = 5.04$, $SD = .80$) and teachers ($M = 3.94$, $SD = 1.29$). Principals viewed the usefulness of PLE much greater than teachers. Opposing reports on PLE's were also high between integration of learning across teams and subgroups between principals ($M = 4.56$, $SD = .99$) and teachers ($M = 3.64$, $SD = 1.35$). Principal ($M = 4.78$, $SD = .95$) and teachers ($M = 3.91$, $SD = 1.29$) also differed when viewing the shared leadership and collective learning within the building's PLE. The construct with least difference between principals ($M = 4.82$, $SD = .86$) and teachers ($M = 4.31$, $SD = 1.21$) came from their view that the school PLE was based on a commitment to continuous improvement, followed by principal ($M = 4.94$, $SD = .97$) and teacher ($M = 4.29$, $SD = 1.33$) scores based upon common mission/vision.

Table 23

Principal (N = 262) and Teachers (N = 433) Survey Comparison - PLE Constructs

Construct	Principal <i>M (SD)</i>	Teacher <i>M (SD)</i>	Mean Difference
<i>M=</i>	4.61 (.62)	4.08 (1.01)	.53
Common mission and vision within PLE	4.94 (.97)	4.29 (1.33)	.65
Commitment to continuous improvement	4.82 (.86)	4.31 (1.21)	.51
There is active teacher participation in PLE	4.98 (.81)	4.31 (1.15)	.67
Principal actively participates in PLE	5.32 (.70)	4.18 (1.39)	1.14
Protected time for PLE	5.14 (1.15)	4.27 (1.57)	.87
PLE is useful	5.04 (.80)	3.94 (1.29)	1.10
There is integration across teams and subgroups	4.56 (.99)	3.64 (1.35)	.92
PLE has shared leadership and collective learning	4.78 (.95)	3.91(1.29)	.87
Focus of PLE based on high standards based content and pedagogy	4.67 (.96)	3.87 (1.30)	.80

Summary

Chapter 4 reported the statistics compiled from the two surveys. The first survey was administered to principals and the second was administered to teachers. Both descriptive and inferential statistics were collected. From the principal survey, the descriptive data was collected to determine if additional coursework and professional development on developing and sustaining a PLE as well as knowledge of andragogical practices are needed and deemed important by principals in K-12 public schools. Descriptive data was also collected from the teacher survey. Descriptive data from this survey was used to determine what leadership and andragogical behaviors are observed by teachers.

Using inferential data from both surveys, both null hypotheses in this study were rejected. The composite scores of a principal's efficacy of andragogy (adult learning) and developing a PLE do explain a significant amount of variance in the school's PLE's composite score. However, only one of the predictors demonstrated statistical significance in predicting a school's overall PLE. Efficacy in developing and sustaining a PLE is a significant predictor of a school's overall PLE. Adult learning strategies however failed significance. Using data from the survey completed by teachers, the composite scores of research based andragogical practices and leadership behaviors explain a significant amount of variance in a school-wide PLE composite score. Leadership behaviors observed in principals by educators is a significant predictor of a school's overall PLE. Andragogical practices observed in principals by educators is also a significant predictor of a school's overall PLE.

Chapter 5 will be the final section of this study. In this concluding chapter, the findings of the two surveys will be used to respond to the research study questions. Limitations of the study will be presented. Implications for use of this information will be suggested. Additionally, limitations found with the study will be presented. Chapter 5 will conclude with recommendations for the use of the data, plans for further analysis, and opportunities for future studies.

CHAPTER 5

FINDINGS AND RECOMMENDATIONS

Chapter 5 will commence with an overview of the enquiry and the results of the two research hypotheses tested. An analysis of the findings from the research study will then be shared. After the analysis of data, implications for the use of the research will be presented, followed up by the limitations of the study. Chapter 5 will close with recommendations for further research and concluding remarks.

Overview of the Study

The inquiry began with an initial question, “Are principals prepared to be leaders of adult learning?” Instructional leadership is a leading expectation for building principals, with recommendations frequently asserted that principals delegate managerial aspects of their position to focus on instructional leadership (Brewer, 2008). An important part of instructional leadership is ensuring quality instruction in every classroom. In a world that is incessantly changing, it is important for educators to continue developing their skills and knowledge base.

With the changing roles of the principalship, the NPBEA developed new standards for principals. Standard 6, Professional Capacity of School Personnel, states that administrators should “develop teachers’ and staff members’ professional knowledge, skills, and practice through differentiated opportunities for learning and growth, guided by understanding of professional and adult learning and development” (NPBEA, 2015, p.16). Specifically, Standard

6 asserts that administrators are to “empower and motivate teachers and staff to the highest level of professional practice and to continuous learning and improvement” (NPBEA, 2015, p.16).

Considering adult learners might have different learning needs and processes than children, adult learning theory was used as one of the foundations for this study. Knowles was the primary adult learning theorist for this research. Hunzicker (2010) synthesized Knowles’ adult learning characteristics and applied them to PLE as follows:

[Adults] typically prefer open ended learning opportunities and a voice in the direction and pace of their learning. They approach learning with clear goals in mind, and they use their life experiences to make sense of new information. Additionally, adult learners tend to be intrinsically motivated by opportunities to address problems- and create solutions- that relate directly to their lives. (p. 3)

This research study was also based upon leadership theory. Instructional leadership theory was grounded upon scholarship primarily from Hattie (2015) and Robinson et al. (2008). Transformational leadership was chiefly founded on theory presented by Bass and Riggio (2006).

When considering what types of professional development are available for teachers, technology has opened the doors of schools to different opportunities for learning. Originally, the analysis in the document was limited to professional learning communities. However, the definition of PLCs is not finite and means different things to different people. To ensure that I included all potential ways that a teacher may participate in professional learning, PLE became the operational term of a school’s overall professional studies.

Research shows that principals and teachers perceive professional development needs and results differently (Darling-Hammond et al., 2009; Bill and Melinda Gates Foundation, 2014).

Wanting to obtain perspective from both groups, two surveys were used and both principals and teachers were surveyed separately. Using two distinct populations allowed for both viewpoints to be measured. Independent variables were distinct between both groups as they were chosen specifically to relate to the different needs of the two groups in the context of a school's professional learning environment. With the survey completed by principals, the focus was to determine if principals considered themselves prepared to be leaders of adult learners and well adept at developing a school's PLE. Efficacy in developing and sustaining a PLE as well as efficacy in andragogical practices were analyzed to determine if data from the survey showed if the two variables could result in a variance in a school's PLE. The survey completed by teachers focused on teacher perception of principal leadership behaviors and the use of adult learning strategies. The impact of a principal's leadership behaviors and use of adult learning strategies were analyzed to determine if data from the survey showed if the two variables could result in the variance in a school's PLE.

Research Questions and Analysis

1. Do principals believe there is a need for additional training in leading adult learners (andragogy)?
2. Do principals believe there is a need for additional training in the development and implementation of a professional learning environment?
3. Do the composite scores of a principal's efficacy of andragogy (adult learning) and developing a professional learning environment explain a significant amount of variance in the school's professional learning environment's composite score?
4. Do teachers identify specific leadership behaviors when describing their principal's leadership role in professional learning?

5. Do teachers identify specific andragogical behaviors when describing their principal's adult learnings strategies?
6. Do the composite scores of research-based andragogical practices and leadership behaviors explain a significant amount of variance in a school-wide professional learning environment's composite score?

Principal Perspective

The first research question was used to determine if principals believe there is a need for additional training in leading adult learners. Results from the principal responses qualified the need for additional preparation in adult learning strategies and practices. Of the responders, 50% of principals did not consider the coursework they took in college as providing the necessary level of preparation needed in adult learning strategies necessary to support teacher learning. 97.3 % of principals conveyed that universities should better prepare principals in adult learning theory. Their expression of need for additional preparation for future principals is consistent with how they responded to job related questions relating to adult learning practices. Of the 262 principals participating in the survey, 99.62 % agreed that awareness and application of adult learning strategies played an important part of their job and 97.3% responded that a principal's ability to successfully implement adult learning strategies was important to their supervisor.

The second research question was used to determine if principals believe there is a need for additional training in the development and implementation of a professional learning environment. Data from the principal survey were analyzed to develop a potential conclusion to the question. The questions looked at four constructs to help in developing an answer. Reviewing the data, 47% of principals confirmed that the college coursework they completed did not prepare them to develop and sustain a PLE. 97.3 % of principals who responded to this

survey believe that pre-service principals need to be better prepared to develop and sustain a school's PLE. Additionally, 99.6% of principals reported that the skills and knowledge of developing and sustaining a PLE are important to their current role and 97.3 % of principals reported that their supervisors expected principals to be able to develop and sustain a PLE.

The third survey question sought to determine whether a principal's efficacy of andragogy (adult learning) and efficacy in developing and sustaining a professional learning environment can explain a significant amount of variance in the school's professional learning environment's composite score. Using linear multiple regression, the research from this study substantiates that efficacy in adult learning and efficacy in developing and sustaining a school's professional learning environment explain a variance in a school's overall professional learning environment. Specifically, this model accounted for 48% of variance in a school's professional learning environment. However, only one of the predictors demonstrated statistical significance in predicting a school's overall professional learning environment. Efficacy in developing and sustaining a professional learning environment is a significant predictor of a school's overall professional learning environment. Efficacy in using adult learning strategies was not found to be a predictor of variance of a PLE by itself.

In summary, analysis of data from the survey administered to principals supports a need for additional pre-service and principal professional development in developing a professional learning environment. Additionally, current principals confirmed the importance of this responsibility for building administrators. Administrators responded strongly that pre-service principals should learn more about adult learning strategies. Furthermore, efficacy in adult learning strategies and efficacy in developing a PLE were found to influence a school's overall PLE.

Teacher Perspective

Data from the teacher survey were used to view the role of a principal's leadership behaviors and andragogical strategies on a school's overall PLE from the teacher perspective. These data were used to respond to two descriptive research questions and one inferential research question, which was also the second hypothesis. The first research question studied which leadership behaviors teachers most frequently identified when describing their principal's leadership in professional learning. The principal leadership behavior that resulted in the greatest mean and showing the highest frequency scores addressed a principal encouraging everyone in the school to work together to know and evaluate their impact on student achievement. Teachers also reported high levels of agreement that their principals work collaboratively with teachers to create a positive school culture and also that principals and teachers work collaboratively to achieve the school vision. Also scoring above the mean was the report by teachers that principals set appropriate levels of challenge and do not retreat to "just do your best."

Leadership behaviors that fell below the mean showed that principals were less likely to be described by teachers as having provided staff with intellectual stimulation. Principals were also not as highly observed as having engaged with teachers in collaborative dialogue in areas of curriculum, instruction and assessment. Two other leadership behaviors that were found below the mean of observed behaviors were principals are explicit with teachers about what success looks like, and principals encourage teachers to question status quo, take risks, and approach old situations in new ways (Bass & Riggio, 2006, Hallinger & Murphy, 1985).

The fifth research question explored whether teachers identify specific andragogical behaviors when describing their principal's adult learning strategies. The data used to

distinguish level of observation was based upon where the mean of the factor fell compared to the overall mean. The first factor studied that resulted with scores above the mean presents a picture that teachers know the objective and importance of the work that they do in a professional learning environment. Teachers also reported being respected professionally and encouraged to develop their own objectives. Overall scores for principals that fell below the mean show us what behaviors were less observed. One characteristic that fell below the mean disclosed that teachers who completed the survey do not think they have an extensive role in the planning of professional learning. Additionally, teachers did not report having a high level of agreement that their school allowed for the ability to learn new information on their own terms and at their own level. Teachers also did not score their principals above the mean for recognizing the experience that teachers bring to the professional learning environment. One other factor that fell below the mean may imply that teachers do not view the professional learning at their school as having real application.

Using the data on principal leadership behaviors and use of adult learning strategies, the researcher created two composite scores that represented the predictor variables. Another composite score represented the school's PLE. Through linear multiple regression evidence from this study supports that principal leadership behaviors and adult learning strategies predict a variance in a school's overall professional learning environment. Specifically, this model accounted for 78% of variance in a school's professional learning environment. Leadership behaviors observed in principals by faculty is a significant predictor of a school's overall professional learning environment. Andragogical practices observed in principals by educators are also a significant predictor of a school's overall professional learning environment. Both predictor variables performed collectively and independently to create a variance of a school's

PLE. Though both leadership behaviors and adult learning practices were stronger predictors, adult learning strategies performed slightly higher. As little research has been conducted on principal's use and knowledge of andragogy, this result brings to light potential for improving the development of a school's overall professional learning environment.

Comparison of PLE Constructs Between Principals and Teachers

In Table 23, principal and teacher responses to the eight constructs that made up a school's PLE were compared, showing disconnect between the two perspectives. The greatest difference in responses between principals and educators was found in the construct of principal participation in PLE. Teachers did not rate principal participation nearly as strong as principals. Principals considered their personal participation to be their most noted construct in supporting the development and sustaining of a school's professional learning environment. Principal participation is a critical component of a school's professional learning environment (DuFour, 2004; Robinson et al, 2008; Owens, 2014). The second greatest difference came when responding to whether the time and energy spent in professional learning at our school is useful (Darling-Hammond et al, 2009; Bill and Melinda Gates Foundation, 2014). Though still a considerable difference between the two mean scores, both principals and teachers ranked shared leadership lower in comparison to all other constructs.

Implications of the Study

This investigation into administrator influences on the development of a professional learning environment resulted in two null hypotheses being rejected. Additionally, administrator responses to Questions 1 and 2 showed remarkable agreement. The results of this study, based solely on the responses received from 262 principals and 433 teachers, provide recommendations and use from various perspectives.

Implications for Principals

Principals can begin by taking a deep breath and recognizing that they are not the only building administrator that feels at a loss and confused about the exact processes and strategies that should be used to develop a professional learning environment. Though the data suggests that developing and sustaining a school's professional learning environment is an important component of a principal's role it also confirms that principals do not believe they are adequately prepared. Knowing that this feeling of lack of preparedness is universal, principals can focus on their current practice and begin to expand their knowledge on leadership and adult learning practices that better support their school's professional learning environment.

Along with realizing that they are not the only ones who may not feel confident in developing a school's professional learning environment, principals also need to be made aware that research suggests that through increasing their knowledge and efficacy they can positively improve their school's PLE. Though initially these data may seem trivial, the awareness that if administrators purposefully work on how to develop and sustain a PLE and the use of adult learning strategies they can improve a PLE. These data also show that developing and sustaining a PLE is something that a principal can learn and continually develop.

Next, I found key leadership behaviors that can be applied within current practice. Prior research has shown us that leadership matters in developing building culture, impacting teacher stress levels (employment enjoyment level) and with student achievement (Hattie & Yates, 2009; Marzano et al., 2015). As the professional learning environment is a key component of all three aspects, principals should consider their actions and skillfully apply leadership characteristics that have been recognized as important. Looking at the behaviors and strategies that were most commonly observed in this study shows us how the average principal was viewed by teachers.

For example, this study confirmed that principals actively work toward ensuring everyone evaluates their own impact. School administrators also commonly produce and promote a clear vision.

Looking at the data that fell below the mean can show what strategies were not well observed and provides insight on areas where administrators may improve. One strategy that principals can apply is to be explicit on what success looks like. This practice has a known effect size of .71, which would result in more than a year's growth in student achievement. Second, by applying strategies to ensure teachers have a clear understanding of what success looks like, administrators can also support improved student achievement (Hattie, 2015). Another practice principals can apply is to increase their engagement in collaborative dialogue with teachers about instruction and curriculum. Through such conversations, teachers recognize the importance of the instructional practices. Furthermore, discussions can expand the knowledge base of both teacher and principal. Fifth, principals should consider providing faculty with intellectual stimulation. Intellectual stimulation is known as a key component of transformational leadership. Through multi-analysis research, Marzano et al. (2005) concluded that intellectual stimulation was one of 21 important characteristics of a successful principal. Furthermore, the researchers cited that intellectual stimulation, "ensures faculty and staff are aware of the most current theories and practices and makes the discussion of these a regular aspect of the school's culture" (Marzano et al., p. 42).

According to this study, principals were less aware of andragogy compared to the skills needed to develop a PLE. Becoming more attuned to the needs of the adult learner can help leaders interested in improving their school's PLE, especially since teachers reported that implementation of adult learning practices had a greater impact on a school's PLE than

leadership strategies. The two most observed adult learning practices used by principals related to objectives. Principals were reported as ensuring teachers knew the objective and encouraging teachers to develop their own objectives.

When reviewing the adult learning strategies that were not well observed, we can learn where administrators may improve. Four components of andragogy that led to changes in a school's PLE were exposed with this research. First, a professional learning environment should provide more opportunities for active teacher participation and not rely on simply relaying information. Second, a school's professional learning environment can improve by taking teacher experience into consideration. Third, the environment may be enhanced by giving teachers more opportunities to learn on their own terms. Finally, a school's overall professional learning environment benefits from allowing teachers more of a role in planning.

Given a recognizable difference in perspective, principals may be wise to work collaboratively with teacher leaders and reflect upon the school's current professional learning framework and what may make it more valuable for everyone. When synthesizing the areas where principals can grow, it shows a need for a teacher's role in planning. By allowing their voice, the work completed in the professional learning environment would be conducted in a manner that that teachers would find more productive. By providing some autonomy to teachers on selecting their own learning opportunities, schools would not only be empowering teachers but developing a culture of professional learning that could reach to greater levels.

Teacher input is further supported through research conducted by the Bill and Melinda Gates Foundation (2014). Teachers report a higher level of professional development satisfaction when they are allowed choice. Relevancy is a critical component and could be positively influenced by principal and teacher collaboration. Additionally, the Bill and Melinda

Gates Foundation (2014) reported, “The way in which schools and districts deliver professional learning is highly fragmented and between what decision-makers intend and the professional learning teachers actually experience” (p. 3).

Implications for Professional Development

Though most of the questions on the principal and teacher surveys were unique to their population, both surveys used the same eight questions to develop a composite score for professional learning environment. Here we find a significant disconnect between principal and teacher responses. When comparing the overall frequency, percentages and means, principals rated the quality of their professional learning environment much higher than teachers. Four components stood out in this study. First, teachers do not view the professional learning in a school as useful as principals. Second, principal and teacher responses to the amount of protected time for professional learning presented a large difference. Principals rated the amount of protected time for professional learning much higher than teachers. The final construct, principal participation in a school’s PLE, recorded the greatest difference in opinion between principals and teachers, with principals actually scoring this indicator the highest of the eight components.

In review of this data, administrators need to ensure teacher development has value and relevancy to the role of a teacher. Time should also be taken into account because how much can be learned and absorbed is partly contingent on how much time is available to develop understanding. Indirectly, the amount of time (or lack of) provided professional learning shows how much professional learning is valued. Finding time for teachers to learn not only reduces stress on teachers it shows the importance to the school culture. Furthermore, principals need to make the time to actively participate as the “lead learner” in professional development. Principal

presence and active engagement shows what is being learned is important and that implementation can be an expectation.

Understanding the importance of adult learning theory also supports the use of best practice in professional development. Similarly, knowing the best practices in professional development aligns with the use of many best practices in adult learning. Next we will look at some best practices in professional learning and see where and how they apply to adult learning theory.

One important practice in professional learning is including a shared mission (purpose), vision (clear direction), values (collective commitments), and goals (indicators, timelines, and targets), which are all focused on student learning (DuFour & Fullan, 2013). Adult learners need to know the objective before they begin. They want to know why they are spending time learning it and what the benefits are for them personally. The practice of a shared vision and mission align to an adult's need to know and have value. Adult professional learning needs to be relevant and should support filling in the gaps between the adult learner's knowledge (Knowles, 1990). Through the use of objectives and goals adult learners are able to perceive purpose and a sense of progress, which is also an important to adult learners (Knowles, 1990).

Another important characteristic of professional learning is that it is job embedded. Job embedded professional development occurs in the workplace and can often be applied right away (DuFour & Fullan, 2013). Darling-Hammond et al (2009) explained that "effective professional development is intensive, and connected to practice, [and] focuses on the [teacher] and learning of specific academic content" (p. 3). This supports the adult need for learning to be "life-centered" (Knowles, 1990, p. 61). Facilitators should apply learning into the context of "real-life situations" (Knowles, 1990, p. 61). By using a job embedded approach, professional

development opportunities can increase teacher motivation. Adult learners are intrinsically motivated. Providing development on technological enhancements that make their job easier can be beneficial. Additionally, by helping to improve important teaching practices, it may be possible to increase self-esteem, job satisfaction and quality of life for the adult learner (Knowles, 1990).

A third important characteristic of professional development that is also a key component of adult learning is active participation. Teachers should actively participate in their professional learning instead of listening to a presentation about the work (DuFour & Fullan, 2013). Similarly, active participation is an important component to adult learning. Knowles (1990) explains that a teachers' initial exposure to a concept should not be passive, but rather should engage teachers through varied approaches so they can participate actively in making sense of a new practice. Teachers better understand and make sense of the information being presented when actively participating (Gulamhussein, 2013).

Another best practice from DuFour and Fullan (2013) recommends that professional learning provides opportunities for collective learning. Studies have found that there is an exceptionally strong relationship between collaborative learning and collective action on teacher practice and has shown to increase student learning (Dunne, Nave, & Lewis, 2000). Collaborative professional development sessions which aim to make teachers aware of a concept have been shown to be more successful when they allow teachers to learn the concept in varied, active ways (National School Board Association, 2013). Examples of strategies include role playing, open-ended discussions, live modeling, and visits to classrooms to observe and then discuss the teaching methodology (National School Board Association, 2013). The content presented to teachers shouldn't be generic, but instead grounded in the teacher's discipline (for

middle school and high school teachers) or grade-level (for elementary school teachers).

Extending this to adult learning strategies, Knowles (1990) suggested using strategies like group problem solving, using case histories, and discussions on critical incidents which offer greater learning opportunities than simply a one-sided lecture. Additionally, hands-on/scenario based practices of specific activities and collective brainstorming were considered strong instructional strategies for teacher learning (Bill and Melinda Gates Foundation, 2014).

The final best practice discussed here is the use of modeling. With modeling the principal applies an instructional practice to what they are sharing with the teachers. This practice has shown to be an effective way to introduce a new concept and help teachers understand a new practice. By modeling the practice the facilitator becomes a “learning reference,” which supports adult learning theory as adults come into the classroom already prepared to learn (Knowles, 1990). By demonstrating how to conduct the practice, principals are respectfully showing teachers the instructional practice and are not telling adults what they should do (Knowles, 1990).

Implications for School Districts and Universities

The research from this study suggests that districts and universities provide principals and pre-service administrators with a strong foundation in both developing and sustaining a school’s professional learning environment and the implementation of adult learning practices. Targeted survey questions referencing past educational experience of principals as well as the importance for pre-service administrators to receive more training provides evidence for the need for such coursework and professional learning opportunities. The need for further professional learning for principals on PLE and adult learning theory was also substantiated by teachers who confirmed that principal leadership and the use of andragogical strategies significantly influence

a professional learning environment. In summary, quantitative results from principals and teachers express the need and benefit of additional academic and professional training.

The first recommendation for district administrators interested in supporting principals is to empathize with principals that developing a school's professional learning environment is not as simple as it may sound. Developing and sustaining a school's professional learning environment encompasses knowledge of professional development and on how adults learn. District leaders and instructors should acknowledge that what makes it more challenging is how culture impacts implementation as well. This empathy will help to build a relationship necessary for learning.

Districts and universities should provide effective support for principals and pre-service candidates. This can be provided through professional development and coursework on developing and sustaining a professional learning environment. How this educational piece is presented at the district and university level may be unique. Universities may apply more of a constructivist approach, allowing for development of understanding and innovation. Districts may use this approach too if they are interested in school autonomy. However, if the district has selected a specific framework, concrete expectations should be provided and purposeful instructional strategies should be implemented to ensure that administrators have a clear understanding of expectations. Necessary material and funding should also be provided.

Finally, districts must have an awareness of the view of professional learning from the lens of the teacher. This plays a significant role on successful implementation of professional learning in a school and district. Both Darling Hammond et al. (2009) and the Bill and Melinda Gates (2014) foundation report that the majority of teachers find the professional development that they participate in as not useful. Many of the discrepancies between a principals point of

you on professional learning and that of the teachers are likely quite similar to those between teachers and district administrators. For professional learning that is systemic in approach, the differences in perspectives should be critiqued so that the same missteps are not made.

Limitations of the Study

Limitations of this study should be noted. First, there is the limitation of using composite scores to represent variables. All five composite scores showed high reliability using Cronbach's alpha and the constructs that were combined to create the composite scores were created using current research and literature. However, there may be other important leadership behaviors, adult learning strategies, or elements of a professional learning environment that were not included.

Additionally, there is always potential for bias. There was an obvious difference in responses to similar questions between the teacher survey and principal survey, especially on constructs that directly rated to the principal's skills and participation. Having two surveys and designing the research questions to align to the population's perspective helped.

Recommendations for Future Research

The data collected from the two surveys have great potential for continued research. Through this dissertation we explored if predictor variables of leadership behaviors and adult learning strategies that were created out of composite scores could predict a variance in our criterion variable of a school's professional learning environment. The results were successful, showing strong significance. However, a more thorough and detailed study on the individual leadership characteristics and adult learning strategies within the composite score that best support the development of a professional learning community, would provide stronger insight.

The decision to not use standardized achievement scores as a measure in this dissertation was purposeful. If we want to encourage the development of a world that is not focused on results that can be confirmed through a standardized assessment, we have to be willing to look at data through other means. Taking this into consideration, additional research could be beneficial by developing a deeper understanding of the contributing behaviors and practices by studying the individual constructs. When studying the constructs the researcher could investigate individual factors, components or indicators that are important within the construct. Responses from survey data collected this way could be used to develop a composite score representing the initial construct which could work as the predictor variable.

Another opportunity for future research would be using a more in depth approach of Hattie's (2015) meta-analysis of high-impact approaches to leadership. His research found a principal's greatest impact (effect size) came from "The building principal encourages everyone in the school to work together to know and evaluate their impact on student achievement" (Hattie, 2015, p. 38). This particular construct was well observed by teachers as it achieved the highest mean in the leadership category. "The building principal sets appropriate levels of challenge and does not retreat to 'just do your best,'" which was found to have an effect size of .57 (Hattie, 2015, p. 38) was also included in the study and performed around the leadership mean. The third leadership component used in this research that Hattie found to have an effect size of .77 fell well below the mean of observed leadership behaviors in this study. "The building principal is explicit with teachers and students about what success looks like" (Hattie, 2015, p. 38). As the means presented only imply observed characteristics the study has limitations in this area. However, principals may find it beneficial to review Hattie's effect sizes and consider why

they are less observed and if a more conscious use of the practices may be of benefit.

Furthermore, this may be a direction for further research.

With the fine tuning of the dissertation, some variables were eliminated. The first plan for this dissertation not only studied leadership behaviors, andragogical strategies, and principal efficacy, but also included a principal's knowledge of curriculum and instruction. A research study that included or focused on the variable of knowledge and efficacy of curriculum and instruction may provide findings that could be valuable in determining how to best influence a PLE of a school.

Another area of interest became noticeable when conducting this research. It appeared to the author that developing and sustaining a high school professional learning environment is more challenging than at the elementary level. Using the current collected data and analyzing it by focusing exclusively on high school teacher and principal responses may be of benefit. One study of interest was a qualitative study. In this study certain behaviors and practices emerged that were relevant to the success of the school's professional learning environment. Through a quantitative study, these behaviors and practices may show significance in developing a professional learning environment in a high school. In this particular qualitative study, Kyunghye and Jiyoun (2013) found that self-organized PLCs showed potential on being successful without any external rewards. The study indicated that "posing problems from one's own teaching practice can serve as a starting point for learning or inquiry" (Kyunghye & Jiyoun, 2013, p.112). "The teachers become 'reform agents' capable of continually improving their teaching practice." (Kyunghye & Jiyoun, 2013, p. 105). Furthermore, the ability to share what they have learned with other schools also helped to develop their PLC (Kyunghye & Jiyoun, 2013).

Finally, studying the influence of school culture and second order change on the development and sustaining of a professional learning environment could be studied. No two schools are alike as staff members are unique to the building. An understanding of the impact culture plays within a building is important information for both the administrator and supervisors supporting change within the building. For example Archbald (2016) found “norms of teacher autonomy also play a role” (p. 148). In another study Wilson (2016) explained that PLC’s must be recognized as a profound cultural shift. Delving into the area of cultural influence and principal responses using andragogy may be beneficial in developing a better understanding of what may be best practice in the implementation of a school’s professional learning environment.

Concluding Remarks

The results of this study contribute to the field of education in leadership, adult learning theory, and professional learning as well as provides perspective from both teachers and principals. Inferential data in the study suggests that adult learning practices and leadership behaviors significantly influence a school’s professional learning environment. As adult learning in relation to teachers as learners has not been a popularly studied variable, consideration of the impact of andragogy on the composite score used for a professional learning environment is a discovery from this study that has great potential. Leadership behaviors, which were also found to have statistical significance within this study confirm empirical data on their impact of teachers. However, there is limited prior research data showing a direct influence of leadership practices that specifically address teacher perception of the quality of a school’s professional learning environment. Thus the findings of the relationship leadership plays on the composite score of a professional learning environment has strong potential for implications as well.

This study also documents that this particular population of principals' view developing and sustaining a school's professional learning environment as a prominent responsibility and this role is an expectation for them by their supervisors as well. Principals almost unanimously agreed that more training in the area of andragogy and PLE development should be provided for future principals. Not only did principals state the importance within their job responsibilities, the study found an observable relationship between efficacy in creating and sustaining a school's PLE as well as in andragogy on the variance of a school's professional learning environment. The teacher survey further confirmed the importance of andragogy as a factor that influenced the professional learning composite score.

All of these data suggested, along with the changing of national standards for principal preparation, that universities should strongly consider providing pre-service principals with a stronger foundation in this area. Additionally, when analyzing data from the teacher survey, school districts should provide support and professional learning to building administrators on developing and sustaining a professional learning environment. This recommendation also includes the need of both groups to develop knowledge and skills on andragogical practices.

The study also confirmed prior research that there is disconnect between principal and teacher perspectives on professional learning. In an era of extreme accountability and continuous technological and global change, developing a culture where educators are working positively toward continuous professional learning, both independently and collaboratively, is important. Principals play a vital role and are often unprepared for this responsibility. If the goal is instructional and curriculum reform and the development of the best learning opportunities for students, we must take seriously the leadership approach and the responsibility

of the principal's role in effectively motivating teachers as well as developing and sustaining a school's professional learning environment.

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APPENDIX A: SURVEY COMPLETED PRINCIPALS

Key

PA- Questions relating to a principal's efficacy in adult learning/andragogy.

PP- Questions relating to a principal's efficacy in developing and sustain a professional learning environment.

N- Questions relating to if a principal believes that knowledge of how to develop a professional learning environment (which would include adult learning knowledge) is important.

PLE - Questions relating to a principal's perception of the quality of his/her school's current professional learning environment.

D- Demographics

1.	I am very prepared to “develop teachers’ and staff members’ professional knowledge, skills, and practice through differentiated opportunities for learning and growth” (NPBEA, 2016, p.16).
PA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
2	I have a strong “understanding of professional and adult learning and development” (NPBEA, 2016, p.16).
PA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
3	I am well prepared to “empower and motivate teachers and staff to the highest level of professional practice and to continuous learning and improvement” (NPBEA, 2016, p.16; Knowles, 1990).
PA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
4	The courses I took in college provided the necessary background in adult learning strategies to enable me to be highly successful in developing teachers’ professional knowledge, skills, and practice (NPBEA, 2016).
PA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
5.	I have the background knowledge and skills in adult learning practices expected by our district office (NPBEA, 2016, p.16).

PA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
6.	I believe I have a high level of knowledge and understanding on how adult learning practices are different than strategies used for K-12 students. (Knowles, 1990)
PA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
7.	I believe my ability and knowledge to lead my school's professional learning environment is highly effective (NPBEA, 2016, p.16).
PP	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
8.	I am very confident in working with student data and collaborating with teachers on its use to improve student achievement. (DuFour, 2004).
PP	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
9.	I believe the courses I took in college prepared me to create a highly effective school-wide professional learning environment.
PP	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
10.	My staff considers me the "lead learner" as I actively participate in all aspects of our school's professional learning environment. (Yendol-Hoppey & Dana, 2010; Barth, 1990)

PP	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
11.	Our school's professional learning environment is collective and collaborative (DuFour, et. al, 2006).
PP	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
12.	The professional learning in our school is job-embedded and relevant (Croft et al., 2010; DuFour & Fullan, 2013).
PP	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
13.	I believe colleges should better prepare principals on adult learning theory and practice (NPBEA, 2016, p.16).
N	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
14.	I believe colleges should better prepare principals to be leaders of a professional learning environment of a school (NPBEA, 2016, p.16).
N	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
15.	I believe that it is an expectation in my school district for principals to be able to develop and sustain a school wide professional learning environment.
N	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE

16.	I believe that it is very important for a principal to know how to lead teachers (adults) in professional learning (NPBEA, 2016, p.16).
N	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
17.	I believe that it is very important for a principal to know how to develop and nurture a professional learning environment (Croft, et.al, 2010; Owen, 2013).
N	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
18.	Our school's professional learning environment has a common mission, vision, and set of goals that all focus on student learning (Hallinger Y Murphy, 1985; DuFour & Fullan, 2013; Bass & Riggio, 2006; Leithwood & Jantzi, 1997, 2005).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
19.	Staff in our school are committed to continuous improvement which drives our school's professional learning environment (Owen, 2014).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
20.	Staff in our school actively participate in our professional learning environment. (DuFour & Fullan, 2013; Bill & Melinda Gates Foundation, 2014; Garet et al., 2001).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE

21.	As the building principal, I am an active participant in all learning and development (DuFour, 2004; Robinson et al, 2008; Owens, 2014).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
22.	There is a protected and set time for teachers to regularly collaborate and work on professional learning (Darling-Hammond et al, 2009; DuFour & Fullan, 2013; Sparks, 2002).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
23.	The time and energy spent in professional learning at our school is useful (Darling-Hammond et al, 2009; Bill & Melinda Gates Foundation, 2014).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
24	Our professional learning environment has strong coordination and integration across teams/teacher subgroups within the school (Printy, Mark, & Brower, 2008).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
25	Our school's professional learning environment has a culture of shared leadership and collective learning (Owen, 2014; DuFour & Fullan, 2013).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE

26	Our professional development focuses on teaching high learning standards, builds content and pedagogical knowledge, models preferred instructional practices, is rigorous, and aligned to reform initiatives (Firestone, et al., 2008).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
27	How many years of administrative experience do you have?
D	1. LESS THAN 1 YEAR 2. 1 YEAR TO 5 YEARS 3. 6 YEARS TO 10 YEARS 4. 11 YEARS TO 15 YEARS 5. MORE THAN 15 YEARS.
28	How many years of teaching experience do you have?
D	1. LESS THAN 1 YEAR 2. 1 YEAR TO 5 YEARS 3. 6 YEARS TO 10 YEARS 4. 11 YEARS TO 15 YEARS 5. MORE THAN 15 YEARS.
29	What size district do you currently work in?
D	1000 students or less/ 1001-2000/2001-5000/ 5001-10,000/ over 10,000
30	Which grade configuration best represents your building?
D	Elementary/Middle School/High School/K-12
31	How would you classify your district?
D	Rural/Suburban/Urban
32	Does your school receive Title 1 services/funds?
D	Yes/No

APPENDIX B: SURVEY COMPLETED BY TEACHERS

Key

TL- Questions about a principal's leadership style.

TA- Questions about a principal's use/knowledge of adult learning theory and strategies from the point of view of a teacher.

PLC- Questions relating to a teacher's perception of the quality of his/her school's current professional learning environment.

D- Demographics

1.	Our principal works collaboratively with teachers to create a positive school culture (Hallinger, 2005).
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
2	The building principal encourages everyone in the school to work together to know and evaluate their impact on student achievement (Hattie, 2015).
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
3	The building principal is explicit with teachers and students about what success looks like (Hattie, 2015).
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
4	The building principal sets appropriate levels of challenge and does not retreat to “just do your best” (Hattie, 2015).
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
5.	We have a shared vision for our school that we work together to achieve (Sackney, et. al, 2005).
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE

6.	The building principal provides staff with intellectual stimulation and encourages professional and leadership development (Bass & Riggio, 2006; Hallinger & Murphy, 1985 Leithwood and Jantzi, 1997, 2005).
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
7.	The building principal engages teachers to question status quo, take risks, and approach old situations in new ways (Bass and Riggio, 2006, Hallinger & Murphy, 1985).
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
8.	The principal/teacher relationship is conducive to improving instructional quality by creating conditions that support academic progress in students (Robinson et al., 2008; Printy, Mark, Brower, 2008)
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
9.	The building principal engages teachers in collaborative dialogue and interacts around central areas of curriculum, instruction and assessment (Marks & Printy, 2003).
TL	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
10.	We know the objective and importance of the work that we do within our professional learning environment (Knowles, 1990).
TA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE

11.	Our school's professional learning environment allows us to learn new information on our own terms and at our own level, so that we can build upon what we already know (Knowles, 1990; Croft et al., 2010).
TA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
12.	The experience that I bring is recognized during professional learning opportunities at our school (Knowles, 1990).
TA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
13.	What we do in our professional learning environment has real application in the classroom and for my job as an educator. (Knowles, 1990; Croft et al., 2010).
TA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
14.	There is active participation during adult learning opportunities, allowing educators to practice strategies, discuss, and develop their own approach to problem solving (Knowles, 1990 Bill & Melinda Gates Foundation, 2014; Garet et al., 2001).
TA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
15.	I feel respected as a professional during professional learning experiences at our school (Knowles, 1990).
TA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE

16.	Our principal encourages us to identify, pursue, and share our own learning objectives (Knowles, 1990).
TA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
17.	Teachers play an important role in planning the professional learning in our school (Knowles, 1990).
TA	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
18.	Our school's professional learning environment has a common mission, vision, and set of goals that all focus on student learning (Hallinger & Murphy, 1985; DuFour & Fullan, 2013; Bass & Riggio, 2006).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
19.	Staff in our school are committed to continuous improvement which drives our school's professional learning environment (Owen, 2014).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
20.	Staff in our school actively participate in our professional learning environment (DuFour & Fullan, 2013; Bill & Melinda Gates Foundation, 2014; Garet et al., 2001).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE

21.	The building principal is an active participant in all learning and development (DuFour, 2004; Robinson et al, 2008; Owens, 2014).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
22.	There is a protected and set time for teachers to regularly collaborate and work on professional learning (Darling-Hammond et al, 2009; DuFour & Fullan, 2013; Sparks, 2002).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
23.	The time and energy spent in professional learning at our school is useful (Darling-Hammond et al, 2009; Bill & Melinda Gates Foundation, 2014).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
24	Our professional learning environment has strong coordination and integration across teams/teacher subgroups within the school (Printy, Mark, & Brower, 2008).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
25	Our school's professional learning environment has a culture of shared leadership and collective learning (Owen, 2014; DuFour & Fullan, 2013).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE

26	Our professional development focuses on teaching high learning standards, builds content and pedagogical knowledge, models preferred instructional practices, is rigorous, and aligned to reform initiatives (Firestone, et al., 2008).
PLE	1. STRONGLY DISAGREE 2. DISAGREE 3. SLIGHTLY DISAGREE 4. SLIGHTLY AGREE 5. AGREE 6. STRONGLY AGREE
27	How many years of teaching experience do you have?
D	1. LESS THAN 1 YEAR 2. 1 YEAR TO 5 YEARS 3. 6 YEARS TO 10 YEARS 4. 11 YEARS TO 15 YEARS. 5. MORE THAN 15 YEARS.
28	What size district do you currently work in?
D	1000 students or less/ 1001-2000/2001-5000/ 5001-10,000/ over 10,000
29	Which grade configuration best represents your building?
D	Elementary/Middle School/High School/K-12
30	How would you classify your district?
D	Rural/Suburban/Urban
31	Does your school receive Title 1 services/funds?
D	Yes/No

APPENDIX C: IMPLIED CONSENT- PRINCIPALS

**Indiana State
University**

— More. From Day One —

**Department of
Educational Leadership**Terre Haute, Indiana 47809
812-237-2900

December 3, 2016

Greetings,

You are being invited to participate in a research study on the development and sustaining of a school's overall professional learning environment. The professional learning environment of a school may include, but is not limited to, professional development, PLC's, book studies, workshops, and online or other independent learning opportunities. Specifically, we want to know if a principal's efficacy (comfort level) in developing a professional learning environment as well as their awareness of adult learning strategies is important to principals and whether their knowledge/interest influences a school's professional learning environment. This study is being conducted by Christina Larson and Dr. Terry McDaniel from the Department of Educational Leadership at Indiana State University. This study is part of a dissertation and in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

The online survey will take about five minutes to complete. There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. The information you provide may support the development of future courses or programing for aspiring principals. The information collected may not benefit you directly, but the information learned in this study should provide more general benefits.

Completing this survey will not identify you, as we are not asking for your name or any identifying information. This is an electronic survey using Qualtrics. While an internet survey cannot entirely guarantee anonymity, no IP addresses will be collected, offering you as much protection as possible. Again, no one will be able to identify you or your answers, and no one will know whether or not you participated in the study. Individuals from the Institutional Review Board at Indiana State University, as they are entrusted with oversight for participant protection in research, may inspect these records, including this letter that I'm sending to you and the electronic survey itself to make every attempt at protecting your identity. Should the data

be published, no individual information will be disclosed.

Your participation in this study is voluntary. By completing and submitting the survey, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason, and you can withdraw from participation at any time (by closing your browser), but please know that since you will not identify your name, once you click “submit” on the survey, your answers will be used in tabulation and analysis, because we would have no way of knowing which particular set of answers are yours.

Your participation in this study is voluntary. If you have any questions about the study, please contact Christina Larson, 8416 Ardennes Drive, Fishers, Indiana 46038, Phone: 317-694-3907, clarson2@sycamores.indstate.edu or Dr. Terry McDaniel, 317C University Hall, Indiana State University, Terre Haute, IN 47809, Phone: 812-237-3862, Terry.McDaniel@indstate.edu.

If you have any questions about your rights as a research subject or if you feel you’ve been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN, 47809, by phone at (812) 237-8217, or by e-mail at irb@indstate.edu.

The following link will take you directly to the survey, in the event you wished to participate:

https://indstate.qualtrics.com/SE/?SID=SV_0HuyCYnoJ3WyAPH

Date of IRB Approval:

IRB Number:

Christina Larson
8416 Ardennes Drive
Fishers, Indiana 46038
317-694-3907
clarson2@sycamores.indstate.edu

APPENDIX D: IMPLIED CONSENT-TEACHERS

**Indiana State
University**[More. From Day One](#)**Department of
Educational Leadership**Terre Haute, Indiana 47809
812-237-2900

December 3, 2016

Greetings,

You are being invited to participate in a research study on how leadership behaviors and adult learning strategies impact a school's overall professional learning environment. The professional learning environment of a school may include, but is not limited to, professional development, PLC's, book studies, workshops, and online or other independent learning opportunities. This study is being conducted by Christina Larson and Dr. Terry McDaniel from the Department of Educational Leadership at Indiana State University. This study is part of a dissertation and in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

The online survey will take about five minutes to complete. There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. The information you provide may support the development of future courses or programing for aspiring principals. The information collected may not benefit you directly, but the information learned in this study should provide more general benefits.

Completing this survey will not identify you, as we are not asking for your name or any identifying information. This is an electronic survey using Qualtrics. While an Internet survey cannot entirely guarantee anonymity, no IP addresses will be collected, offering you as much protection as possible. Again, no one will be able to identify you or your answers, and no one will know whether or not you participated in the study. Individuals from the Institutional Review Board at Indiana State University, as they are entrusted with oversight for participant protection in research, may inspect these records, including this letter that I'm sending to you and the electronic survey itself to make every attempt at protecting your identity. Should the data be published, no individual information will be disclosed.

Your participation in this study is voluntary. By completing and submitting the survey, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not

wish to answer for any reason, and you can withdraw from participation at any time (by closing your browser), but please know that since you will not identify your name, once you click “submit” on the survey, your answers will be used in tabulation and analysis, because we would have no way of knowing which particular set of answers are yours.

Your participation in this study is voluntary. If you have any questions about the study, please contact Christina Larson, 8416 Ardennes Drive, Fishers, Indiana 46038, Phone: 317-694-3907, clarson2@sycamores.indstate.edu or Dr. Terry McDaniel, 317C University Hall, Indiana State University, Terre Haute, IN 47809, Phone: 812-237-3862, Terry.McDaniel@indstate.edu

If you have any questions about your rights as a research subject or if you feel you’ve been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN, 47809, by phone at (812) 237-8217, or by e-mail at irb@indstate.edu.

The following link will take you directly to the survey, in the event you wish to participate:

https://indstate.qualtrics.com/SE/?SID=SV_0Bq0LGWg0fIVYwJ

Date of IRB Approval:
IRB Number:

Christina Larson
8416 Ardennes Drive
Fishers, Indiana 46038
317-694-3907
clarson2@sycamores.indstate.edu

APPENDIX E: COVER LETTER-PRINCIPALS

Dear Principal,

We would like to request your participation in an online survey designed to learn about your role in developing a professional learning environment within your school. This study is part of a dissertation and in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

This research is designed to explore the role principals' plays in planning and developing the overall professional learning environment in public schools as well as their comfort level with this responsibility. The professional learning environment of a school may consist of one or more professional learning opportunities including (but not limited to) both independent and group professional development experiences, PLC's, book studies, workshops, and online or other independent learning opportunities. This study may help develop future college coursework on leading professional development and adult learning strategies for future administrators.

This online survey will take about five minutes to complete and is composed of around 30 questions. You can open the survey by using the internet link in this email. Names, schools, school districts, and IP addresses will not be collected. Your responses will not identify you personally, nor will anyone be able to determine your school or school district.

Your participation is voluntary and you may opt out of completing the survey at any time before submitting it at the end. If you have any questions about the study, please contact Christina Larson, 8416 Ardennes Drive, Fishers, Indiana 46038, Phone: 317-694-3907, clarson2@sycamores.indstate.edu or Dr. Terry McDaniel, 317C University Hall, Indiana State University, Terre Haute, IN 47809, Phone: 812-237-3862, Terry.McDaniel@indstate.edu. If you have any questions about your rights as a research subject, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-8217, or by e-mail at irb@indstate.edu.

Link to survey: https://indstate.qualtrics.com/SE/?SID=SV_0HuyCYnoJ3WyAPH

Thank you. We hope that you will participate.

Christina Larson
Graduate Student
Indiana State University

Dr. Terry McDaniel
Professor
Indiana State University

APPENDIX F: COVER LETTER-TEACHERS

December 10, 2016

Dear Educator,

We would like to invite you to participate in a research study designed to learn the educator's view on professional development in a K-12 public school in Indiana. Specifically, we want to know your perspective on leadership behaviors and adult learning strategies that might impact you and the school's overall professional learning environment. The professional learning environment of a school may consist of one or more professional learning opportunities including (but not limited to) both independent and group professional development experiences, PLC's, book studies, workshops, and online or other independent learning opportunities. The results of this survey may support future training for prospective school administrators. This online survey will take about five minutes to complete and is composed of around 30 questions. You can open the survey by using the internet link in this email. Names, schools, school districts, and IP addresses will not be collected. Your responses will not identify you personally, nor will anyone be able to determine your school or district.

Your participation in this study is voluntary and you may opt out of completing the survey at any time before submitting it at the end. If you have any questions about the study, please contact Christina Larson, 8416 Ardennes Drive, Fishers, Indiana 46038, Phone: 317-694-3907, clarson2@sycamores.indstate.edu or Dr. Terry McDaniel, 317C University Hall, Indiana State University, Terre Haute, IN 47809, Phone: 812-237-3862, Terry.McDaniel@indstate.edu. If you have any questions about your rights as a research subject, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-8217, or by e-mail at irb@indstate.edu.

Link to survey: https://indstate.qualtrics.com/SE/?SID=SV_0Bq0LGWg0flVYwJ

Thank you for reading. We hope that you will participate.

Christina Larson
Graduate Student
Indiana State University

Dr. Terry McDaniel
Professor
Indiana State University