Principals matter- principal technology proficiency: creating a culture of technology competence

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DEDICATION

This thinking paper is dedicated to my children, Brooke, Sherice, and Randall Jr. You have been the motivation in my pursuit, the heart of my passion, and the calm in the middle of dissertation madness. You will only call me mom, and that is my most prized accomplishment. I thank God for allowing me to serve Him in parenting you. I love you and am so proud of you.

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ABSTRACT

The primary purpose of this study was to investigate the role of leadership in developing a culture of technology competence within a school. Additionally, because research identifies the significance instructional leadership has on school performance, as defined by student achievement, the study sought to examine the impact principal technology proficiency has on school performance. To examine the associations amongst variables regression analyses were conducted.

Quantitative study was conducted with 150 school principals and their faculties. Results indicated a strong correlation between principals that were technologically proficient, as defined by the Louisiana Department of Education’s Administrator Self-Assessment, and the percentage of teachers identified proficient, as defined by the Louisiana Department of Education’s Teacher Self-Assessment. An additional quantitative measure was conducted to see the impact of principals, identified as instructional leaders by the Vanderbilt Assessment of Leadership in Education (VAL-Ed), and the number of teachers identified proficient. VAL-Ed measured principals on a six by six scale that yielded data specific to the principals’ instructional leadership. The principals’ grades in LEADTech and scores on both the proficiency and VAL-Ed were used to determine the effect on teacher technology proficiency. Results of a teacher proficiency survey showed that the percentage of teachers scoring proficient is strongly associated with the proficiency of the principal.
CHAPTER I: INTRODUCTION

The nature of technology subscribes to one of innovation and reinvention, with new tools, updates, and applications made available daily. This philosophy of evolution has redefined the classroom (Hew and Brush, 2006). Providing opportunities that would otherwise be unattainable, research studies in education have concluded that through the use and integration of technology students’ achievement levels increase (Bain & Ross, 1999), the creative process and ability to deconstruct information to solve problems improves (Chief Executive Officer Forum on Education and Technology, 2001), and motivation and a positive self-perception are fostered (Sivin-Kachala & Bialo, 2000). According to Brooks – Young (2006), educators have felt the impact, being interested, intrigued, and even frightened, but only with the recent expansion of wikis, blogs, web 2.0, applications (more commonly known as apps), and social media, has there been the ability to expansively implement these tools, giving rise to questions of best practice, digital differentiation, professional development and leadership for technology success. At the center of this challenge are the teachers and leaders who must address change and confront the challenge of 21st century learning. The continual emergence of new technologies adds to the challenge, pushing educators to develop technological literacies and methods to leverage them in the classroom. Kloper, Osterweil, Groff, & Haas (2009), note that this evolution impacts how technologies are integrated into instruction, to which leadership is key.

Leadership

Leadership is an important component in guiding the teaching-learning process. Leithwood et al. (2004), asserts that, “leadership is second only to classroom instruction among all school related factors that contribute to what students learn at school” (p. 7). Leadership effectiveness comprises personal beliefs and philosophies coupled with the acquisition of
knowledge (Reeves, 2001). Embodying these, principals become responsible for initiating and implementing school change. Without changes in teacher attrition or financial resources, effective principals have a significant impact on the school. Dinham (2005) notes, schools, identified as having effective innovative learning experiences do so, because the educational leader has provided the influence necessary for creating this type of learning environment. Still challenges persist.

Adding to the demands of educational leaders is the rapidly evolving role and use of technology. In addition to accountability (high-stakes testing), social and economic constraints, and parental involvement, the roles and responsibilities of K-12 administrators are constantly being redefined. Once thought of as managers, overseeing day to day operations of the school, principals are now called to be instructional leaders. As instructional leaders, principals must also be technology leaders, demonstrating understanding, proficiency, and support for technology integration. “Research indicates that schools and school systems with effective technology integration, throughout the curriculum, also have strong administrative leadership supporting and sustaining technology programs for both teachers and students” (Creighton, 2003). Kallick (2001, p. 115) notes, “to meet the challenge posed by technology with the aim of improving student performance, we will need to follow a path of continuous growth and learning.”

**Background of the Study**

Knezek (2001), director of the Technology Standards for School Administrators Project, stated,

“Integrating technology throughout a school system is, in itself, significant systematic reform. We have a wealth of evidence attesting to the importance of leadership in implementing and sustaining systemic reform in schools. It is critical, therefore, that
we attend seriously to leadership technology in schools” (p. 5).

Understanding the use and implementation of educational technology adds to the challenges for today’s successful principal who must demonstrate strong instructional leadership to meet new goals of accountability for student achievement (Quinn, 2002). The integration of technology into the decision-making protocol and instructional operations of the school are the responsibility of the educational leader, i.e., the principal (Afshari, Bakar, Luan, Samah, & Fooi, 2008). An important part of teaching and learning, the principal must lead by example, demonstrating technology proficiency and modeling best practices. Essentially, this means principals must be technology leaders, becoming involved in identifying, installing and operating a range of new technologies and using student learning as a guiding force. Leaders must know the technology and its capabilities (Hope, Kelly, and Guyden, 2000). The impact of reform efforts can only be realized if educational leaders provide ongoing support (Fullan, 2003). Leaders must create a culture within the school that (1) identifies the technology tools and resources available and (2) the expectations for their use (Mize and Gibbons, 2000). Understanding characteristics of effective leaders, the educational technology afforded principals, and the standards that define proficiency, will enable a braiding of theory and applications to develop technologically proficient principals.

**Effective Leaders**

Courageous, collaborative leaders are effective leaders. To be effective, leaders understand that within the organization the most critical component is the human factor. Development, goal setting, cultural change, and growth all depend on the individual (Leithwood, Louis, Anderson, & Wahlstrom, 2004). Developing people relates to the leaders ability to identify those that have the potential to lead and provide the necessary conditions, opportunities,
and supports to build the skill set and confidence to implement the habits and conditions of best practices (Clark & Clark, 2004). Capacity building for leadership relies on the ability of a leader to understand team-building, be able to implement a philosophy of shared decision-making, and foster an environment where collegiality is not only supported, but seen as a respected process of engagement (Sergiovanni, 1992).

As leaders chart their course of action, they keep in mind developing shared goals, a plan to monitor performance, and strategies to ensure effective ongoing communications amongst all stakeholders (Leithwood et al., 2004). Sergiovanni (1992) notes that this direction requires the leader to have a vision, create an action plan, and energize others, thereby garnering buy-in for the vision and ultimately exacting the action plan. For schools, this is no different; principals have to define a vision, gain buy-in, and create a culture that works toward fulfillment of the vision through the building of collaborative processes (Leithwood et al., 2004).

Research conducted by Williams (2008), Leithwood, Jantzi, & Steinbach (2003), and Cotton (2003) indicates that effective leadership in schools is characteristic of (a) clear vision, (b) mission – the plan for carrying out the vision, (c) the culture of the school [defined by the attitudes and beliefs], (d) teacher beliefs, (e) student engagement, (f) organization of the curriculum, and (g) opportunities for students to learn, evidenced through differentiation.

The research conducted by Blum, Butler, & Olson, (1987); Hallinger & Murphy, (1986); Levine & Lezotte, (1990); Sammons, Hillman, & Mortimore, (1995) offered similar characteristics of effective leaders adding to the aforementioned the following: (a) the establishment and maintenance of a safe environment, (b) deep understanding of quality instruction, with demonstrated results, (c) ongoing monitoring of school performance, (d) fosters shared-decision making, (e) identifies, evaluates, and acquires necessary resources, (f) identifies
professional development opportunities for teachers, and participates in professional
development, and (g) respects and trusts colleagues as equals. In summary, effective school
leaders understand teaching and learning are the main function of the school, communicate
effectively to all stakeholders the vision, mission and goals of the school, and promote an
atmosphere of trust and collaboration through the use of professional development (Bauck, 1987;
George & Grebing, 1992; Weller, 1999).

Leadership, as a medium for reform, takes into account the structure and levels of engagement by stakeholders necessary for reform to be realized (Fullan, 2002). To ensure the success of reform efforts, even when not defined by him/herself, the leader has to determine the roles of the stakeholders, build capacity within stakeholder groups, and foster and support open and ongoing collaboration which will result in a process of success.

**Principal Technology Education**

The need for effective leaders is not a new phenomenon. For the past 20 years, improving the quality of principal preparation and development has been the focus of reform agendas nationwide (Hale & Moorman, 2003). McLeod, Hughes, Richardson, Dikkers, Becker, Quinn, Logan & Mayrose (2005), note the response of leadership programs to making changes has not been comparable to innovation. The inclusion of the necessary coursework and/or training to understand, integrate, and support technology within schools requires the involvement of higher education. Currently, if technology is discussed the context is using software applications to address other school issues such as using spreadsheets to manage budgets or word processing to draft a letter to parents. The problems are realized once the position of educational leader is attained. Rarely are principals included in professional development that addresses technology proficiencies. Principal professional development, for technology integration and success, hinges
on two areas: (1) tasks and activities of administrative functions and (2) tasks and integration (Kajs, Sanders, William, Alaniz, Brott, & Gomez, 1999). To ensure competency and support for those areas, the International Society for Technology in Education (ISTE) offers standards that can be used for aligning instructional opportunities and creating targeted professional development (Lessen & Sorensen, 2006). The standards identify the following as central elements of technology proficiency: (1) operating an information system, (2) using various software applications, (3) understanding and integrating technology into the instructional process, (4) identifying and evaluating technology-based materials (Lessen & Sorensen, 2006). Collaboration amongst district-level administration and universities can foster the development of technology proficiencies for future educational leaders. Thus in assuming the role as principal of a school, the person is able to cultivate a common language and vision for the effective integration of technology into the curriculum. Technology standards for school administrators work to provide a framework to foster an integration that is as seamless and familiar a tool as a pencil.

**Technology Standards for School Administrators**

Providing strong technology leadership has become one of the many requirements of an effective school leader. According to Mehlinger and Powers (2002), “It is no longer possible for administrators to be both naïve about technology and be good school leaders,” (p. 218). In 2001 a national set of standards for school administrators was developed. They provide principals with a tool to reflect on their practices in hopes of promoting proficiency (Technology Standards for School Administrators, 2001). Revised in 2009, the standards include performance indicators that are prescriptive for “digital age” leadership, representing a consensus of what educational stakeholders identify as a set of skills necessary for comprehensive and appropriate use of
technology as effective school leaders. The standards have been adopted by the International Society for Technology in Education (ISTE) and are referred to as the National Educational Technology Standards for Administrators (NETS-A). Creighton (2003) notes, “These standards enable us to move from just acknowledging the importance of administrators in defining the specifics of what administrators need to know and be able to do in order to discharge their responsibility as leaders in the effective use of technology in our schools” (p. 1).

Reddish and Chan (2007) noted, understanding the principal’s role and his/her authority for creating and supporting policies helps us understand how the proficiency of the leader impacts the level of proficiency and actualized technology integration within the school. The educational leader is key.

**Statement of the Problem**

The role and responsibility of educational leaders is influenced by various extraneous factors. Those factors include, but are not limited to curriculum standards, district and/or school level initiatives, i.e. writing across the curriculum, advanced placement, etc, state mandates, funding, resources, infrastructure, and staffing. According to Valdez (2004), in the last decade educational leaders have had to transition from the rote roles of day to day practices (managing) to defining, guiding, establishing, and evaluating teaching and learning (instructional leadership). Additionally they are now faced with the challenge of technologies associated with an ever evolving global market. For leaders to articulate such visions, they need to understand how technology can be used as an instructional tool and must value technology’s potential to change the way they view teaching and learning, thus demonstrating proficiency (Hughes & Zachariah, 2001). Though the principal is a prominent figure, he/she is limited in what can be done for each teacher and student at the school, relying on influence and impact to foster a shared
understanding and efficacy of technology integration. Proficiency of the principal can drastically affect the role of technology in the school. Ho (2006) noted the importance of leaders “envisioning opportunities for technology in teaching and learning, and inspiring others to invest in a future divergent from traditional pedagogies,” (p3). Technology leadership depends on knowing the indicators of proficiency (what you can observe), the process used to develop and sustain supports, how it is communicated, and the culture that develops (Ho, 2006). It is also significant for other studies that seek to replicate and validate the components of effective leadership.

**Purpose of the Study**

The study investigated educational leader technology proficiency and the impact that proficiency has on the development of teacher technology proficiency and student achievement as measured by School Performance Scores (SPS) in an effort to understand a culture of technology competence. The focus was to determine associations not causality. Data for teacher technology proficiency, principal technology proficiency, principal instructional leadership, and school performance data were examined.

**Significance of the Study**

The primary significance of this study was to determine if principals’ technology proficiency and/or instructional leadership impacts the technology proficiency demonstrated by teachers. Findings from this study provide empirical data to school systems, universities, and the state department of education on the impact of educational leaders’ technology proficiency as a variable of teacher proficiency and student achievement as measured by School Performance Scores (SPS). Another significant impact of this study is its potential to change how principals
are trained, professional development offered to them, and the levels of support given to technology leadership; thus, developing a culture of technology competence within a school.

**Research Questions**

The following questions will be addressed in the study;

1. Are there significant correlations among principal technology proficiency, principal instructional leadership, and teacher technology proficiency?
2. Does principal technology proficiency predict teacher technology proficiency?
3. Does principal instructional leadership predict teacher technology proficiency?
4. How does principal technology proficiency impact School Performance Scores (SPS)?

**Limitations**

The participants in the study were K-12 educators in Louisiana. The study sought to examine the specific connection between the technology proficiency of the building level leader and the technology proficiency of teachers, who may have engaged in technology specific professional development. The study implored a purposeful sample which may not be generalizable to the state or other regions of the country.

**Summary**

Chapter 1 introduces the research problem, background of the study, including: effective leaders, principal technology education, and technology standards for administrators. Next the statement of the problem is given, research questions are stated, and the significance of the study is provided, along with limitations. Chapter 2 will focus on the literature reviewed in the areas of accountability, leadership, and technology.
CHAPTER II: REVIEW OF LITERATURE

This chapter reviews the literature on the theories and research studies surrounding the topics of educational reform, educational leadership, and educational technology.

Education Reform

Simply stated standards – based reform is reform with a set of standards or conditions applied to it; in education that reform means being held accountable for the successes and failures of student learning (Hamilton, Stecher, Marsh, Sloan-McCombs, Robyn, Russel, Naftel, & Barney, 2007). Accountability both increased the need for and realm of reform, touching everything from educator preparation programs to local control of schools (Baker & Linn, 2004). Research on “Schools for the 21st Century: Leadership Imperatives for Educational Reform,” notes that schools must do things never before done and that they weren’t designed to do (Schlechty, 2007).

Accountability

The period beginning in the late 1980’s and extending through the 1990’s, is marked by standards based reform. This movement challenged the education community to develop content specific performance standards and align the fundamental supporting networks, i.e., teacher preparation, training, and professional development; all geared at increasing student achievement (Goertz, 2007). The focus of the argument for standards-based reform centers on a series of required components, of which is a clear vision, assessments aligned to the defined standards, and professional development to support changes in instruction (David, 2001). The primary goal of standards was to ensure a set of learning criteria that were clear and understood by stakeholders. The standards correlate to the necessary skills and habits that students must
demonstrate to ensure they are able to achieve the quantifiable measures defined by reform assessments (Briars & Resnick, 2000).

On January 8, 2002, President George W. Bush signed into legislation the No Child Left Behind Act (NCLB), a reauthorization of the Elementary and Secondary Education Act of 1965. Bush referred to accountability as “an exercise in hope” (U.S. Department of State, 2001). Though several iterations of this legislation have been since 2002, NCLB can still be considered the most “prolific reform policy” to impact teaching and learning in the United States (Wheatley & Frieze, 2006). The function of NCLB was to require states and districts to adopt measures to transform education to an outcome measured process. Implementation came with both rewards and sanctions. The move towards outcome based accountability included six components, (1) annual testing, (2) scaled academic progress, (3) indexed reporting systems (report cards), (4) teacher qualifications, (5) reading first, and (6) retooled funding protocols (Wenning, Herdman, Smith, McMahon & Washington, 2003). The initial testing began in 2005-2006 with each grade 3-8 in math and reading, with an additional testing cycle to occur at least between 10th and 12th grade. Science and social studies content specific tests were added in 2007-2008. States are required to have all students proficient by the 2013-2014 academic year, with schools meeting adequate yearly progress (AYP) towards this goal. Schools awarded Title I funding that failed to meet AYP for a predetermined period, usually two consecutive years, were required to have technical assistance. Schools continuing to do poorly endured more severe sanctions, ranging from private tutoring to alternate governance – take over.

Measures of accountability required the issuance of annual report cards, documenting and providing visual evidence of achievement data broken into subgroup components, i.e. special education, and English as a Second Language (ESL). NCLB also redefined teacher quality,
giving birth to “highly qualified” teachers. Teachers had to have demonstrated, either through course work and certification or professional development, that they had a level of expertise to teach specific grades and/or content. Paraprofessionals providing direct instructional services and/or supports to students were required to have two years of college. Additionally, NCLB created Reading First, which provided opportunities to apply for competitive grants that subscribed to scientifically research-based reading programs for students ages 3-5 and ensuring readiness upon entering kindergarten. Finally, the measure created a formula that would provide a redistribution of Title I dollars to support students/schools with higher concentrations of socio-economically disadvantaged children (Education Week, 2004).

According to Harvard Professor, Richard Elmore (2002), “Accountability for student performance is one of the two or three – if not the most prominent issues in policy at the state and local levels right now.” Believing that education was focused only on the factors that comprised it, accountability sought to measure the outcomes, i.e., the levels of academic attainment of students as measured by scores on achievement tests. Though a federal mandate, NCLB did not address the issues of how states were to provide the necessary materials and resources for funding the instructional changes (Wenning & Herdman, 2002). States now had the obligation to develop plans to address increased student achievement. Erpenbah, Forte-Fast, & Potts (2003) provided a report that identified 2005 as the year by which all states and the District of Columbia would have developed and received approval for their accountability programs. To date all do. Focused on (1) stronger accountability standards for schools and students, (2) more local control, (3) choices for parents – provided their student(s) attending schools that were chronically underperforming, and (4) focused research-based effective teaching strategies,
NCLB provided a blueprint. These standards are the pillars of nationwide ongoing reform efforts. Louisiana responded accordingly.

**Accountability in Louisiana**

During the 1997 Legislative session the School and District Accountability Commission was created. The responsibility of the commission was to recommend an accountability system for the state. The Louisiana Department of Education’s (LDE) accountability system would call for continuous improvement in student achievement, attendance, and dropout rates. Louisiana’s system has two principles; (1) reward academic growth and (2) assist schools and students that struggled to demonstrate growth (Louisiana Department of Education, 2011). To serve as an identifier of growth, the state awards Performance Labels that correspond to School Performance Scores (SPS). According to the LDE (2011) the labels are:

1. **Academically Unacceptable**
   1. Below 60.0 (through 2010)
   2. Below 65.0 (through 2011)
   3. Below 75.0 (through 2012)
2. **Academic Watch**
   1. 60.0 – 74.9 (in 2010)
   2. 65.0 – 74.9 (in 2011)
3. **One Star**
   60.0 – 79.9
4. **Two Stars**
   80.0 – 99.9
5. **Three Stars**
   100.0 – 119.9
6. **Four Stars**
   120.0 – 139.9
7. **Five Stars**
   140.0 – above

Despite efforts to reform and support schools, Louisiana’s students continue to rank near the bottom, in the areas of test scores, dropout rates, college remediation, and college graduation, when compared to students in other states. According to the 2010 Census data, of the 79,257 students enrolled in Louisiana schools, 158, 326 (19.85%) live in poverty.

In 2007, Superintendent Paul Pastorek revealed the vision and mission of the LDE, which was to “create a world-class education system for all students in Louisiana.” In a recent
reorganization of the Department of Education in September 2010 (LDOE, 2011) Superintendent Pastorek identified three Critical Goal Offices and nine goals geared towards increased student achievement and improvements in instructional quality. The Goal Offices include (1) Literacy, (2) Science, Technology, Engineering, and Math (STEM), and (3) College and Career Readiness.

The nine critical goals are: (www.doe.state.la.us/offices/eos/supt_vision_mission.html):

1. “Students enter Kindergarten ready to learn.”
2. “Students are literate by third grade.”
3. “Students enter fourth grade on time.”
4. “Students perform at or above grade level in English Language Arts by eighth grade.”
5. “Students perform at or above grade level in math by eighth grade.”
6. “Student will graduate on time.”
7. “Students will enroll in post – secondary education or graduate workforce – ready.”
8. “Students will successfully complete at least one year of post-secondary education.”
9. “Achieve all eight Critical Goals, regardless of race or class.”

(www.doe.state.la.us/offices/eos/supt_vision_mission.html).

In addition to the state’s nine critical goals, a new initiative High Performing High Poverty (HPHP) highlights the success of students in high poverty schools reaching proficiency levels well above the state average. In an interview regarding the HPHP program, Superintendent Pastorek is quoted as saying, “There is a widespread belief in our state that kids who are poor are too difficult to educate to high levels. We are here to celebrate that there are islands of excellence amidst a sea of low expectations.” “The HPHP initiative is Louisiana’s effort to show that closing the achievement gap is not only possible, it is happening in schools throughout the state,” (Deputy Superintendent of Education, Ollie S. Tyler, 2010). The initial cohort of schools consisted of 21. Since that time 82 schools have earned the HPHP title. There are a set of criteria for the schools to meet; they include (1) a baseline SPS of 100 or higher for two consecutive years, (2) at least 65% of the students participate in the free/reduced lunch program, a national indicator of poverty (www.doe.state.la.us/topics/hphp.html).
Still Louisiana schools are faced with a seemingly impossible paradox: increasing student achievement as evidenced by standardized testing or increasing student understanding through meaningful instruction and student learning. There is the belief that the emphasis is on passing the test. Wagner and Vander Ark (2001) argue that as emphasis on passing the test increases so too will the rate at which strong teachers and principals leaving schools where their skills and talents are most needed. Eisner (2002), notes that a dialogue to answer the questions of “what do we want to achieve,” “what are our aims,” “what is important,” and “what kind of educational culture do we want our children to experience,” should lead to deeper more purposeful experiences. The success or failure of schools is felt by the principal, as striving to meet the accountability indices has meant both promotion and demotion for school leaders.

Leadership

In his book, *The 21 Irrefutable Laws of Leadership*, John C. Maxwell (1998) defines leadership as “influence, nothing more – nothing less.” Warren Bennis (2009), author of “On Becoming a Leader,” defines leadership as “a function of knowing yourself, having a vision that is well communicated, building trust among colleagues, and taking effective action to realize your own leadership potential.” James Clawson (2009) says “leadership is about managing energy, first in yourself and then in those around you.” The meaning of leadership invokes many thoughts. For the purpose of this study leadership shall be defined as someone who has the ability and/or responsibility for setting goals and directing the course of action necessary to attain those goals, more specifically the school principal. Leadership often denotes power and authority.
Power and Authority

Power and authority may often be used interchangeably. The definitions are somewhat elusive and often used interchangeably, invoking feelings of respect and/or abhorrence. Rooted in concepts of social science, power and authority often seek to explain the interactions amongst people. Bowen (2003) defines, “power as the ability to influence the outcome of events.” She further explains that authority “is subjective and depends on the individual’s perception of its rightness.” Power can be a positive or negative influence. Power can be categorized in five forms; they are reward power, coercive power, legitimate power, reverent power and expert power (French & Raven, 1960). Each base of power relies on the beliefs subordinates have about the leader’s ability to wield his/her power. In the case of reward power the belief is based on whether or not the leader is capable of providing a reward for the accomplishment of a task or completion of a goal (Green, 1999). Coercive power is exacted when followers believe they will be punished if the desired outcome is not attained (Green, 1999). The tenant of legitimate power lies in the ability of the leader to convince subordinates that he/she has the right to lead (Green, 1999). Reverent power is in play when followers believe the leader possesses the abilities and qualifications to lead. Followers tend to respect leaders who implore this power base (Green, 1999). Finally, expert power is adhered when those led believe the leader is an expert, and as such, they trust him/her to lead (Green, 1999).

If power denotes the ability to influence, then authority explains why subordinates comply with the directives, mandates, and wishes of the leader (Mundante and Medina, 2004). Like power, authority has variations. There is both informal and formal authority. Formal authority exists as a hierarchal component of the organization. For example, within a school the principal has formal authority defined by his/her position/title. Informal authority exists outside
of the formal structure. For example, a classroom teacher, that has a particular skill or knowledge base, may emerge as a leader – looked to by others for guidance and as a resource (Gabriel, 2005). Ultimately power and authority are commingled. Where power is the ability to influence others, authority is the ceded permission granted by followers to be influenced. Whether the factors of power and authority are connected to specific traits has been the focus of leadership studies.

**Trait Theory**

Trait theories of leadership were born from the philosophy of the great man theories, which were anchored in the belief that extraordinary people could do extraordinary things. Wanting to understand these “great men” led to identifying specific traits associated with the efforts and leadership style of these individuals (Kohs and Irle, 1920 as cited by Bass, 2008). Early theories regarding leadership traits offered that people were born with specific traits that enabled them to be strong leaders (Kouzes & Posner, 2007). Conger & Ready (2004) noted that the development of leadership skills could be fostered and nurtured if identified and coached, much like the skills of coaching can immolate the innate skills and talents of prodigies. A trait-focused method of evaluating leadership continued into the early 1950s (Zaccoro, 2007). In a review Stogdill (1948) suggested trait based theories were “incomplete to describe the full scope of skills and abilities of leadership, noting that there was no definitive set of traits in leaders and non-leaders.” The debate continues with renewed focus on visionary and charismatic leadership. Jung and Sosik (2006) found that charismatic leaders consistently possess traits of “self-monitoring, engagement, impression management, motivation to attain social power, and motivation to attain self-actualization.” Thus, trait theory is still relevant. Similar to the concept
of trait theory, understanding the behaviors of leaders also garnered attention for leadership research.

**Behavioral Leadership: Ohio State Studies**

Behavioral theories describe leadership in terms of the actions typified by leaders (Komives, Longerbeam, Owen, Mainella & Osteen, 2006). The Ohio State University studies of leadership were begun in 1945; the purpose was to work towards identifying attributes that correlated with how leaders behaved. The staff created the Leadership Behavior Description Questionnaire (LBDQ) (Bass, 1990). The purpose of the LBDQ was to discover how leaders carry out their activities; its questions focused on how leaders organized the work to be done and how they treated those responsible for completing the work. This “initiating structure” was measured by factors such as:

1. Communicating expectations to group members.
3. Scheduling the work to be done.
4. Asking that group members follow standard rules and regulations (Judge, Piccolo, and Illies, 2004).

For the leader to be identified as “considerate” the following had to be observed:

1. Friendliness and approachability.
2. Group members seen as equals.
3. Welfare of the group members understood to be important.
4. Making himself/herself accessible to group leaders (Judge, Piccolo, and Illies, 2004).

Ratings could be low, medium, or high for both factors. The result was the Managerial Grid Model, Figure 2.1, developed in 1964 by Blake and Mouton which juxtaposed concern for people with concern for production (Egner, 2009). The findings concluded that effective leaders demonstrate a high concern for people and production (Komives, et al., 2006).
Additional studies determined that leadership style could be defined by the context of the situation.

**Situational Leadership**

The leadership displayed is contingent upon the situation in which a leader finds himself/herself. Thomas and Bainbridge (2002) note it is marked by the need to respond to both how tasks change and the need for followers to adjust to that change, ensuring the goal is attained. Hersey and Blanchard developed their situational leadership approach in 1969, based on Reddin’s 3-D management style theory (Northouse, 2004). The model considered the style of leadership and the ability of followers to assume responsibility, i.e., maturity. Situational leaders adjust their leadership style to match their followers’ ability and the conditions under which they must work (Erven, 2001). According to Paul Hersey (2011 notation for [http://www.situational.com/](http://www.situational.com/) website) “situational leadership is based on interplay among the amount and level of the following, (1) directions provided, (2) respect for relationships, and
(3) ability and willingness followers have to take the lead in a task.”

Hersey and Blanchard (1977) introduced a model focused on four dimensions each of leadership style and maturity level. Leadership styles are telling, selling, participating, and delegating, and defined as follows (Hersey and Blanchard, 2007):

1. Telling – one way communication. The leader provides directives.
2. Selling – two way communication. The leader provides directives and the subordinates respond; however, they do not have any control or influence in the decision-making process.
3. Participating – opens the dialogue between leader and follower. The leader provides the directive but subordinates now have a voice to provide input, sharing in decision-making.
4. Delegating – the leader still gives direction, but allows followers to become stakeholders, owing the tasks and providing direction in the attainment of the goal; thus, demonstrating and asserting responsibility and achieving the highest level of maturation.

Hersey and Blanchard (1977) identified four levels of maturity. They denote the following:

5. (1) Lowest maturity – followers lack skills and are unable to assert responsibility.
6. (2) Followers demonstrate skill, but are unable to assert responsibility.
7. (3) Followers are experienced and capable of doing the work; however, they lack the confidence to assert responsibility.
8. (4) Followers are experienced to do the work and possess the confidence to assert responsibility for the work (Hersey & Blanchard, 1977).

The pairing of leadership style and maturity level presents the graph found in figure 2.2. Erven (2001) notes that success in situational leadership results when the right leadership dimension is paired with the appropriate corresponding maturity level.
Heifetz (1994) noted leadership is a change or adaptive process “to address conflicts in the values people hold or to diminish the gap between the values people stand for and the reality they face” (p. 22). Facing educational leaders is an obvious despair in the change process, further complicated by accountability and the need to have effective schools, defined by school performance.

**Effective Schools**

The Effective Schools Movement was born in response to the 1966 survey by J. S. Coleman, “The Equal Educational Opportunity Survey”, which noted familial factors as the leading factors in underachievement for students. (McKee & Lezotte, 2006). The focus of the movement was to determine what made schools effective. “The resulting research supported the premise that all students can learn and that the school controls the factors necessary to assure student mastery of the core curriculum” (Kirk & Jones, 2004). The results of the Effective Schools Movement yielded eight correlates, all similar to the attributes of effective leaders.
They are (1) clearly defined mission, (2) safe and orderly environment, (3) strong, instructionally focused leadership, (4) high expectations for success, (5) ongoing monitoring of student progress, (6) increased opportunities to learn and time on task, (7) purposeful and supportive involvement of parents, and (8) coordinated differentiated staff development (Association for Effective Schools, 1996). Research led by Brookeover and Lezotte, (1979) noted “effective schools observed the importance of instructional leadership.”

**Instructional Leadership**

Educational leaders wear many hats, including being office manager, director, counselor, accountant, public relations manager, and disciplinarian. The principal’s role to instructional leader called for a shift of emphasis from principals being managers or administrators to instructional or academic leaders.

Managers are those who are preoccupied with administrative duties, i.e. bus schedules, duty rosters, teaching assignments, and facilities management. The instructional leader is focused on goal setting, fiscal management to support resources for increased instructional quality, professional development, and time management (Flath, 1989). The National Association of Elementary School Principals (2001) defined instructional leadership as “leading learning communities.” Blase and Blase (2002) noted instructional leadership provides ongoing monitoring and feedback, models effective instruction, solicits input from stakeholders, supports collaboration, and recognizes effective teaching and student gains. Brewer (2001) outlines the role of the principal as an instructional leader as “one that requires focusing on instruction; building a community of learners; sharing decision making; sustaining the basics; leveraging time; supporting ongoing professional development for all staff members; redirecting resources
to support a multifaceted school plan; and creating a climate of integrity, inquiry, and continuous improvement” (p.30).

Instructional leaders anchor their practices on instructional quality and prioritize school goals to address and support it (Lunenburg, 2010). The argument regarding instructional leadership focuses not on its actuality but rather its practicality (Finn, 2006). For example, among the many tasks performed by principals, only a fraction of it focuses on providing instructional leadership (Jazzar & Algozzine, 2006). While more relevant research would argue for increased time in instructional leadership, there is documentation that suggests the reasons for it not being emphasized. One key reason is the lack of emphasis and focus given to improving instructional leadership through leadership development (Fullan, 1991). Principals’ involvement in professional development is limited. More recently is the notion that attitudes and beliefs of principals play an integral role in their interactions with others and how they perceive their role, which can either strengthen the organization or cause it to languish (Sergiovanni, 2009). How they perceive themselves and their faculty is critical. Appropriate dispositions encourage an organization’s members to “transcend ordinary competence for extraordinary commitment” (Sergiovanni, 2009, p. 89). This argument lends support for the need to prepare and support educational leaders’ professional development and technology proficiencies in an effort to sustain, expand, and improve on the quality of instructional leadership. Valdez (2004) noted that it’s been 20 years since the first conversations regarding instructional leadership; yet, many principals are still managers, trying to balance it with the need to focus on student learning, accountability, and ongoing reform efforts. The shift from manager to instructional leader has created substantial and often excessive workloads:

“At a minimum, we can be sure school districts want someone who can carry out a long list of specific duties. The new principal
will be expected to arrange class schedules, resolve discipline problems, administer a labor contract, evaluate teachers, and apply the oil of public relations to points of friction with the community, and that’s just in the morning.” (Lashway, Mazzarella, & Grundy, 1995, p.15)

Effectively leading schools is then a monumental task. The role of technology would greatly improve the efficiency of the educational leaders to perform these tasks (Schrum & Levin, 2009). The interest then is determining if there is a leadership style best suited to address technology leadership as component of instructional leadership.

**Leadership Styles**

In educational leadership there are multiple studies that examine the components of leadership. The focus is to provide a profile of what knowledge, skills, values, and attitudes of effective educational leaders. For the purposes of this study two leadership styles will be examined, transactional leadership and transformational leadership.

First described by Max Weber in 1947, Robbins and Coulter (2008) note transactional leadership is rooted in the assumption that people are motivated by reward and punishment. Social systems work best with a clear chain of command, and people who agree to fill a position cede authority to the manager. The subordinate carries out the directive with little to no opposition or voice. Silins (1994) notes the transactional leader approaches followers with the purpose of making an exchange. The transaction may involve effort, productivity, or loyalty to be given by the subordinate in exchange for expected rewards: economic, political, social, or psychological, granted by the leader. The point of this transaction is to gain compliance. While it may produce an efficient and productive workplace, it does not bind leaders and followers in an “enduring way and results in a routinized, non-creative environment” (Silins, 1994). There is compliance but not commitment.
In contrast, transformational leadership assumes people will follow those individuals who inspire them. Transformational leadership first emerged from Burns’s (1978) work in political leaders. According to Burns (1978) transforming leaders are able to lead followers beyond their “current realm of circumstances and conditions, uniting them in a common goal, convincing them they are able to do that which they believed they could not do.” Bass (1985) developed a typology of leadership behaviors for transactional and transformational leadership. Transformational leadership was operationalized at the time as charisma, intellectual stimulation, and individualized consideration (Avolio, 1994; Bass, 1990). The work led to a solid measure, which has formed the basis for countless research studies in transformational leadership.

Studies conducted by Yammarino and Atwater’s (1993) and Barbuto, Fritz, and Marx's (2000) demonstrate that changes in disposition play some role in transformational leadership. “A person with vision and passion, infused with energy and enthusiasm, can achieve great things” (McCormick, 2001). Transformational leadership promotes educational improvement; transformational leaders accomplish change (Fullan, 2001). According to Lashway, Mazzarella, and Grundy (1995), “transformational leaders make decisions based on a broad perspective, organizational vision and mission, group goals, and network development.” Valdez (2004) lists characteristics of transformational leaders including, (1) sets a clear vision, (2) fosters acceptance of group goals, formed through shared decision-making, (3) has high performance expectations, (4) provides appropriate models, (5) provides intellectual stimulation, and (6) develops a strong school culture.

Fullan (2002) studied the characteristics of successful business and school leaders and found five qualities or “action-and-mind sets” that distinguish the transformational leader. They included heightened moral purpose, understanding the factors of change, emotional intelligence,
sharing of knowledge, and the ability to build capacity. These components are needed to bridge instructional and technology leadership (Fullan, 2002 & Creighton, 2003). The changing demands from federal, state, and local governance lean towards transformational leadership. Often seen as one who can address change while maintaining a clear vision for improving student achievement and promoting excellence in education, these leaders are able to provide direction.

**Preparation for Technology Leadership**

The importance of technology preparation for school leaders has been an ongoing discussion (Hope, Kelley, & Kinard, 1999). Yet, even with the increased demand for educational leaders to possess both knowledge and skills for technology integration, colleges and schools of education have not responded fast enough to meet the urgent need of including technology as a key facet of the leadership preparation programs (McLeod, et.al, 2005). Leadership preparation programs must recognize the need to include instructional technology as a component of developing quality leaders.

Strong technological understanding and skills are requirements for effective school leaders. According to Mehlinger and Powers (2002), “It is no longer possible for administrators to be both naive about school leadership and still be good leaders.” Teachers have assumed the primary responsibility of technology integration, with many grants and professional forums focused on classroom-based technology (Colburn, 2000). Educational leaders are responsible for developing a vision, driving instructional efforts, allocating resources, and modeling expectations (Sergiovanni & Starratt, 1998; Waters, Marzano, &McNulty, 2004). Bingham and Byron (2001) note that the role and level of support by the administrative leader is considered an important factor affecting the successful integration of technology into schools. Barnett (2000)
concurred by offering that leadership is critical in the efforts and efficacy of teacher led technology integration. Research has shown that the use of technology in classroom instruction could enhance learning. Further research has indicated that technology’s impact on student achievement has significant effects, especially when principals include technology into the instructional planning and financial resources allocated for improved instruction (Valdez, 2004). Principals, by definition of their position, have the ability to incorporate technology into the vision for the school and to support it through financial and human capital resources (Creighton, 2003).

In spite of the evidence in supporting the need for principals to receive technology training in preparation programs, little attention has been given to preparing educational leaders for their role as technology leaders. According to Mehlinger and Powers (2002), “graduate school programs generally are doing a poor job in preparing future principals and superintendents to be technology leaders (p.218).” Further findings indicated few school leaders identify any training or professional development to foster understanding and support of technology programs and issues (Reddish and Chan, 2007). Whether established pre-service or in-service it remains constant that technology competency or the lack thereof will impact school leaders’ ability to understand policies, issues, and needs to successfully implement and support technology integration (McLeod et. al, 2005).

**Distributing Leadership to Transform Technology Integration**

There are several reasons why principals need to know and use instructional technology, including the need to prepare students to function in an information-based digital society. Flanagan and Jacobsen (2003) conducted a mixed-methods study that identified the need for students to be competent in using tools found in jobs. As such there is a need to ensure that along
with accountability education must make technology an integral component of reform efforts (Schmeltzer, 2001).

Stiroh’s (2001) conducted an analysis of productivity in the United States and concluded that there was a continuous “robust link between IT-intensity and productivity gains which suggests that there is an important economic relationship in understanding and effectively using technology.” Technology is a change phenomenon that has become contextualized in daily living. The instructional leader can incorporate technology into an overall instructional model, establishing alignment with the school’s vision and mission, high expectations, and stakeholder involvement (Creighton, 2003). The instructional leader provides training and support, which according to Atkins (2000) is needed to promote teacher use of technology as an instructional tool. The principal is critical to removing the obstacles of fear and hesitation replacing them with motivation. “The resistance of teachers to convert from traditional teaching methods to computer-based ones is a fundamental reason for the lack of technological progress in schools (Dawson & Rakes, 2003, p. 29).” Empowering teachers aids in their ability to accept and embrace change (Reeves, 2008).

According to Spillane, Halverson, & Diamond (2004) distributed leadership recognizes the need for, ability of, and existence of other leaders within the organization. Harris (2004) notes that the belief of one person as “the leader” is being redefined. The concept is being replaced by leadership focused on teams, with key stakeholders, particularly teachers serving as leaders. Gronn (2000) notes that this distribution of power “blurs the line between those leading and those led.” Distributing leadership allows instructional leaders to build capacity and empower others. The sharing of power as it relates to effectively integrating technology is
especially important, as teachers and students may possess skills leaders lack, further supporting the need for principals to gain proficiency (Jackson, 2009).

Instructional leadership can comprise technology leadership. They both require clear planning, training, ongoing support, and the building of stakeholder capacity, leaving technology’s integration seamless in the classroom (Afshari, et al., 2008).

**Becoming a Technology Leader**

Fulton (1998) cited several obvious factors about technology.

1. “Technology keeps changing; as hardware and software evolve, new educational opportunities appear.”
2. “The teacher is a key variable in technology implementation and effectiveness.”
3. “Technology’s impact on teachers and their practice should be considered as important as student effects, for students move on but teachers remain to influence many generations of students.” (p.1)

Establishing clear expectations can help school leaders increase the successful use of technology in schools. Additional research had identified the effectiveness technology has had on specific content areas, i.e., reading and language, building phonological awareness for reading development, math to remediate and support deficiencies, to provide simulations in science, serving as lab experiences, and social studies, used for virtual tours to simulate events and make connections to the past and present, research, and opportunities to explore realms previously defined by the walls of the school (Kosma, 2003; Rigstaff & Kelley, 2002; Roschelle, Pea, Hoadley, Gordin, & Means, 2000). With respect to these tasks, educational leaders need both to understand and to support the requirements of this level of technology integration. They must also be able to evaluate the effectiveness to which teachers are implementing technology.

Debell & Chapman (cited in NCES 2001) noted technology is very important to diverse populations of students, especially those who do not have access to computers at home.
“Among the group of children and adolescents who have access to the Internet at only one location, 52 percent of those are from families of poverty and 59 percent of those whose parents have not earned at least a high school credential do so at school. In comparison to 26 percent of those from families not in poverty and 39 percent of those with more highly educated parents do so only at school.” (p.7)

The need to address students with disabilities and the implementation of assistive technologies also require the principal’s attention (Bouck & Okolo, 2007). Expanding methods and mediums by which students with disabilities can learn increases chances for student success and overall student performance in the sub-groups defined by NCLB. Technology has also proven to be an effective motivator for English Language Learners, providing opportunities for practice and rehearsal (Pellino, 2003). Once bound by the classroom, schools can now offer programs like Rosetta Stone on iPods and MP3 devices for practice beyond the school day. Technology provides opportunities for learning that might not be afforded at a specific school location, i.e. the need for virtual learning opportunities. According to data from the Louisiana Virtual School (2011), principals are requesting increased numbers of seats each year to ensure that students are able to meet the state’s requirements for the Taylor Opportunity Program for Students (TOPS). Table 2.1 identifies the enrollment for the Louisiana Virtual School.

Addressing the needs of all students through technology is both a long-term and system-wide effort (Warschauer, 2000; Dede, 2000). School leaders, therefore, are expected to possess not only general leadership skills but also technology leadership skills. Technology leadership is not leadership for technology only, but rather combines best practices, strategies and techniques that are components of effective leadership, with attention to some specifics of technology, especially those related to providing access, updates and support, and identifying and providing professional development (Valdez, 2004). To ensure understanding technology standards for leadership have been developed.
<table>
<thead>
<tr>
<th>Category</th>
<th>2010 – 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Enrollment</td>
<td>7,200</td>
</tr>
<tr>
<td>Course Seats</td>
<td>8,000</td>
</tr>
<tr>
<td>Participating School Districts</td>
<td>59 of 70</td>
</tr>
<tr>
<td>Participating Schools</td>
<td>268 of 512</td>
</tr>
<tr>
<td>Advance Placement Courses Offered</td>
<td>13 of 36</td>
</tr>
<tr>
<td>Dual Enrollment Courses: Eligible for Carnegie Units</td>
<td>7</td>
</tr>
<tr>
<td>Credit Recovery – developed to assist students who are behind in Carnegie Units</td>
<td>43</td>
</tr>
<tr>
<td>Algebra I Online Course Participants – developed to provide certified Algebra I teachers.</td>
<td>321</td>
</tr>
</tbody>
</table>

**Technology Standards for Educational Leaders**

Many principals have not taught with the new technologies (Otto & Albion, 2003). Otto and Albion (2003) note that to change principals’ beliefs about teaching and technology their present beliefs have to be challenged and replaced by new beliefs. Ainley, Banks, & Fleming (2002) note the provision of Information and Communication Technologies (ICT) resources needs to be supported by a focus on teaching and leadership. Baylor and Ritchie (2002) agree that

“administrators who promote the use of technology, not only in words but in actions, lend credence to a technology culture. . . . By helping teachers find ways to actively infuse technology, investments in time and money will pay off in greater content acquisition and higher-order thinking skills for students and greater teacher competence and morale.” (pp. 412-413)
There is a growing interest by educational leaders to become more proficient and effective in their leadership of technology (Yee, 2000). James Bosco, chairperson of the Collaborative for Technology Standards for School Administrators, notes:

“These Standards enable us to move from just acknowledging the importance of administrators to defining the specifics of what administrators need to know and be able to do in order to discharge their responsibility as leaders in the effective use of technology in our schools.” (2009)

The standards have been accepted by the International Society for Technology in Education (ISTE) as National Educational Technology Standards for Administrators (NETS-A). The NETS-A closely align to the standards for the Interstate School Leaders Licensure Consortium (ISLLC), which define criteria for educational leadership licensure (ISTE, 2009). The NETS – A standards focus on areas including (1) visionary leadership (2) digital-age learning culture (3) excellence in professional practice (4) systemic improvement, and (5) digital citizenship.

Appendix A provides an explanation of the standards and a comparison to the ISLLC standards for school principals.

A study conducted by Otto and Albion (2004) examined principals and concluded there were varying uncertainties in the beliefs they held about teaching with technology. These standards provide the basis for the technology proficiency of principals and develop uniform guidance. Understanding principal beliefs about technology is central to their proficiency and support of technology integration (Hope, Kelley, & Guyden, 2000).

**Technology**

Educational technology has been identified as an innovation and medium to change and reform schools in efforts to increase student achievement. Technology implores a holistic view,
applying systems thinking to the implementation of its interrelatedness to schools and the culture of instruction within the school building.

**Technology in the Age of Accountability**

In the midst of ongoing reform and efforts to increase student achievement is the ever-changing tool – technology. Standards-based education concludes that there is a determined set of knowledge all students should acquire, for which accountability tests. As a result there is a constant debate about what is taught versus what is tested. According to Keller and Bichelmeyer (2004),

> “Whatever the explicit educational mission of schools, as expressed on school corporation home pages and in faculty handbooks, a more powerful mission statement has essentially been established for all schools by the accountability movement comprised of high-stakes tests, standards and sanctions.”

Zanc and von Zastrow (2004) note that accountability has caused the development of a “laser like” focus divergent attention from the broad curriculum to reading and math.

Keller and Bichelmeyer (2004) identify three tensions between the goals of accountability and the goals of technology integration. They are “(1) tradition versus progressive pedagogy, (2) standardized tests versus performance-based assessment, and (3) technology as central versus technology as peripheral.” In the first tension, the “transmission” or top-down approach, is followed. (Keller and Bichelmeyer, 2004). Figure 2.3, A DeFacto Hierarchy of Standards, explains this concept, noting what is tested as priority. Contrary is progressive pedagogy which operates in a reverse hierarchy, approaching standards via process skills, those associated with higher-order thinking and problem-solving. Keller and Bichelmey (2004) indicate that in 2002 the Illinois Department of Education identified these skills as critical because they cut across content standards.
Exemplary of progressive pedagogy is project-based learning. Project-based learning focuses on applied learning or learning to learn; as such it provides a conduit for technology integration.

The second tension involves assessment. Eisner (2001) explains this tension:

“What the field has not provided is an efficient alternative to the testing procedures we now use. The reason is that there are no efficient alternatives. Educationally useful evaluation takes time, it’s labor intensive and complex, and it’s subtle, particularly if evaluation is used not simply to score children or adults but to provide information to improve the process of teaching and learning” (p.369).

Project-based learning is progressive, but often a contradiction to the reform-based accountability measures defined by NCLB, primarily because of differences in instruction and assessment (Kohn, 2002). Project-based learning is more demanding on teacher time and effort and may be an unfamiliar phenomenon for some teachers. Technology advocates promote project-based learning integrated with technology.

Finally, the third tension focuses on the promise of technology (Keller and Bichelmeyer, 2004). According to Cuban (1986, 2001) technology has not fulfilled the promises of educational innovation and transformation as it had been predicated to do. Rather it has only served as a medium to facilitate tasks that can be performed effectively without it (Allen, 2001). According to Hastings & Tracey (as cited in Clark, 1983, 1994a; Kozma, 1991, 1994), since their introduction the debate about computers in education has focused on machine or medium. Is it the computer or how they are used that impacts instruction? The integration of technology, as a
medium for project-based learning, places emphasizes on the application for learning and not the actual machines. Those favoring the use of technology maintain their belief that technology applications have the ability to revolutionize classroom practices. Still teachers are torn between the abilities of technology to transform and the need to address standards and testing. Albion & Ertmer (2002) believe the “working conditions of many teachers restrict their opportunities for observing and implementing alternate classroom practices,” (p.36). Ultimately accountability has shaped the dynamics of teaching and learning. Educational efforts should foster collaboration and planning that moves towards assessments which promotes all types of learning, acknowledging differentiation. Support for this should be led by federal mandates for reform that offer guidance in establishing baseline data derived from needs assessments, teaching and learning, and school culture, leading to increased academic gains – answering the call of accountability (Keller & Bichelmeyer, 2004).

**Technology Demands of the Workplace**

The trends of the past two decades note the increased implications for computer and information technology (IT) in the workplace (Handel, 2003). In a workforce study, Kemske (2008) said, “It will not be possible to survive in the workplace without basic computer skills.” Handel (2003) notes, “Computers can increase the demand for skill and relative wages by altering the distribution of workers between occupations.” Technology has provided indicators that direct which tasks will be done and how. Technology usage occurs in the forms of emails, Internet, fax, webinars, conference calls, and virtual chats. Technology proficient individuals have a greater advantage in the workplace (Cohn, 2000). A study conducted by Ginsburg and Elmore (1998) noted technology is present in even nontechnical workplaces and job security and technology proficiency are correlated. Technology has enabled business to continue in the
absence of a physical presence. Bix (2000) stated that the increased integration of technology in the workplace has presented fears amongst employees who perceive their jobs threatened by the invasion of technology and their lack of skills. According to Bix (2000), “14-16 percent of those in blue-collar jobs felt at risk of job loss, whereas only 4 percent of managerial and professional workers felt threatened,” (p. 273). How important are technology skills? Friedberg (2001) offers that the frustration, created by efforts to become proficient, exceed the benefits, ultimately leading to early retirement and attrition. The findings of a study conducted by Autor, Levy, and Murnane (2002), indicated that jobs requiring increased technology proficiency are replacing those that don’t, allowing the creation of jobs for the technologically proficient. Studies by Shaw (2002), and Bartel, Ichniowski, & Shaw (2000) also indicate increases in jobs requiring more advanced technological skills, offering evidence of a strong relationship among technology, education, skill, occupation, and wage.

**Technology and Student Achievement**

“Integrating technology is not about technology – it is primarily about content and effective instructional practices,” (Earle, 2002). Barnett (2003) notes that research has identified two ways students use computers in schools. These methods are “learning from” computers and “learning with” computers. In learning from computers the computer serves as a tutorial presenting information to which students respond, such as a software program that allows the practice of mathematical concepts. Learning with computers requires students to use the technology to perform tasks of analysis, evaluation, and development, such as a simulated lab that requires students to dissect animals. Learning with computers shows significant and consistent gains in students’ abilities to perform at levels of proficiency (Barnett, 2003). Two early longitudinal studies, West Virginia Basic Skills Study and Project CHILD, examined how
students learned with computers. Results from the West Virginia Basic Skills study (Mann, Shakeshaft, Becker & Kottkamp, 1999) and Project CHILD (Butzin, 2000) indicated that when students used computers as tutors there was an increase in achievement. The following identify the results of both studies:

1. “Consistent gains on statewide assessments.”
2. “Students had better discipline.”
3. “Students had better grades.”
4. “Students took more Advanced Placement courses.”
5. “Students who used computers were more likely to graduate than those who didn’t use computers” (Butzin, 2000).

The project known as, Apple’s Classrooms of Tomorrow (ACOT) made computers available to students anytime they needed to write, analyze, or research for a project (Ringstaff & Kelley, 2002). The project also provided teachers the opportunity to reflect on their beliefs about learning. The findings of this study indicated the following:

1. “Students use higher-order thinking skills beyond their grade level.”
2. “Students demonstrated an enhanced ability to collaborate with peers.”
3. “Students demonstrated increased initiative.”
4. “Technology and teacher reflections led to a substantial change in teachers’ beliefs about teaching and learning” (Ringstaff & Kelley, 2002).

The study’s findings were reinforced by the study of the Challenge 2000 Multimedia Project, which presented similar findings (Penuel, Golan, Means, & Korbak, 2000). The studies conclude that technology can make a difference in student learning (Sandholtz, 2001). Understanding how learning occurs is important in identifying approaches and mediums to engage students and increase opportunities for success.

**Learning Theories**

Research on learning has been ongoing, though still an elusive topic (Barron, 2004). Cognitive psychologists believe that learning involves the use of memory, motivation, and
thinking. “Learning is an internal process and suggests that the amount learned depends on the processing capacity of the learner (Attewell & Savill-Smith, 2004).” According to Hill (2002), learning theories serve two functions; they are to provide a common language in explaining what is observed, and to offer suggestions for potential solutions to problems.

There are three prominent categories for learning theories. The categories are (1) behaviorism, (2) cognitivism, and (3) constructivism (Illeris, 2002). Behaviorism’s central idea is that there can be a science to behavior (Baum, 2005). These behaviors are acquired through conditioning. The conditioning can occur when a naturally occurring stimulus is paired with a response, or through rewards and punishments. Essentially, the learner is passive, responding to environmental stimuli (Parkay & Hass, 2000). Behaviorism was followed by cognitivism, which sought to answer how and why people learn. Like behaviorists, cognitive psychologists believe the study of learning should be objective. Cognitivists believe they can draw inferences based on the cognition that produces the responses (Wallace, Ross, Davies, & Anderson, 2007). “The main issues that interest cognitive psychologists are the inner mechanisms of human thought and the process of knowing,” (Scarantino, 2010). “The learner is the information processor; the learned is a representation of change brought on by the process,” (Hung, 2010). Still building on previously defined learning theories, constructivism argues that learners generate knowledge and meaning from an interaction between their experiences and their ideas, creating what is learned (Atkinson et. al, 2000).

**Constructivism**

Constructivism represents a theory that emphasizes that learning is constructed (Tam, 2000). Constructing knowledge involves interpretation and organization of accumulated by prior knowledge (Taber, 2006). For Rainer (2002) constructivism allows individuals to develop
understanding that is personal and meaningful. Fenwick (2001) defines constructivism as “the dominant approach for understanding adult experimental learning where an individual’s learning is said to originate from a learner’s cognitive reflection of his or her concrete experiences,” (p. 7). Dakers (2005) states that, “Learning is shaped by the environment and the social meaning associated during the learning experience.” This means that individuals participating in the same learning event, as either an individual or group activity, may result in a different meaning for each learner (Oleson, 2000). Brandon (2004) restates this by noting that a “substantial part of constructivist practice has to do with helping people learn how to learn, including how to test, verify, and validate new knowledge and skills and to increase their own autonomy” (p. 2). According to research conducted by Treagust, Duit, & Fraser (1996), constructivism consists of two principles – psychological and epistemological. Unlike behaviorism, the first principle of constructivism states that the acquisition of knowledge is not a passive process, but is the result of an active build-up of accumulated experiences. The second principle suggests cognition is an adaptive function that serves the experimental world, noting that the pursuit of truth is elusive at best; thus we construct viable explanations of what we experience (Null, 2004). Vrasidas (2000) notes reasoning provides a conduit through which individuals can resolve contradictions between reality and the senses. Michael Hoagland (2000) examined constructivism. He found that it was especially helpful when lessons were broken into shorter pieces and delivered in one class period, a concept known as chunking. Students with disabilities benefited greatly from this approach (Hoagland, 2000). The thing that differentiates constructivism from behaviorism and cognitivism lies in the reasoning of the learner. Elkind (2005) notes that individuals can reason correctly from wrong premises, resulting in wrong conclusions. Further, constructivism is like a
road map that provides the path, but the learner must answer the question of how one arrives at the right place (Elkind, 2005).

Fox (2001) identifies the following as attributes defining constructivist learning:

1. “The learner is actively engaged in the learning process.”
2. “Knowledge is constructed through experience and reflection.”
3. “Knowledge is created by the learner. It is not discovered.”
4. “Knowledge is personalized and unique to the individual.”
5. “Knowledge is socially constructed.”
6. “Learning is a way of “making sense of the world.”
7. “Learning requires meaningful, open-ended problems that are contextually situated and require the learner to find a solution in order to be effective” (p. 24).

Constructivist Implications for Technology Integration

Fenwick (2001) states that constructivist instructional design models seek to “help people develop transferable skills during initial learning events and to remind and help learners in unfamiliar situations adapt and apply concepts with which they are already familiar,” (p. 38).

Aytekin, Mehmet, Fahme, & Hatrice (2005) identify a model with the following stages:

1. “Input Stage – learner needs assessed.”
2. “Process Stage – pre-assessment of learning to determine readiness.”
3. “Output Stage – learning is facilitated through instructional materials.”
4. “Feedback Stage – feedback and evaluations are reviewed and used to determine if adjustments are needed” (Aytekin et al., 2005).

A report by Fardanesh (2006) further expands on this model and identifies approaches to teaching and learning. Amongst these are computer-supported learning environments, participatory events, anchored instruction, problem-based learning, and project-based learning. Each of these methods has practical applications for technology integration. “Learning success is determined by the ability to remember, constructing useful meaning from interaction, dialogue, and problem-solving,” (Trask, 2008).
The constructivist view of learning is prevalent in the literature on online learning, recognizing the importance of the social aspects and the flexibility it affords to the diverse learning needs of students (Clerehan, Turnbull, Moore, Brown & Tuovinen, 2003). Technology applications provide opportunities for learners to interact with the content they are expected to remember and understand (Hamat & Amin Embi, 2010). This engagement fosters deep meaningful connections to content. Constructivism provides learners, at any level, the opportunity to integrate knowledge into a meaningful active process, making technology a dynamic medium of this philosophy.

In summary, the review of literature has identified the impact accountability has had on the role of the principal. Understanding instructional leadership is important to understanding the role of a technology leader, which is integral to successful technology integration and implementation. It denotes how technology has impacted the workplace requiring proficiency and defining the roles of those who are proficient. Finally, consideration of learning theories conveys the implications of constructivism for student learning and the implication of technology to support it through project-based instruction. Understanding how proficiency is developed and supported, creating a culture of technology competence is necessary for meaningful seamless technology integration. This study is intended to identify the relationship of educational leaders’ proficiency and its ability to influence teacher proficiency and school performance; thus, contributing to and expanding the current body of research. Chapter III will discuss the methodology used for this study.
CHAPTER III: METHODOLOGY

The practice of principal leadership for technology integration is a key building block for the model of educational leadership for the 21st century. Administrators that implement technology effectively in their schools will contribute greatly to both education and the global economy (Slowinski, 2000). Leithwood and Riehl (2003) conclude that school leadership has significant effects on student learning, second only to the effects of a quality curriculum and teachers’ instruction. Case studies of exceptional schools indicate that school leaders influence learning primarily by galvanizing efforts around ambitious goals and by establishing conditions that support teachers and that help students succeed (Togneri and Anderson, 2003). Leithwood and Riehl (2003) found that large-scale quantitative studies of schooling conclude that the effects of leadership on student learning are small but educationally significant. Leadership in technology is a key to successful school reform.

This study utilized a quantitative method. Investigation was carried out using regression analyses. The research sought to investigate the relationship between the principal’s technology proficiency and the technology proficiency of teachers. The research also sought to determine if instructional leadership or technology leadership is a stronger indicator of teacher technology proficiency. The regression analyses were utilized to investigate the following research questions.

1. Are there significant correlations among principal technology proficiency, principal instructional leadership, and teacher technology proficiency?
2. Does principal technology proficiency predict teacher technology proficiency?
3. Does principal instructional leadership predict teacher technology proficiency?
4. How does principal technology proficiency impact School Performance Scores?
Participants

Before proceeding with this study permission was obtained from Louisiana State University’s Institutional Review Board. The data were gathered in September 2011. The population from which the sample was drawn consisted of principals in the state of Louisiana that completed the Louisiana Educational Advancement and Development with Technology (LEADTech) Program and participated in both the Louisiana Department of Education’s Technology Proficiency Survey for Principals and the Vanderbilt Assessment of Leadership in Education (VAL-Ed). There were 214 principals that met all criteria; they were sorted by school grade configurations (elementary, middle, and high) and 150 were chosen. Efforts were made to have an equal sample of each of the three school configurations, and included 47 elementary principals/schools (only 47 available), 53 middle school principals/schools (only 53 middle schools available), and 50 high school principals/schools (randomly selected from the pool of high schools). They represent 23 (1/3) of the state’s 69 public local education agencies, excluding charter schools. The state average for the number of years experience as an educational leader is 4.5. Of the 1472 educational leaders statewide, 904 (61%) are men and 568 (39%) are women, 710 are white (48%), 739 (50%) are African-American, and 23 (2%) are Hispanic. In this study 79 (53%) were male and 71(47%) were female, 80 (53%) were white and 70 (47%) were African-American. No Hispanics were included in this study. The sample was representative of the principals statewide. The teaching faculty of each principal also completed the VAL – Ed survey for their principals and the Louisiana Teacher Proficiency Self-Assessment Survey.

Operational Definitions

The following will provide definitions used for the major variables of the study.
Educational Leader

The educational leader is the individual named as the principal of the school. He/She has the responsibility of hiring faculty, maintaining the school budget, evaluating teachers, communicating key initiatives to the faculty, and providing direction and guidance for the school community.

Technology Proficiency

Demonstrating intermediate to advanced skills in using various technology software, understanding the use, set-up and functions of hardware, and the ability to evaluate effective technology integration.

Technology Integration (as defined by the LDOE)

School and district policies ensure that:

1. All aspects of the student population have access to technology resources to support learning.
2. The use of technology by teachers across schools, grades and content areas is consistent.
3. Technology is used to promote inclusion of special needs students into mainstream classes and/or curricula.
4. Teachers participate in high-level, ongoing professional development to support student academic achievement through the use of technology.

LEADTech Grade – The grade awarded to participants based on the completion of 16 discussion posts, 8 journal prompts, and a final portfolio presentation. Grades are standard letter grades on a 4.0 grading scale.

Principal Technology Proficiency – Principal technology proficiency refers to the degree or level a principal has identified, via self-report, to understand, use, model, support and integrate technology. Of the six standards a principal must score a minimum score per standard.
**Teacher Technology Proficiency** – Teacher technology proficiency refers to the degree or level a teacher has identified, via self–report, to understand, use, model, plan, and integrate technology into instruction. Of the six standards a teacher must score a minimum score per standard.

**School Performance Score (SPS)** – SPS refers to the score a school attains based on accountability measures defined by the state, which include scores on high–stakes tests, attendance, and dropout data.

**Vanderbilt Assessment of Leadership in Education (VAL – Ed)** – VAL – Ed refers to the performance level derived as a result of the 360° assessment that measured behaviors and processes for successful instructional leadership. The score denotes proficiency as an instructional leader.

**LEADTech Program**

New technologies can provide an infrastructure that support reform efforts and serve as a resource to be utilized by educators (Schrum & Levin, 2009). Effective technology use in the classroom is contingent upon administrative support. Those administrators with an understanding of instruction coupled with technology facilitate the development of a culture where technology is integrated effectively, embraced by teachers, and is an integral component of instruction (Schmeltzer, 2001). Louisiana’s Educational Advancement and Development with Technology (LEADTech) Program is an intense, technology-based professional development program open to Louisiana building and district level leaders. The goal is to develop an in-depth understanding of the role of instructional technology as it relates to total school improvement and increased student learning. Designed to provide flexibility and varied learning opportunities, LEADTech has served more than 2500 Louisiana administrators since 2000.
The program is a twelve week, web-based format with face to face meetings. Individuals participating in LEADTech are involved in more than 75 hours of instructional experiences. The course content is aligned to the standards set forth by the International Society for Technology Proficiency (ISTE) – National Educational Technology Standards for Administrators (NETS*A). The twelve weeks are divided into eight units. They are as follows:

1. Unit 1 – A Vision for Technology – addresses NETS-A Standard 1. Participants are required to identify and explore specific reasons and strategies to employ instructional technology in support of teaching and learning.
2. Unit 2 – Engaging and Leading Teachers – addresses NETS-A Standard 2. Participants are required to identify ways to lead and support teachers in their efforts to effectively integrate technology.
3. Unit 3 – Defining Oneself as a Technology-Using Instructional Leader – addresses NETS-A Standard 3. Participants learn about skills and topics directly related to the role of a technology leader.
4. Unit 4 – Planning for Instructional Technology – addresses NETS-A Standard 4. Participants learn about technology planning and how to develop a plan to effectively integrate technology.
5. Unit 5 – Emerging Technologies – addresses NETS-A Standard 5. Participants learn about emerging technologies exploring the pros and cons of said technologies.
7. Unit 7 – Providing the Stuff – addresses NETS-A Participants identify the types of hardware and software necessary to support effective technology integration.
8. Unit 8 – A Work in Progress – addresses NETS-A Participants reflect on what has been done throughout the course analyzing what is necessary for effective technology integration within their school, district, and the state.

Grades were based on 16 discussion board posts, 8 journal prompts, and a final portfolio presentation. Instructors assigned grades using a four point scale, with an A equivalent to 4 points, a B equivalent to 3 points, a C equivalent to 2 points, a D equivalent to 1 point, and an F equivalent to 0 points. Appendix C provides the rubric used for scoring discussion board posts.

**Research Approach**

This quantitative study focuses on the concept of principal leadership for technology integration. The purpose of this study is to determine how principals’ technology proficiency
impacts teacher proficiency. The format for this study will involve quantitative tests. Data used for this study require an analysis of several factors because the researcher is seeking to investigate four research questions. The questions are as follows:

1. Are there significant correlations among principal technology proficiency, principal instructional leadership, and teacher technology proficiency?
2. Does principal technology proficiency predict teacher technology proficiency?
3. Does principal instructional leadership predict teacher technology proficiency?
4. How does principal technology proficiency impact School Performance Scores (SPS)?

Quantitative research seeks explanations and predictions that will generalize to other persons and places (Thomas, 2003). This study’s research is still a relatively new area; as such, a part of the research design is to explore what existing concepts and methodologies might be used or adapted as a model (Creswell, 2008) to understand the key concepts behind developing principal technology proficiency for effective technology integration. Because the researcher is trying to determine predictive ability, multiple regression analyses were used. Regression analyses rely on understanding several assumptions. They are:

1. Linearity - focuses on the relationship between dependent and independent variables.
2. Independence – of errors, no serial correlations.
3. Homoscedasticity – constant variance that considers time and predictions.

Violations of each can be tested and fixed. Violations of linearity are serious. If a linear model is fit to non-linear data the result is serious errors in predictions. This error can be fixed by applying a nonlinear transformation to the variables involved. Violations of independence can
also be serious, because serial correlations indicate the model can be improved. The Durbin–Watson statistic provides a test for significant serial autocorrelation. It is possible to fix minor problems in positive serial autocorrelations by adjusting variables, using dummy variables, or lags. Detecting violations of homoscedasticity are important, because violations make it difficult to gauge the true standard deviation. Examining the plots of residuals versus time and predicted value can detect violations. A fix would include working with shorter intervals of data. Normality violations mean that the error distribution can be skewed. The best test for normality is a normal probability plot of residuals. Violations of normality can be corrected by a nonlinear transformation of variables.

Quantitative results rely on understanding the assumptions of the tests used and the implications on interpreting the findings.

Data Collection Procedures

The proficiency data for principals and teachers, and the VAL-Ed data were provided by the Louisiana Department of Education. Data was analyzed in August and September.

Table 3.1: Timeline for Study, Data Analysis, & Reporting

<table>
<thead>
<tr>
<th>DATE</th>
<th>TASK</th>
<th>Research Question</th>
<th>Method</th>
<th>Timeline</th>
<th>Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>After Final IRB Approval</td>
<td>Gather LEADTech and VAL-Ed Data</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gather Principal and Teacher Proficiency Data</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Does principal technology proficiency predict teacher technology proficiency?</td>
<td>State Survey Data: Principal and Teacher Proficiency</td>
<td></td>
<td>August and September 2011</td>
<td></td>
<td>Statistical Correlation Data Analysis</td>
</tr>
</tbody>
</table>
Table 3.1: Continued

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Phase Two</td>
<td>Data Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phase Three</td>
<td>Summarized findings in discussion, implications, and suggestions for future research.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Outcome Measures**

The outcome measure for this study is the teacher technology proficiency. Measurement of this variable is achieved through use and analysis of the following instruments or measures:

(1) Louisiana Teacher Technology Proficiency Self – Assessment, (2) Louisiana Principal Technology Proficiency Self – Assessment, (3) the Vanderbilt Assessment of Leadership in Education, and (4) School Performance Scores. Each instrument is summarized in the following sections.

**Teacher Technology Proficiency Self – Assessment**

Technology proficiency refers to the level of skill an individual (teacher or principal) has achieved in the area of effectively implementing and integrating technology. For teachers this implementation and integration is seen in the curriculum, what is taught and the methods used to teach. For principals it refers to the ability to incorporate technology into school culture through modeling and supporting technology, i.e., communications, observations, planning, professional development and support. Data for this dependent variable were collected using the Louisiana Teacher Technology Proficiency Self – Assessment (Appendix C) (Louisiana Department of Education, 2006).

The Louisiana Proficiency Assessment is a quantitative tool. In 2003 the Louisiana Department of Education commissioned the development of a technology proficiency survey. The researchers of the Southwest Development Laboratory (SEDL) received the contract to
develop the self-reporting instruments. Drawing from the standards-based design of the International Society for Technology in Education (ISTE) the assessments identified multiple performance indicators. In 2005 the assessments were released. The teacher self-assessment measures K-12 teachers’ perceptions of technology knowledge and their ability to meet the ISTE standards, consists of 50 items, and surveys proficiencies for 6 standards and 23 performance indicators. The six standards are (1) technology operations, (2) planning and designing learning environments, (3) teaching, learning, and the curriculum, (4) assessment and evaluation, (5) productivity and professional practice, and (6) social, ethical, legal, and human issues (ISTE, 2002). The final score was determined by summing the items for each standard (calculated raw score) and then by calculating the raw score equivalent (RSE), and finally determining whether the RSE is greater than or equal to the minimum proficiency RSE. Table 3.2 identifies the minimum proficiency per standard, noting the corresponding questions for each standard.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Assessment Items</th>
<th>Minimum Proficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Technology operations</td>
<td>1, 12, 13, 21, 24, 25, 26, 27, 32, 38, 40, 43, 45, 49</td>
<td>39</td>
</tr>
<tr>
<td>2. Planning and designing learning</td>
<td>2, 12, 14, 24, 31, 32, 33, 37, 38, 41, 51</td>
<td>31</td>
</tr>
<tr>
<td>3. Teaching, learning, &amp; curriculum</td>
<td>3, 6, 7, 12, 20, 22, 26, 27, 28, 34, 35, 38, 40, 44, 46, 50</td>
<td>45</td>
</tr>
<tr>
<td>4. Assessment &amp; evaluation</td>
<td>15, 18, 23, 27, 29, 39, 40, 45, 50</td>
<td>25</td>
</tr>
<tr>
<td>5. Productivity &amp; professional practice</td>
<td>4, 8, 10, 17, 27, 31, 32, 40</td>
<td>25</td>
</tr>
<tr>
<td>6. Social, ethical, legal &amp; human issues</td>
<td>5, 9, 11, 16, 19, 30, 36, 42, 47, 48</td>
<td>28</td>
</tr>
</tbody>
</table>

Each question was defined by a series of questions in which teachers indicated frequency of use or difficulty they had in addressing the skill defined by the item. The items were assessed by two 5-point Likert scales. Scale one consisted of the following responses to be used for items 1 – 45: Never, Seldom, Sometimes, Frequently or Always. The last five items on the assessment
were rated using scale two, with the following responses: Not at All, With Great Difficulty (Always Need Help), With Some Difficulty (Usually Need Help), With Little Difficulty (Sometimes Need Help) and Easily (Rarely Need Help). The resulting report identified the teacher as proficient or not proficient by standard, with an overall label of non-proficient, if non-proficient in any one of the standards.

The Southwest Educational Development Laboratory (SEDL) (2005) outlined the scoring process as follows:

“The reliability and validity measures for the standards could support scoring and reporting at that level. Our recommendation then was the development of a criterion-referenced, raw score interpretation based on a minimum proficiency threshold established at the 70th percentile for each standard. Minimum proficiency at the standard level would be “met” by meeting or exceeding the raw score equivalent corresponding to the 70th percentile level. Proficiency for the entire self-assessment would be “met” only by meeting or exceeding the raw score equivalent required of every standard. This design ensures that all standards are given equal consideration when determining overall technology proficiency,” (pg. 6).

The final score was determined by summing the items for each standard (calculated raw score), calculating the raw score equivalent (RSE), and finally determining whether the RSE is greater than or equal to the minimum proficiency RSE. SEDL engaged in a two year process to validate the instrument. The process involved evaluation experts, focus groups (consisting of educators and IT professionals), and Louisiana Department of Education staff. The result was an initial instrument that was piloted; factor analyses were conducted to determine the final items to be selected for the instrument’s field testing. Completion of field tests and additional factor analyses were conducted to establish validity and reliability. Finally, a third analysis was conducted to compare the validity and reliability of the pilot instrument and the revised instrument. Scores on the six standards assessed were determined to be reliable, ranging from .89 to .93. Validity coefficients ranged from .78 to .96 (SEDL, 2005).
Principal Technology Proficiency Self – Assessment

The administrator self-assessment measures K-12 school level administrators’ perceptions of technology knowledge, consists of 51 items, and surveys proficiencies for 6 standards and 28 performance indicators. The six standards are (1) leadership and vision, (2) learning and teaching, (3) productivity and professional practice, (4) support, management, and operations, (5) assessment and evaluation, and (6) social, legal, and ethical issues (ISTE, 2002). The instrument uses a five point Likert scale and all items require a response. Responses were answered by the following: Never, Seldom, Sometimes, Frequently, and Almost Always. Like the teacher proficiency, the administrator proficiency results in a report that identifies the principal as proficient or not proficient by standard. Like the teachers assessment, if a principal was not proficient on any one of the standards, he/she was considered to be non-proficient. Table 3.3 identifies the minimum proficiency per standard, noting the corresponding questions for each standard.

<table>
<thead>
<tr>
<th>Standard</th>
<th>Assessment Items</th>
<th>Minimum Proficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.Leadership and vision</td>
<td>18, 33, 41, 46, 47, 48, 49, 50</td>
<td>22</td>
</tr>
<tr>
<td>2.Teaching and learning</td>
<td>1, 13, 14, 16, 19, 32, 34, 35, 43, 45</td>
<td>28</td>
</tr>
<tr>
<td>3.Productivity and professional practice</td>
<td>3, 10, 13, 16, 17, 30, 36, 39, 44</td>
<td>25</td>
</tr>
<tr>
<td>4.Support, management &amp; operations</td>
<td>5, 16, 21, 22, 31, 34, 37, 42</td>
<td>22</td>
</tr>
<tr>
<td>5.Assessment &amp; evaluation</td>
<td>5, 6, 8, 11, 13, 23, 25, 27, 28, 35, 37, 38</td>
<td>33</td>
</tr>
<tr>
<td>6.Social, legal, &amp; ethical issues</td>
<td>2, 4, 7, 9, 12, 15, 20, 24, 26, 29, 32, 40</td>
<td>33</td>
</tr>
</tbody>
</table>

SEDL also developed the principal technology proficiency self – assessment. The development and testing ran concurrent with the teacher proficiency self – assessment. The final score was determined by summing the items for each standard (calculated raw score) and then by
calculating the raw score equivalent (RSE), and finally determining whether the RSE is greater than or equal to the minimum proficiency RSE. Similar to the teacher assessment, the validation process for the principal assessment occurred over a two year period and included a pilot and field testing with factor analyses to select the final items to be included in the assessment. The scores for the standards were found to be reliable, ranging from .85 to .90. Validity coefficients ranged from .76 to .93 (SEDL, 2005).

**Vanderbilt Assessment of Leadership in Education – VAL-Ed**

The Vanderbilt Assessment of Leadership in Education (VAL-Ed) is a multi-rater instrument developed to measure the effectiveness of school leadership behaviors known to influence teacher performance and student learning (Porter, Murphy, Godring & Elliot, 2008). The assessment was developed after a thorough review of the literature on learning-centered leadership and the developers provide evidence of the instruments alignment with the Interstate School Leaders Licensure Consortium (ISLLC), which developed the standards for certification as a principal.

The instrument was tested for validity and reliability by use of an item sorting study that required educational leaders to place items in 36 cells, cognitive interviews were conducted; there were pilot tests carried out in nine schools which estimated reliability and established construct validity through factor analysis. A second pilot was conducted on 11 schools with a bias review for urban districts to evaluate terms used. Field testing was carried out in 300 schools to establish norms, determine biases, and to set performance standards. In both the 9 school and 11 school testing the reliability ranged from .89 to .96. Validity coefficients ranged from .68 to .89.
The assessment consists of six core components and six key processes. The core components refer to those traits identified in schools that support student high achievement and enhance teachers’ ability to teach. Porter, Murphy, Godring & Elliot (2008) identify them as (1) high standards for student learning, (2) rigorous curriculum, (3) quality instruction, (4) culture of learning and professional behavior, (5) connections to external communities, and (6) performance accountability. The key processes refer to the methods leaders use to create those core components. They include: (1) planning, (2) implementing, (3) supporting, (4) advocating, (5) communicating, and (6) monitoring. Figure 3.1: VAL – Ed’s Six by Six Grid identifies the matrix used to determine areas of proficiency and need for the development and support of successful instructional leadership. The VAL-Ed model doesn’t denote a direct impact on student achievement, but rather the impact leaders have on changes in school performance, which is an indirect factor for student success (Porter, Murphy, Goldring, & Elliott, 2008). The assessment consists of 72 items, is available via paper and online, and takes approximately 45 minutes to complete. The participants included the principal, all teachers on his/her faculty, and the supervisor(s) of the principal. In rating the principal the completers must identify sources of evidence.

<table>
<thead>
<tr>
<th>Core Components</th>
<th>Key Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Standards for Student Learning</td>
<td>Planning</td>
</tr>
<tr>
<td>Rigorous Curriculum</td>
<td></td>
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<tr>
<td>Quality Instruction</td>
<td></td>
</tr>
<tr>
<td>Culture of Learning &amp; Professional Behavior</td>
<td></td>
</tr>
<tr>
<td>Connections to External Communities</td>
<td></td>
</tr>
<tr>
<td>Performance Accountability</td>
<td></td>
</tr>
</tbody>
</table>

Figure 3.1 Core Components and Key Processes Porter, Murphy, Goldring & Elliott, 2008

Sources of evidence include (1) reports from others, (2) personal observations, (3) school documents, (4) school projects or activities, (5) other sources, and (6) no evidence. Appendix H
provides a sample question. After reflecting on the sources of evidence the respondent’s rating is anchored in behaviors and thought to provide a more accurate assessment of the leader’s behavior.

The results of the assessment provide an overall rating and a rating for each of the respondents (principal, teachers, and supervisors). The final result is a set of performance standards that range from Below Basic to Distinguished. The intention is to identify behaviors for possible improvement, i.e., those areas in which principals need professional development and support. In 2009, through the use of grant funds, the Louisiana Department of Education made the assessment available to districts to use as a component of their principal evaluation system. The surveys (principal, teacher, and supervisor) and a principal report are included in the Appendices F, G, H and J respectively.

School Performance Scores

Student achievement is measured by School Performance Scores (SPS). Instructional leadership is a significant factor in high levels of student achievement. School Performance Scores for each of the principals’ schools were analyzed and compared. Scores are public information and published annually by the Louisiana Department of Education in School Report Card.

Limitations

The researcher acknowledges and understands the limitations. The limitations are:

1. Using a purposeful sample of principals as opposed to the entire state. These principals have been selected because they have participated in both LEADTech and VAL-Ed.

2. Principals who are effective instructional leaders may not possess high levels of technology proficiency, but through their instructional leadership may promote a culture
of technology proficiency via allocation of resources, support for professional
development, and teacher leadership.

3. Principals and teachers may have been required to participate in LEADTech or other
technology professional development activities, which could affect proficiency.

4. The purpose of the study was to determine associations not causality.

The researcher has taken necessary actions to ensure that all data is secured in a locked file and all electronic files are encrypted and password protected.
CHAPTER IV: RESULTS

This study was designed to determine if and to what extent a principal’s technology proficiency impacts the proficiency of teachers. The study was guided by the following questions:

(RQ1) Are there significant correlations amongst principal technology proficiency, principal instructional leadership, and teacher technology proficiency?

(RQ2) Does principal technology proficiency predict teacher technology proficiency?

(RQ3) Does principal instructional leadership predict teacher technology proficiency?

(RQ4) How does principal technology proficiency impact School Performance Scores?

The quantitative data were gathered and analyzed. The results are reported in the following sections.

- Principal Proficiency and Teacher Proficiency
  - LEADTech and Principal Proficiency
  - Principal Proficiency and Teacher Proficiency

- Instructional Leadership and Technology Proficiency
  - VAL – Ed and Principal Proficiency
  - VAL – Ed and Teacher Proficiency
  - Principal Proficiency and School Performance
    - VAL – Ed and SPS
Regression analyses were used to examine the relationship and statistical significance of the factors involved. For this study correlation values of .250 and above were significant. The R Square in the regression analysis provides information pertaining to the association between variables. The researcher used the R Square to explain the variance and determine the degree of predictability of the independent variable on the dependent variable.

**Descriptive Statistics for Sample Variables**

Of the 150 participating in LEADTech, 61 received grades of A, 61 received grades of B, 21 received a grade of C, 5 received a D, and 2 withdrew from the course. The principal technology proficiency self-assessment revealed that 115 principals were proficient and 35 were not proficient. The mean percent of teachers identified proficient was 66.8, and the mean school performance score was 96.1, which denotes 2 Stars on Louisiana’s accountability grid.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEADTech</td>
<td>3.16</td>
<td>3.00</td>
<td>.8829</td>
<td>1.269</td>
</tr>
<tr>
<td>VAL – Ed</td>
<td>3.69</td>
<td>3.66</td>
<td>.3889</td>
<td>.060</td>
</tr>
<tr>
<td>Principal Tech Proficiency</td>
<td>.77</td>
<td>1.00</td>
<td>.424</td>
<td>-.383</td>
</tr>
<tr>
<td>Teacher Tech Proficiency</td>
<td>66.84</td>
<td>71.00</td>
<td>20.55</td>
<td>.045</td>
</tr>
<tr>
<td>School Performance Score</td>
<td>96.12</td>
<td>96.70</td>
<td>16.17</td>
<td>1.747</td>
</tr>
</tbody>
</table>

**LEADTech and Principal Proficiency**

Participants in the study completed the Louisiana Department of Education’s LEADTech course. As such the research wanted to assess the relationship between the grades earned in the course and principal technology proficiency. As noted by Dawson (2003) and Dede (2000)
participation in training is critical to the educational leader’s ability to implement and support technology.

Descriptive statistics revealed a mean principal proficiency of .77 and standard deviation of .42 and a mean LEADTech grade of 3.16, which indicates the average grade as a B, and a standard deviation of .88. The Pearson Correlation reflected below indicated that there is a significant correlation (.584) between LEADTech and principal proficiency (p = .000, alpha = .05). The data revealed the following (see Tables 4.2, 4.3, & 4.4):

Table 4.2: Correlations for LEADTech and Principal Technology Proficiency

<table>
<thead>
<tr>
<th></th>
<th>Principal Proficiency</th>
<th>LEADTech</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pearson Correlation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal Proficiency</td>
<td>1.000</td>
<td>.584</td>
</tr>
<tr>
<td>LEADTech</td>
<td>.584</td>
<td>1.000</td>
</tr>
<tr>
<td><strong>Sig. (1-tailed)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal Proficiency</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>LEADTech</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Principal Proficiency</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td>LEADTech</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

Once both variables were entered in the regression model, the analysis provided an R Square (Table 4.3) of .341. Even though the model is significant at an alpha of .05, this may be an indicator that the relationship, while statistically significant as evidenced by the ANOVA data, may not be practically significant. Sixty percent (60%) of the variance can be attributed to other factors that also account for the principal proficiency that are stronger than participation in LEADTech alone (Ho, 2006).

Table 4.3: Model Summary for LEADTech and Principal

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.584*</td>
<td>.341</td>
<td>.337</td>
<td>.346</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), LEADTech  
b. Dependent Variable: PrincipalProficiency
Principal Proficiency and Teacher Proficiency

Principals provide direction for teachers in setting professional development activities and supporting the transference of the knowledge and skills into classroom instruction (Ayetkin, Fahme, & Hatrice, 2005). The principal is responsible for building leadership capacity for teachers to aid in addressing reform initiatives and student achievement (Harris, 2004 & Reeves, 2008). To determine the impact of principal technology proficiency on teacher proficiency a simple regression was conducted. The results indicate that the teachers are proficient (M=66.84, SD=20.5) and the relationship between principal proficiency and teacher proficiency is strongly correlated (Pearson Correlation = .748). See Tables 4.5, 4.6, & 4.7. At an alpha of .05 the significance is .000.

Table 4.4: ANOVA for LEADTech and Principal Proficiency

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>9.149</td>
<td>1</td>
<td>9.149</td>
<td>76.569</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>17.894</td>
<td>148</td>
<td>.119</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>26.893</td>
<td>149</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), LEADTech
b. Dependent Variable: PrincipalProficiency

Table 4.5: Correlations for Teacher and Principal Proficiency

<table>
<thead>
<tr>
<th></th>
<th>Teach Proficiency</th>
<th>Principal Proficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1.000</td>
<td>.748</td>
</tr>
<tr>
<td>TeachProficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PrincipalProficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TeachProficiency</td>
<td>.000</td>
<td>.000</td>
</tr>
<tr>
<td>PrincipalProficiency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>150</td>
<td>150</td>
</tr>
</tbody>
</table>

When both variables were entered in the regression model, the analysis provided an R Square of .560 indicating that principal proficiency accounts for over 50% of the variance that we may find of teacher proficiency, indicative of the influence principals provide (Reddish & Chan, 2007).
Further support is provided in the ANOVA (Table 4.7) which identifies the significance of p=.000.

Table 4.6: Model Summary for Teacher and Principal Proficiency

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.748*</td>
<td>.560</td>
<td>.557</td>
<td>13.686</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), PrincipalProficiency
b. Dependent Variable: TeachProficiency

Table 4.7: ANOVA for Teacher and Principal Proficiency

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>1</td>
<td>35238.326</td>
<td>35238.326</td>
<td>188.142</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>148</td>
<td>187.298</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>149</td>
<td>62968.160</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), PrincipalProficiency
b. Dependent Variable: TeachProficiency

Examining instructional leadership was included to determine the significance a principal’s abilities as an instructional leader has on teacher technology proficiency. The results follow.

**VAL – Ed and Principal Proficiency**

Principals are required to be instructional leaders (Kouzes & Posner, 2007). To determine if there is a relationship between principal technology proficiency and instructional leadership a regression was run. The results indicate that both variables correlate significantly (Table 4.8 - Pearson Correlation = .256 & significance p =.000) indicated in Table 4.10 - ANOVA at an alpha level .05, but after entering both variables in the regression model, the R Square of .065 (Table 4.9) indicates that there is more than 90% of the variance that can be attributed to other indicators more practically significant to principals being technologically proficient than their abilities as instructional leaders (McKee & Lezotte, 2006).
Because VAL–Ed is a 360° assessment that surveys principals, their faculty (teachers), and supervisors, determining a relationship between instructional leadership and teacher technology proficiency was also included. The results indicate a statistical significance, but no apparent practical significance. See Tables 4.11, 4.12, & 4.13. Teacher Proficiency is significantly correlated with VAL–Ed (Table 4.11 -Pearson Correlation = .336, & Table 4.13 -ANOVA p = .000) at an alpha of .05, but when entered in the model, the variable does not explain enough, so it may not be practically significant. With an R Square of .113, almost 90% of the variance can be attributed to other factors. The data is substantiated by the research, which identifies principal technology proficiency as a significant factor of teacher proficiency (Afshari, et al., 2008).
Table 4.1: ANOVA for Teacher Proficiency and VAL - Ed

Principal Technology Proficiency and School Performance

Principals are charged with improving student performance as measured by School Performance Scores (Teddlie & Reynolds, 2000). The 150 schools revealed a mean SPS of 96.1 (SD=16.17). The highest score was 155.70 and the lowest was 55.50. To determine if principal technology proficiency and principal instruction impact school performance individual regressions were run. Principal technology proficiency does show a low to medium significant correlation (Table 4.14-Pearson Correlation = .385, & Table 4.16-ANOVA p=.000) to school performance. When both variables were entered in the regression model with SPS as the dependent variable, Principal Proficiency was only able to explain 14% of the variance of SPS.
The low R Square hints at the probability of other factors that may affect more to increased school performance.

Further analyses were run to examine VAL – Ed and SPS and descriptive statistics revealed that the mean VAL – Ed score is 3.69 (SD=.38), noting the principal as proficient. The highest score was 4.72 (distinguished) and the lowest was 2.72 (below basic). The Pearson Correlation indicated a statistically significant relationship at .748 (Table 4.17 & Table 4.19-ANOVA indicates significance, p= .000) and an alpha of .05.
Table 4.1: Correlations for VAL – Ed and School Performance Scores

<table>
<thead>
<tr>
<th></th>
<th>SPS</th>
<th>VALEd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>SPS</td>
<td>VALEd</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
<td>SPS</td>
<td>VALEd</td>
</tr>
<tr>
<td>N</td>
<td>SPS</td>
<td>VALEd</td>
</tr>
</tbody>
</table>

The regression model indicated an R Square of .560 (Table 4.18). This result indicates that for every 1 standardized unit increase in VAL – Ed we can assume with 95% certainty a .5 standardized unit increase in the school performance score. VAL – Ed (instructional leadership) is a good indicator of school performance because it can explain over 50% of the variability in SPS (Lunenberg, 2010 & Leithwood, Anderson, & Wahlstrom, 2004). Educational leaders define the framework for which teachers will address instruction, ultimately impacting student achievement (Leithwood and Riehl, 2006).

Table 4.18: Model Summary for VAL – Ed and School Performance

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.748</td>
<td>.560</td>
<td>.557</td>
<td>10.7648</td>
</tr>
</tbody>
</table>

Table 4.19: ANOVA for VAL – Ed and School Performance Scores

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>21825.733</td>
<td>1</td>
<td>21825.733</td>
<td>188.288</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>17155.675</td>
<td>148</td>
<td>115.917</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>38981.408</td>
<td>149</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.19: ANOVA for VAL – Ed and School Performance Scores

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>21825.733</td>
<td>1</td>
<td>21825.733</td>
<td>188.288</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>17155.675</td>
<td>148</td>
<td>115.917</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>38981.408</td>
<td>149</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Multiple Predictors of Teacher Proficiency

A final regression was run to determine the relationship of multiple predictor variables on teacher technology proficiency. The predictor variables included principal technology proficiency, LEADTech, and VAL – Ed. The results indicated that the multiple regression model was significant (Table 4.20 Correlations and Table 4.22- ANOVA p=.000) and it provided an R Square (Table 4.21) of .589. The model indicated that the predictors account for more than 50% of the variance of teacher technology proficiency.

Table 4.20: Correlations for Teacher Proficiency, Principal Proficiency, LEADTech and VAL - Ed

<table>
<thead>
<tr>
<th></th>
<th>TeachProficiency</th>
<th>LEADTech</th>
<th>PrincipalProficiency</th>
<th>VALEd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1.000</td>
<td>.514</td>
<td>.748</td>
<td>.336</td>
</tr>
<tr>
<td></td>
<td>.514</td>
<td>1.000</td>
<td>.594</td>
<td>.206</td>
</tr>
<tr>
<td></td>
<td>.748</td>
<td>.594</td>
<td>1.000</td>
<td>.256</td>
</tr>
<tr>
<td></td>
<td>.336</td>
<td>.206</td>
<td>.256</td>
<td>1.000</td>
</tr>
<tr>
<td>Sig (2-tailed)</td>
<td>.000</td>
<td>.000</td>
<td>.003</td>
<td>.009</td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td></td>
<td>.000</td>
<td>.000</td>
<td>.001</td>
<td>.001</td>
</tr>
<tr>
<td>N</td>
<td>153</td>
<td>153</td>
<td>153</td>
<td>153</td>
</tr>
<tr>
<td></td>
<td>153</td>
<td>153</td>
<td>153</td>
<td>153</td>
</tr>
<tr>
<td></td>
<td>153</td>
<td>153</td>
<td>153</td>
<td>153</td>
</tr>
<tr>
<td></td>
<td>153</td>
<td>153</td>
<td>153</td>
<td>153</td>
</tr>
</tbody>
</table>

Table 4.21: Model Summary for Teacher Proficiency, Principal Proficiency, LEADTech and VAL - Ed

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.768</td>
<td>.589</td>
<td>.581</td>
<td>13.308</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), VALEd, LEADTech, PrincipalProficiency
b. Dependent Variable: TeachProficiency

Table 4.22: ANOVA for Teacher Proficiency, Principal Proficiency, LEADTech and VAL - Ed

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>37102.691</td>
<td>3</td>
<td>12367.564</td>
<td>69.837</td>
<td>.000</td>
</tr>
<tr>
<td>Residual</td>
<td>25885.468</td>
<td>146</td>
<td>177.092</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>62988.160</td>
<td>149</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), VALEd, LEADTech, PrincipalProficiency
b. Dependent Variable: TeachProficiency
What is interesting to note is that in the simple regression conducted that used principal technology proficiency as a predictor of teacher technology proficiency, the R Square (Table 4.22) was .560. So, while VAL – Ed and LEADTech may attribute to teacher technology proficiency, it would seem safe to conclude that the largest indicator of teacher technology proficiency is principal technology proficiency.

Table 4.23: ANOVA for Teacher Proficiency, Principal Proficiency, LEADTech, and VAL - Ed

![Table 4.23: ANOVA for Teacher Proficiency, Principal Proficiency, LEADTech, and VAL - Ed](image)

Summary of Quantitative Data

Regression analyses indicate that:

- There is a significant correlation of principal technology proficiency, principal instructional leadership, and teacher technology proficiency.

- Principal technology proficiency accounts for more than 50 percent of the variance of teacher technology proficiency.

- Principal instructional leadership shows a 10% significant correlation to teacher technology proficiency, but more than 90% of the variance is attributed to something other than instructional leadership.

- Principal technology proficiency does not account for a significant variance in School Performance Score. Principal instructional leadership accounts for more than 50% of the variance. Therefore a principal being technologically proficient may have nothing to do with improved student achievement.
Overall the results provide data that attributes an association of teacher technology proficiency to that of the educational leader; simply stated, principals matter.
CHAPTER V: DISCUSSION AND CONCLUSIONS

The goal of this study was to investigate the impact principals’ technology proficiency has on the proficiency of teachers. The study also aims to contribute to the current body of knowledge pertaining to the culture of technology and the impact technology has on school performance.

The research within the study focused on quantitative methods to gather and analyze data. The results from the data have allowed the researcher to draw conclusions and provide future researchers with considerations and recommendations in this field of study. This chapter will address the following:

- (1) the findings,
- (2) a second look at the research questions,
- (3) recommendations for the Louisiana Department of Education, K-12 education community, and higher education,
- (4) implications for future research in this field, and
- (5) conclusions.

Findings

The data gathered were relevant and assisted in answering the questions posed. The LEADTech course, developed and provided by the Louisiana Department of Education, was aligned to the technology standards for educational leaders. The modules were consistent in delivery over the 12 weeks and grades assigned. The average grade assigned was a B. The proficiencies for both principals and teachers are self-reported data based on categorical components relevant to both personal use and the ability to integrate technology. The survey uses a Likert scale, but the results indicate proficient or not proficient. The results did yield a
relationship between principals’ technology proficiency and the percentage of teachers on their faculty that are technologically proficient. It should be noted that all 150 principals completed the survey as did 97% of their faculty (the percentage is determined by the LDOE and must be meant to yield a report). The Vanderbilt Assessment of Leadership in Education provided data that resulted in principals who were (1) below basic, (2) basic, (3) proficient, or (4) distinguished. The average VAL – Ed score was a 3.69, indicating that the majority of the 150 principals were ‘proficient’ as instructional leaders.

**Research Questions Revisited**

Based upon the findings of the study, this section will provide conclusions for each of the research questions.

Research Question 1: Are there significant correlations amongst principal technology proficiency, principal instructional leadership, and teacher technology proficiency?

All of the correlations show up as significant at less than .05. In the Multiple Regression the R Square of .589 notes that more than 50% of the variance in teacher technology proficiency can be attributed to the predictors. In a closer look simple regressions revealed that while VAL – Ed and LEADTech are significant, more than 90% of the variance is unaccounted. However, in the simple regression of principal proficiency and teacher proficiency the R Square of .560 demonstrates that principal proficiency accounts for more than half of the variance in teacher proficiency. It is clear that principal proficiency and teacher proficiency are the highest correlated.

Research Question 2: Does principal technology proficiency predict teacher technology proficiency?
Based on the results from the simple regression, principal technology proficiency does predict teacher technology proficiency. Similar findings were noted by Afshari, Bakar, Luan, Samah, & Say Foo (2008), who noted the importance of principals in technology integration within the school culture. The researcher would note that a follow-up study should include qualitative components such as interviews and observations to assist in determining the extent to which principals implement and support technology integration within the school.

Research Questions 3: Does principal instructional leadership predict teacher technology proficiency?

The findings in this data analysis revealed significance in the role of instructional leadership, but could not account for more than 10% of the variance. Results from Earle (2002) and Ho (2006) note that principals as instructional leaders do not provide substantial proof of technology leadership. Many principals can be strong instructional leaders and non-proficient in their use of technology tools, with teachers and students surpassing their skill and understanding. The data gathered in this study revealed a need for a renewed commitment to technology and the necessary supports, i.e. training, professional development, support, and resources. While principal proficiency does predict teacher proficiency it is not clear what other causal factors or paradigms exist that need to be included in additional research studies. There is also the need to understand how principal proficiency looks within the school building. Proficiency was determined by self-reporting. To increase the statistical and practical significance of the principal proficiency as a predictor, research involving applications, interviews and observations are necessary. It is also interesting to point out that principal technology proficiency does not predict school performance. Principals that are technology proficient are not more likely to have schools
that are high performing, which again calls for a look into how principals are exhibiting proficiency.

Research Question 4: How does principal technology proficiency impact school performance scores?

The results do not reveal principal technology proficiency as a significant factor of school performance. The impact of accountability and instructional leadership support the data associated with the analysis of VAL – Ed (instructional leadership) as a predictor of School Performance Scores.

The most significant conclusion of the study provides support that when principals identify technology as an important tool for teaching and learning, model through their use and integration and communicate to teachers, they set parameters for developing a culture of technology competence within the school.

Recommendations

The Louisiana Department of Education (LDOE)

The LDOE is significant to this study. The LEADTech course and technology proficiencies were developed by the department and it piloted the use of the VAL – Ed instrument. Drawing from the research and the findings the following are offered as recommendations. These recommendations are based on an analysis of both the literature and the conclusion that administrators play a significant role in teachers’ technology proficiency.

- The proficiency should allow for a categorical breakdown of the areas assessed. While it is useful to determine if one is proficient, understanding the areas of strength and weakness would allow for more targeted assistance and support.
LEADTech should allow for a pre and post assessment to determine if the course has actually addressed the needs of the learner and ensured proficiency of the standards.

The VAL – Ed provides a 360° assessment, including principals, teachers, and supervisors, there may be a need to invest in a tool that also allows feedback from parents.

**K – 12 Institutions**

School districts are responsible for the direct instruction of students. With constant changes in reform and the call to increase student achievement, schools constantly have to become more efficient and global in their ability to compete. The information age has required new approaches.

- Invest in technology professional development for principals and teachers.
- Allow fiscal models to braid funding to support the infrastructure and utility resources for technology.
- Support teacher collaboration and authentic assessments through project-based learning and activities.

**Higher Education**

Higher education institutions also play a critical role in technology proficiency and can support the needs of principals and teachers by the following:

- Develop courses that focus on technology integration for both teachers and administrators. It may not be enough to infuse current courses with readings and assignments. The face of technology is constantly changing and the needs of those using these resources must be sound.
Partner with districts to provide professional development or to conduct research to determine the impact of proficiency on school culture and student achievement. These avenues would garner support for technology integration and could possibly serve as opportunities for grant funding.

Offer the courses that meet the LDOE certification requirements for (1) technology facilitator, (2) technology leadership, and (3) online instructor. The universities that offer the courses to meet the certification requirements are limited.

**Conclusion**

According to Creighton (2003), today’s principals, while called to be instructional leaders, are still faced with challenges of integrating technology, many using it only in a perfunctory capacity. While this is a reality, the truth may lie in a system that requires more, constantly alters the definitions of success, and ultimately limits professional development for principals. Teachers and students receive opportunities to manipulate new technologies while principals may not know what they are or the implication for education. There is no longer a question of what if, but what when. The technologies are rapidly changing, with new tools and applications almost daily. There must be an understanding that principals, if they are to embrace becoming instructional leaders, must be proficient in technology.

Leadership is vital to increased student achievement which is directly connected to the quality of instruction (teaching). The ongoing changes and challenges of the today’s school culture require principals to implement reform and lead by example. To do so they need the skills, tools, and resources to be effective. To ensure that students are able to meet the needs of a global economy, provisions must be made for opportunities allowing those who are professionally responsible for their education to also compete. While this work does not establish
causality, it does identify the associations amongst factors affecting teacher technology proficiency, and demonstrates the importance of leadership in technology integration (Afshari, et. Al, 2008 and Barnett, 2003). Life – long learning starts with the leaders.

**Implications for Future Research**

Future research in this field of study could expand upon the role of the principal as the technology leader and the development of the necessary skills, training, and support principals need to fulfill this role. Additionally, future research could explore the identification of specific characteristics of principals that are identified as technologically proficient and those with high levels of teachers that are proficient. Differences in technologically proficient principals and those that are not proficient but are labeled effective instructional leaders could also be studied. Understanding how teachers affect principal technology proficiency could also yield effective data that improves technology competence within a school culture.

Finally, a study of the relationship of principal technology proficiency, teacher proficiency, and student proficiency could be very beneficial to educators and school systems seeking to ensure students are prepared for 21st Century learning.
REFERENCES


Otto, T.L., and Albion, P.R. (2004). Principals’ Beliefs about Teaching with ICT. International Conference of the Society for Information Technology and Teacher Education. (March, Atlanta, Georgia).


APPENDIX A: TECHNOLOGY STANDARDS FOR PRINCIPALS
1. Visionary Leadership

Educational Administrators inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization. Educational Administrators:

- inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of
digital-age resources to meet and exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders.

- engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision.

- advocate on local, state and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan.

2. Digital Age Learning Culture

Educational Administrators create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant, and engaging education for all students. Educational Administrators:

- ensure instructional innovation focused on continuous improvement of digital-age learning.

- model and promote the frequent and effective use of technology for learning.

- provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners.

- ensure effective practice in the study of technology and its infusion across the curriculum.

- promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital-age collaboration.

3. Excellence in Professional Practice

Educational Administrators promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources. Educational Administrators:

- allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration.

- facilitate and participate in learning communities that stimulate, nurture and support administrators, faculty, and staff in the study and use of technology.

- promote and model effective communication and collaboration among stakeholders using digital-age tools.

- stay abreast of educational research and emerging trends regarding effective use of technology and encourage evaluation of new technologies for their potential to improve student learning.
4. Systemic Improvement

Educational Administrators provide digital-age leadership and management to continuously improve the organization through the effective use of information and technology resources. Educational Administrators:

a. lead purposeful change to maximize the achievement of learning goals through the appropriate use of technology and media-rich resources.

b. collaborate to establish metrics, collect and analyze data, interpret results, and share findings to improve staff performance and student learning.

c. recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals.

d. establish and leverage strategic partnerships to support systemic improvement.

e. establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching, and learning.

5. Digital Citizenship

Educational Administrators model and facilitate understanding of social, ethical and legal issues and responsibilities related to an evolving digital culture. Educational Administrators:

a. ensure equitable access to appropriate digital tools and resources to meet the needs of all learners.

b. promote, model and establish policies for safe, legal, and ethical use of digital information and technology.

c. promote and model responsible social interactions related to the use of technology and information.

d. model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools.

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1. Facilitate and Inspire Student Learning and Creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments. Teachers:

a. promote, support, and model creative and innovative thinking and inventiveness.
b. engage students in exploring real-world issues and solving authentic problems using digital tools and resources.
c. promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes.
d. model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.

2. Design and Develop Digital-Age Learning Experiences and Assessments

Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS•S. Teachers:

a. design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity.
b. develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress.
c. customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources.
d. provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching.

3. Model Digital-Age Work and Learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society. Teachers:

a. demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations.
b. collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation.
c. communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats.
d. model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning.
4. Promote and Model Digital Citizenship and Responsibility

Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behavior in their professional practices. Teachers:

a. advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources.

b. address the diverse needs of all learners by using learner-centered strategies providing equitable access to appropriate digital tools and resources.

c. promote and model digital etiquette and responsible social interactions related to the use of technology and information.

d. develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital-age communication and collaboration tools.

5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources. Teachers:

a. participate in local and global learning communities to explore creative applications of technology to improve student learning.

b. exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others.

c. evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning.

d. contribute to the effectiveness, vitality, and self-renewal of the teaching profession and of their school and community.

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APPENDIX C – LEADTech DISCUSSION BOARD POSTING RUBRIC
ADAPTED FROM: AMERICA 2000 TICG
<table>
<thead>
<tr>
<th>ITEM</th>
<th>ON TARGET 10 POINTS</th>
<th>SLIGHTLY OFF THE MARK – 9 POINTS</th>
<th>MISSED THE TARGET – 8 OR LESS POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response to Discussion Board</td>
<td>Posted message responds to the questions or directions specified in the assignment section.</td>
<td>Posted message responds partially to the questions or directions specified in the assignment sections.</td>
<td>Posted message does not relate to the questions or directions specified in the assignment section.</td>
</tr>
<tr>
<td>Points</td>
<td></td>
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<tr>
<td></td>
<td>It is clearly evident from the posted message that the participant read and understood the ideas expressed in the assigned reading selection.</td>
<td>It is partially evident from the posted message that the participant read and understood the ideas expressed in the assigned reading selection.</td>
<td>It is difficult to tell from the posted message that the participant read and understood the ideas expressed in the assigned reading selection.</td>
</tr>
<tr>
<td></td>
<td>Multiple examples or specific ideas are stated.</td>
<td>Few examples or specific ideas are provided.</td>
<td>No examples or specific ideas are provided.</td>
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<tr>
<td></td>
<td>Comments have professional depth and quality.</td>
<td>Comments lack professional quality and depth.</td>
<td>Ideas stated are vague or simplistic.</td>
</tr>
<tr>
<td>ITEM</td>
<td>ON TARGET – 5 POINTS</td>
<td>SLIGHTLY OFF THE MARK – 4 POINTS</td>
<td>MISSED THE TARGET – 3 POINTS</td>
</tr>
<tr>
<td>Response to Journal Prompts</td>
<td>Posted response is specific to the concepts discussed in the original message.</td>
<td>Posted response relates partially to the concepts discussed in the original message.</td>
<td>Posted response does not relate to the concepts discussed in the original message or only peripherally relates to the concepts in the original message.</td>
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<tr>
<td>Points</td>
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<tr>
<td></td>
<td>Response extends the discussion by introducing a new idea or adding to the idea introduced in the original post.</td>
<td>Response partially extends the discussion by introducing a new idea or adding to the idea introduced in the original post.</td>
<td>Response does not extend the discussion by either introducing a new idea or adding to the idea introduced in the original post.</td>
</tr>
<tr>
<td></td>
<td>Response is positive and professional.</td>
<td>Response is somewhat positive and professional.</td>
<td>Response is negative or unprofessional.</td>
</tr>
</tbody>
</table>

Directions: Carefully read each item and select the answer that best represents how often you address or complete each performance indicator or described activity.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I explain in my lesson plans how I use technology to meet the diverse needs of learners.</td>
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<td>○</td>
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<td>2) I promote student uses of technologies that address their unique social backgrounds, characteristics, and cultural identities.</td>
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<td>3) I facilitate classroom uses of technology tools for collaboration with peers or outside experts.</td>
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<td>4) I ensure that students understand the ownership issues of intellectual material developed with district resources.</td>
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<td>5) I use technology to collect and analyze student achievement data.</td>
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<td>6) I post homework assignments or other regularly updated class information electronically for students or parents to access.</td>
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<td>7) I identify and select technology resources that reflect my students' cultural and ethnic backgrounds.</td>
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<tr>
<td>8) I use technology to communicate information to students, parents, and community members.</td>
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<td>9) I employ classroom procedures to ensure students' safe and healthy use of technology.</td>
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<tr>
<td>10) I facilitate classroom uses of technology tools for conducting research.</td>
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<tr>
<td>11) I use information on how students learned using technology for future instructional planning.</td>
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<tr>
<td>12) I model and teach acceptable/responsible use of technology resources.</td>
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<td><strong>13)</strong> I base my technology planning decisions on how to best support student learning goals.</td>
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<tr>
<td><strong>14)</strong> I plan opportunities for my students to learn or improve computer skills as part of my instruction.</td>
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<td>O</td>
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<tr>
<td><strong>15)</strong> I teach my students to properly credit electronically published work to its original source.</td>
<td>O</td>
<td>O</td>
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<tr>
<td><strong>16)</strong> I establish guidelines students can use to monitor their own technology skills.</td>
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<tr>
<td><strong>17)</strong> I encourage students to tutor or assist each other when using technology.</td>
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<td>O</td>
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<tr>
<td><strong>18)</strong> I identify current and emerging technologies and evaluate how they can be used to improve student learning.</td>
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<td><strong>19)</strong> I allocate adequate time to check technology equipment and resources in preparation for a lesson incorporating technology.</td>
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<td><strong>20)</strong> I ensure that students follow fair use guidelines for using copyrighted material in their projects/assignments.</td>
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<tr>
<td><strong>21)</strong> I examine student assessment data generated by computer based student learning systems used to support student learning of subject matter.</td>
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<td><strong>22)</strong> I evaluate how well students follow technology rules and procedures.</td>
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<tr>
<td><strong>23)</strong> I utilize computer based training (CBT) or tutorial software to further my technology skills or improve my instructional practice.</td>
<td>O</td>
<td>O</td>
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<tr>
<td><strong>24)</strong> I promote student uses of technologies that improve their understanding of the diverse characteristics and cultural identities of the global community.</td>
<td>O</td>
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<td><strong>25)</strong> I use grading software or a student records database to organize grade or attendance information.</td>
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<tr>
<td>26)</td>
<td>I establish and monitor classroom procedures for ensuring equitable access to technology resources for all students.</td>
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<tr>
<td>27)</td>
<td>I use technology to collaborate with colleagues and staff on issues related to student learning.</td>
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<tr>
<td>28)</td>
<td>I use technology to collaborate with students, parents, and community members on issues related to student learning.</td>
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<td>29)</td>
<td>I identify and select technology resources that reflect my students' cultural and ethnic backgrounds.</td>
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<td>30)</td>
<td>I integrate technology standards with content standards in classroom instruction.</td>
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<tr>
<td>31)</td>
<td>I interpret data and use technology to communicate findings to improve instructional practice and student learning.</td>
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<tr>
<td>32)</td>
<td>I identify and select assistive or adaptive technologies to enable and empower learners with diverse abilities or specials needs.</td>
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<tr>
<td>33)</td>
<td>I seek out professional development opportunities to improve my technology knowledge and skills.</td>
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<tr>
<td>34)</td>
<td>I have students reflect on their use of technology in completing assignments.</td>
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<td>35)</td>
<td>When planning lessons, I consider when it is appropriate to incorporate technology into learning environments and experiences.</td>
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<tr>
<td>36)</td>
<td>I allow my students to select and use technology tools to complete their assignments.</td>
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<tr>
<td>37)</td>
<td>I use technology to collect and analyze a variety of classroom, department, or grade-level data.</td>
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<td>38)</td>
<td>I participate in professional development courses via distance education technologies (e.g. Internet, videoconference).</td>
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<tr>
<td>39) I facilitate classroom uses of technology tools for collecting, manipulating, or analyzing data.</td>
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<tr>
<td>40) I encourage the availability of technology resources for student use outside the classroom.</td>
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<tr>
<td>41) I identify current and emerging technologies and evaluate how they can be used to address personal or workplace needs.</td>
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<tr>
<td>42) I use technology tools to assess student learning.</td>
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<tr>
<td>43) I adapt instructions for using technology so that they are age-appropriate for my students.</td>
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<tr>
<td>44) I facilitate classroom uses of technology tools for discussion of ideas and reflection on learning experiences.</td>
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<tr>
<td>45) I choose technology resources that are appropriate for all students, including those with special needs or English language learners.</td>
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<tr>
<td>46) I can use Internet search tools to locate information.</td>
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<tr>
<td>47) I can send email and attachments as necessary.</td>
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<tr>
<td>48) I can troubleshoot general hardware problems, such as connecting power cords and cables and re-booting the computer.</td>
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<tr>
<td>49) I can find and open documents inside folders.</td>
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<tr>
<td>50) I can select items and options from pull-down menus.</td>
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</tr>
</tbody>
</table>
Directions: Carefully read each item and select the answer that best represents how often you address or complete each performance indicator or described activity.

<table>
<thead>
<tr>
<th>Item</th>
<th>Never</th>
<th>Seldom</th>
<th>Sometimes</th>
<th>Frequently</th>
<th>Almost Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I employ a variety of strategies to recognize or reward staff who use technology in innovative ways.</td>
<td>○</td>
<td>○</td>
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<tr>
<td>2) I encourage teachers to use technology in ways that support collaborative learning environments.</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>3) I use technology to communicate with students, parents, and community members.</td>
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<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>4) I ensure that professional development is based on evaluations of staff knowledge, skill, and performance in using technology.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>5) I provide safe and healthy physical environments in which staff use technology.</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>6) I use technology resources to further my own job-related professional learning.</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>7) I participate in professional development or otherwise engage in opportunities to ensure that I am abreast of the current research-based, effective practices in the educational use of technology.</td>
<td>○</td>
<td>○</td>
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<tr>
<td>8) I evaluate how effectively technology is used for professional tasks.</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>9) I monitor and ensure that staff and students do not violate software licensing agreements.</td>
<td>○</td>
<td>○</td>
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<tr>
<td>10) I use technology to communicate findings from school or district data analyses to improve campus administrative procedures.</td>
<td>○</td>
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<tr>
<td>11) I ensure that all staff understand and adhere to copyright laws.</td>
<td>○</td>
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<tr>
<td>12) I provide professional development opportunities for staff so that they can use technology to support</td>
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</table>
instructional methods that higher-level thinking, decision-making, and problem-solving skills.

<p>| Instruction | 13) I provide opportunities for teachers to observe and then discuss with each other their classroom lessons that integrate technology for improved teaching and learning. | 14) I promote student uses of technologies that promote analysis, synthesis, and evaluation. | 15) I monitor the implementation of policies and procedures ensuring compatibility of technologies. | 16) I establish and monitor procedures for ensuring equitable access to technology for both staff and students. | 17) I use a variety of methods to evaluate staff knowledge, skill, and performance in using technology. | 18) I ensure that all components of our school or district technology plan are aligned to and integrated with school improvement plans. | 19) I ensure that students have adequate access to appropriate technologies that support learning goals. | 20) I establish programs or procedures to ensure continuous learning for all staff in the use of technology to improve productivity. | 21) I provide professional development opportunities for staff around research-based effective practices in the use of technology. | 22) I participate in professional learning opportunities that incorporate technology resources to address educational needs. | 23) I advocate for financial and human resources to ensure the complete and sustained implementation of our school or district technology plan. | 24) I meet with teachers to discuss the role of technology in their lesson. |
|-------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
|             | o o o o o o                                                                                         | o o o o o o                                                                                     | o o o o o o                                                                                           | o o o o o o                                                                                   | o o o o o o                                                                                   | o o o o o o                                                                                           | o o o o o o                                                                                          | o o o o o o                                                                                     | o o o o o o                                                                                   | o o o o o o                                                                                           | o o o o o o                                                                                           | o o o o o o                                                                                           |</p>
<table>
<thead>
<tr>
<th></th>
<th>plans and instructional strategies.</th>
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</thead>
<tbody>
<tr>
<td>25)</td>
<td>I employ a variety of strategies to ensure that faculty can clearly articulate how technology is to be integrated across curricular areas.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>26)</td>
<td>I use technology to collect and analyze a variety of school or district data.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>27)</td>
<td>I use technology-based systems to manage and evaluate student information.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>28)</td>
<td>I use technology to communicate with colleagues and staff.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>29)</td>
<td>I develop guidelines and staff development to facilitate sharing of work and resources across commonly used formats and platforms.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>30)</td>
<td>I ensure that students understand and adhere to copyright laws.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>31)</td>
<td>I evaluate how effectively technology is used to support student learning.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>32)</td>
<td>I observe students in the classroom and then provide feedback to teachers regarding effective uses of technology in the learning environment.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>33)</td>
<td>I have discussions with faculty, students, and community members around effective uses of technology in educational settings.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>34)</td>
<td>I ensure that faculty and staff have immediate access to a variety of support resources for improving their use of technology.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>35)</td>
<td>I use technology to collaborate with colleagues and staff.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>36)</td>
<td>I establish procedures for staff to ensure privacy, security, and online safety related to the use of technology.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>37)</td>
<td>I provide teachers with classroom examples of technology uses that develop decision-making and problem-solving skills among</td>
<td>O</td>
<td>O</td>
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</tr>
<tr>
<td>38) I provide professional development opportunities for staff so that they can use technology to meet diverse needs of learners.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>39) I seek funding opportunities to enhance my school’s or district’s technology resources.</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<td>O</td>
</tr>
<tr>
<td>40) I use technology-based systems to manage and evaluate daily campus or district operations.</td>
<td>O</td>
<td>O</td>
<td>O</td>
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</tr>
<tr>
<td>41) I provide teachers with classroom examples of collaborative, technology-enriched learning environments conducive to improved student learning.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>42) I provide safe and healthy physical environments in which students use technology.</td>
<td>O</td>
<td>O</td>
<td>O</td>
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</tr>
<tr>
<td>43) I participate as a member of a team that employs a comprehensive process to continually monitor, evaluate, and revise components of our school or district technology plan.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
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</tr>
<tr>
<td>44) I use technology to collaborate with students, parents, and community members.</td>
<td>O</td>
<td>O</td>
<td>O</td>
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</tr>
<tr>
<td>45) I ensure that school technology plans are aligned with district technology plans.</td>
<td>O</td>
<td>O</td>
<td>O</td>
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</tr>
<tr>
<td>46) I seek out new ways that technology might be used to improve the efficiency of school or district operations or to extend the capabilities of the school or district organization.</td>
<td>O</td>
<td>O</td>
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<td>O</td>
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</tr>
<tr>
<td>47) I establish procedures for students to ensure privacy, security, and online safety related to the use of technology.</td>
<td>O</td>
<td>O</td>
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<td>O</td>
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<tr>
<td>48) I ensure that faculty have adequate access to appropriate technologies that support teaching and learning goals.</td>
<td>O</td>
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<tr>
<td>49) I have discussions with teachers about how various technologies support improved teaching and learning.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>50) I use technology-based systems to manage and evaluate staff information.</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<td>O</td>
</tr>
<tr>
<td>51) I communicate my expectations for effective uses of technology to all staff.</td>
<td>O</td>
<td>O</td>
<td>O</td>
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<td>O</td>
</tr>
</tbody>
</table>
APPENDIX F - VANDERBILT ASSESSMENT OF LEADERSHIP IN EDUCATION:
PRINCIPAL SURVEY
**Rigorous Curriculum (content)**

- There is ambitious academic content provided to all students in core academic subjects.

<table>
<thead>
<tr>
<th>Source of Evidence</th>
<th>Effectiveness Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Evaluations</td>
<td>High</td>
</tr>
<tr>
<td>Student Evaluations</td>
<td>High</td>
</tr>
<tr>
<td>School Records</td>
<td>High</td>
</tr>
<tr>
<td>Test Scores</td>
<td>High</td>
</tr>
</tbody>
</table>

**How effective are you managing the school...**

- 13. develop a rigorous curriculum for all students:  
- 14. plan access to rigorous curricula for students with special needs:  
- 15. use rigorous curriculum to challenge and motivate all students.

| 1 2 3 4 5 |

**Quality Instruction (pedagogy)**

- There are effective instructional practices that maximize student academic and social learning.

<table>
<thead>
<tr>
<th>Source of Evidence</th>
<th>Effectiveness Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher Evaluations</td>
<td>High</td>
</tr>
<tr>
<td>Student Evaluations</td>
<td>High</td>
</tr>
<tr>
<td>School Records</td>
<td>High</td>
</tr>
<tr>
<td>Test Scores</td>
<td>High</td>
</tr>
</tbody>
</table>

**How effective are you managing the school...**

- 17. plan instructional activities for students with special needs using comprehensive data:  
- 18. plan a schedule that enables quality instruction:  
- 19. use student achievement data to improve instruction.

| 1 2 3 4 5 |

**Culture of Learning & Professional Behavior**

- There is a vibrant community of professional behavior that promotes student academic and social learning.

<table>
<thead>
<tr>
<th>Source of Evidence</th>
<th>Effectiveness Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Evaluations</td>
<td>High</td>
</tr>
<tr>
<td>Student Evaluations</td>
<td>High</td>
</tr>
<tr>
<td>School Records</td>
<td>High</td>
</tr>
<tr>
<td>Test Scores</td>
<td>High</td>
</tr>
</tbody>
</table>

**How effective are you managing the school...**

- 22. plan programs and policies that promote discipline and order:  
- 23. implement a learning environment in which all students are challenged and engaged in learning.

| 1 2 3 4 5 |
### Performance Accountability

- Leadership holds itself and others responsible for realizing high standards of performance for student academic and social learning. There is individual and collective accountability among the principal staff and students.

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<tr>
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</thead>
<tbody>
<tr>
<td>• Helps develop a plan for community outreach programs consistent with institutional goals.</td>
<td>• Helps develop a plan for community outreach programs consistent with institutional goals.</td>
<td></td>
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</tr>
<tr>
<td>• Implements programs to help address community needs.</td>
<td>• Implements programs to help address community needs.</td>
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<tr>
<td>• Establishes partnerships with support groups and academic learning.</td>
<td>• Establishes partnerships with support groups and academic learning.</td>
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</tr>
<tr>
<td>• Seeks and provides resources through partnerships with external agencies to enhance teaching and learning.</td>
<td>• Seeks and provides resources through partnerships with external agencies to enhance teaching and learning.</td>
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</tr>
<tr>
<td>• Allocates resources that build faculty and community partnerships to advance student learning.</td>
<td>• Allocates resources that build faculty and community partnerships to advance student learning.</td>
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<tr>
<td>• Prioritizes the retention of teachers who are most effective at improving student achievement.</td>
<td>• Prioritizes the retention of teachers who are most effective at improving student achievement.</td>
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<tr>
<td>• Allocates time to evaluate student performance.</td>
<td>• Allocates time to evaluate student performance.</td>
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<tr>
<td>• Allocates time to evaluate faculty performance.</td>
<td>• Allocates time to evaluate faculty performance.</td>
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<tr>
<td>• Challenges faculty who blame others for student failure.</td>
<td>• Challenges faculty who blame others for student failure.</td>
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<tr>
<td>• Advocates for high standards of performance for student academic and social learning.</td>
<td>• Advocates for high standards of performance for student academic and social learning.</td>
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<tr>
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<td>• Allocates time to evaluate student performance.</td>
<td>• Allocates time to evaluate student performance.</td>
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<tr>
<td>• Allocates time to evaluate faculty performance.</td>
<td>• Allocates time to evaluate faculty performance.</td>
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<tr>
<td>• Challenges faculty who blame others for student failure.</td>
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<tr>
<td>• Advocates for high standards of performance for student academic and social learning.</td>
<td>• Advocates for high standards of performance for student academic and social learning.</td>
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</tbody>
</table>

### High Standards for Student Learning

- There are individual, team, and school goals for rigorous student academic and social learning.

<table>
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</thead>
<tbody>
<tr>
<td>• Aligns goals with state and national standards.</td>
<td>• Aligns goals with state and national standards.</td>
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<tr>
<td>• Establishes priorities for student achievement.</td>
<td>• Establishes priorities for student achievement.</td>
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</tr>
<tr>
<td>• Seeks and provides resources through partnerships with external agencies to enhance teaching and learning.</td>
<td>• Seeks and provides resources through partnerships with external agencies to enhance teaching and learning.</td>
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<td>• Allocates time to evaluate student performance.</td>
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<tr>
<td>• Allocates time to evaluate faculty performance.</td>
<td>• Allocates time to evaluate faculty performance.</td>
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<tr>
<td>• Challenges faculty who blame others for student failure.</td>
<td>• Challenges faculty who blame others for student failure.</td>
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<tr>
<td>• Advocates for high standards of performance for student academic and social learning.</td>
<td>• Advocates for high standards of performance for student academic and social learning.</td>
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</tbody>
</table>

Thank you for completing this survey.
<table>
<thead>
<tr>
<th>Source of Evidence</th>
<th>Evidence Base</th>
<th>Quality of Evidence</th>
<th>Effectiveness Rating</th>
<th>Leadership Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leadership Model</td>
<td>Model Examples</td>
<td>Model Evidence</td>
<td>Model Evidence</td>
<td>Model Evidence</td>
</tr>
<tr>
<td>Leadership Model</td>
<td>Leadership Model</td>
<td>Leadership Model</td>
<td>Leadership Model</td>
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<tr>
<td>Leadership Model</td>
<td>Leadership Model</td>
<td>Leadership Model</td>
<td>Leadership Model</td>
<td>Leadership Model</td>
</tr>
</tbody>
</table>

**Leadership Model**

- Model Examples
- Model Evidence
- Model Evidence
- Model Evidence
- Model Evidence
- Model Evidence
- Model Evidence
APPENDIX H - VANDERBILT ASSESSMENT OF LEADERSHIP IN EDUCATION: SUPERVISOR SURVEY
### Supervisor Survey Form A

**Principal ID:**

**Confirm your role:**
- [ ] Supervisor
- [ ] Teacher
- [ ] Principal

**School:** [ ]

**How many years have you supervised this principal?**
- [ ]

**Date:**

### High Standards for Student Learning

- [ ] there are individual, student, and school goals for rigorous student academic and social learning.

### How effective is the principal at managing the school?

- [ ] the principal manages the school effectively.

### How effective is the principal at assessing the school?

- [ ] the principal assesses the school effectively.

### Performance Accountability

- [ ] the principal holds himself/herself accountable for school performance.

### Connections to External Communities

- [ ] there are connections to family and other people and institutions that motivate the community.

### Performance Accountability

<table>
<thead>
<tr>
<th>Source of Evidence</th>
<th>Check Key Information Evidence</th>
<th>Effectiveness Rating</th>
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<tbody>
<tr>
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</tbody>
</table>

### Connections to External Communities

- [ ] there are connections to family and other people and institutions that motivate the community.

### Performance Accountability

- [ ] the principal holds himself/herself accountable for school performance.

### How effective is the principal at managing the school?

- [ ] the principal manages the school effectively.

### How effective is the principal at assessing the school?

- [ ] the principal assesses the school effectively.
<table>
<thead>
<tr>
<th>Rigorous Curricular Content</th>
<th>Quality Instruction (podagogy)</th>
<th>Culture of Learning &amp; Professional Behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>- There is ambitious academic content provided to all students in core academic subjects.</td>
<td>- There are effective instructional practices that advance student academic and social learning.</td>
<td>- There are integrated communities of professional practice in the service of student academic and social learning.</td>
</tr>
</tbody>
</table>

How effective is the principal at ensuring the school...

1. Develops an enriched curriculum for all students.
2. Plans access to rigorous curricula for students with special needs.
3. Creates rigorous performance learning experiences for students.
4. Implements a rigorous curriculum in all classes.
5. Monitors the teaching materials/curriculum for rigorous curricula.
6. Supports teachers in the development of curriculum coherence with state and national content standards.
7. Advocates rigorous curricula that honors the diversity of students and their families.
8. Challenges faculty to teach rigorous curriculum to students at risk.
10. Discusses the importance of addressing core academic standards in special and regular programs.
11. Evaluates the extent to which all students complete a rigorous curriculum.
12. Evaluates the rigor of the curriculum.

How effective is the principal at ensuring the school...

25. Plans instructional services for students with special needs using evidence-based practices.
26. Plans a schedule that enables quality instruction.
27. Coaches staff to improve instruction in all classes.
28. Encourages and supports the use of evidence-based instruction.
29. Supports all teachers in a faculty to improve instructional practices that advance student learning.
30. Supports teachers in their professional development.
31. Advocates for all students to regularly experience effective instruction.
32. Advocates opportunities for high-quality instruction beyond the regular school day.
33. Discusses instructional practices during faculty meetings.
34. Communicates with faculty about engaging students in learning experiences that encourage student engagement.
35. Evaluates the rigor of the instructional programs.
36. Monitors teachers' instructional practices.

How effective is the principal at ensuring the school...

33. Plans programs and policies that promote discipline and order.
34. Plans for a positive environment in which student learning is the central focus.
35. Implements a learning environment in which all students are known and cared for.
36. Builds a culture that honors academic achievement.
37. Allocates resources to build a culture focused on student learning.
38. Supports collaborative teams to improve instruction.
39. Advocates a culture of learning that respects diversity of students.
40. Advocates for students to be involved in the school community.
41. Communicates with parents about the importance of student achievement.
42. Ensures standards of professional practice and student learning.
43. Monitors the participation of every student in social and academic activities.
44. Assists the culture of the school in student's perspective.
APPENDIX I - VANDERBILT ASSESSMENT OF LEADERSHIP IN EDUCATION:
SAMPLE QUESTION
## High Standards for Student Learning

<table>
<thead>
<tr>
<th>Planning</th>
<th>Effectiveness Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. plans rigorous growth targets in learning for all students.</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>2. plans targets of faculty performance that emphasize improvement in student learning.</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

## Implementing

<table>
<thead>
<tr>
<th>Effectiveness Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

## Supporting

<table>
<thead>
<tr>
<th>Effectiveness Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

How effective is the principal at ensuring the school …

1. plans rigorous growth targets in learning for all students.  
2. plans targets of faculty performance that emphasize improvement in student learning.  
3. creates buy-in among faculty for actions required to promote high standards of learning.  
4. creates expectations that faculty maintain high standards for student learning.  
5. encourages students to successfully achieve rigorous goals for student learning.  
6. supports teachers in meeting school goals.
Purpose of the Assessment

The Vanderbilt Assessment of Leadership in Education or VAL-ED is designed to provide a summary of effectiveness of a principal's learning-centered leadership behaviors during the current school year. A comprehensive picture of the principal has emerged and is reported with input from teachers, the principal's supervisor and his or her own self-report.

The VAL-ED focuses on leadership behaviors defined by six core components and six key processes known to influence student achievement:

**Core Components**
- High Standards for Student Learning
- Rigorous Curriculum
- Quality Instruction
- Culture of Learning & Professional Behavior
- Connections to External Communities
- Performance Accountability

**Key Processes**
- Planning
- Implementing
- Supporting
- Advocating
- Communicating
- Monitoring

Respondents to the VAL-ED were asked: How effective the principal is at ensuring the school carries out specific actions that affect core components of learning-centered leadership. The effectiveness ratings, based on evidence, range from 1 (ineffective) to 5 (outstandingly effective) for each of 72 leadership behaviors.

This VAL-ED report addresses the questions of:
(1) who responded?
(2) what evidence was used to evaluate the principal?
(3) what do the results say about the principal's current leadership behaviors?

The results are interpreted against both norm-referenced and standards-referenced criteria that highlight areas of strength and possible areas for improvement. A leadership development plan can be developed based on these results.

The VAL-ED provides technically sound scores when used as designed, however, it is recommended that it be used along with other information when making important evaluative decisions.

For more information about the VAL-ED, please visit our website: [http://www.valed.com](http://www.valed.com).
Who Responded and What Evidence Did They Use?

<table>
<thead>
<tr>
<th>Possible Respondents</th>
<th>Actual Respondents</th>
<th>Percent (%) Responding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Teachers</td>
<td>20</td>
<td>11</td>
</tr>
<tr>
<td>Supervisor</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

A response rate of greater than or equal to 75% is high, 50% to 74% is moderate, and below 50% is low. When response rates are low, resulting scores should be interpreted with caution.

Sources of Evidence
Ratings of a principal’s behaviors should be based on evidence that is recent, relevant and representative. Evidence comes in many forms (e.g., observations of behavior, review of documents that record leadership actions and communications with people who have directly observed the principal’s behavior). After reflecting on a sample of evidence, respondents’ effectiveness ratings of leadership behaviors are behaviorally-anchored and more accurate. The graphs below summarize each type of evidence used as a basis for effectiveness ratings of the leadership behaviors. The bars display the sources of evidence for each item used by the principal and all teacher and supervisor respondents in the school. Percentages are based on number of items for which a source of evidence was checked; these percentages need not sum to 100 across sources.
What are the Results of the Assessment?

VAL-ED provides a total score across all respondents as well as separately by respondent group. The scores from the teachers are based on the average across all teacher respondents. The total score, core component, and key process effectiveness ratings are interpreted against a national representative sample that included principals, supervisors, and teachers, providing a percentile rank. The results are also interpreted against a set of performance standards ranging from Below Basic to Distinguished. The scores associated with performance levels were determined by a national panel of principals, supervisors and teachers.

<table>
<thead>
<tr>
<th>Below Basic</th>
<th>Basic</th>
<th>Proficient</th>
<th>Distinguished</th>
</tr>
</thead>
<tbody>
<tr>
<td>A leader at the <strong>below basic</strong> level of proficiency exhibits learning-centered leadership behaviors at levels of effectiveness that are unlikely to influence teachers positively or result in acceptable value-added to student achievement and social learning for students.</td>
<td>A leader at the <strong>basic</strong> level of proficiency exhibits learning-centered leadership behaviors at levels of effectiveness that are likely to influence teachers positively and that result in acceptable value-added to student achievement and social learning for some sub-groups of students, but not all.</td>
<td>A <strong>proficient</strong> leader exhibits learning-centered leadership behaviors at levels of effectiveness that are likely to influence teachers positively and result in acceptable value-added to student achievement and social learning for all students.</td>
<td>A <strong>distinguished</strong> leader exhibits learning-centered leadership behaviors at levels of effectiveness that are virtually certain to influence teachers positively and result in strong value-added to student achievement and social learning for all students.</td>
</tr>
</tbody>
</table>

Overview of Assessment Results

The Principal's Overall Total Effectiveness score based on the averaged ratings of all respondents is 3.79. Remember, this score is based on a 5-point effectiveness scale where 1=Ineffective; 2=Minimally Effective; 3=Satisfactorily Effective; 4=Highly Effective; 5=Outstandingly Effective. The Performance Level and national Percentile Rank for this score are documented in the table below.

<table>
<thead>
<tr>
<th>Overall Effectiveness Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean Score</strong></td>
</tr>
<tr>
<td>3.79</td>
</tr>
</tbody>
</table>

The standard error of measurement is .05

<table>
<thead>
<tr>
<th>Summary of Core Components Scores</th>
<th>Summary of Key Processes Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td><strong>Performance Level</strong></td>
</tr>
<tr>
<td>High Standards for Student Learning</td>
<td>4.11</td>
</tr>
<tr>
<td>Rigorous Curriculum</td>
<td>3.81</td>
</tr>
<tr>
<td>Quality Instruction</td>
<td>3.61</td>
</tr>
<tr>
<td>Culture of Learning &amp; Professional Behavior</td>
<td>4.05</td>
</tr>
<tr>
<td>Connections to External Communities</td>
<td>3.38</td>
</tr>
<tr>
<td>Performance Accountability</td>
<td>3.81</td>
</tr>
</tbody>
</table>

An examination of the principal's Core Components mean item ratings ranged from a low of 3.38 for Connections to External Communities to a high of 4.11 for High Standards for Student Learning. Similarly the principal's Key Processes mean item ratings indicate they ranged from a low of 3.45 for Monitoring to a high of 3.98 for Planning.

- Page 3 of 9 - Copyright 2008 Vanderbilt University
Assessment Profile and Respondent Comparisons

The principal's relative strengths and areas for development can be determined by comparing scores for each of the 6 Core Components and 6 Key Processes across different respondent groups. The next two graphs present an integrated visual summary of the results. They show the Mean Effectiveness associated with each Core Component and Key Process.

First, examine the profiles as recorded by each of the three respondent groups. These scores can be interpreted by:
- (a) Comparisons among Core Components and Key Processes
- (b) Examination of scores among respondent groups
- (c) Comparisons to the mean effectiveness scale
- (d) Distribution of ratings among teachers

<table>
<thead>
<tr>
<th>Principal (P), Teacher (T), and Supervisor (S) Mean Effectiveness Ratings Across Core Components</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Core Component</strong></td>
</tr>
<tr>
<td>Total Effectiveness P T S</td>
</tr>
<tr>
<td>High Standards for P T S</td>
</tr>
<tr>
<td>Rigorous Curriculum P T S</td>
</tr>
<tr>
<td>Quality Instruction P T S</td>
</tr>
<tr>
<td>Culture of Learning &amp; P T S</td>
</tr>
<tr>
<td>Professional Behavior P T S</td>
</tr>
<tr>
<td>Connections to External P T S</td>
</tr>
<tr>
<td>Performance Accountability P T S</td>
</tr>
</tbody>
</table>

For each of the six Core Components in the graph, examine the effectiveness ratings. The ratings for a core component are based on twelve items. The higher the ratings, the more effective the leadership behaviors of the principal. When there are large differences between respondent groups, the focus should be on the results for each respondent group rather than the overall effectiveness score.

- Page 4 of 9 - Copyright 2008 Vanderbilt University
Assessment Profile and Respondent Comparisons (Cont'd.)

The ratings of the six Key Processes are based on 12 items that focus on a given Key Process. Again, the higher the score, the more effective the leadership behaviors of the principal. For more details about the technical aspects of the VAL-ED scores and tips on interpreting scores, visit the VAL-ED website http://www.valed.com.

<table>
<thead>
<tr>
<th>Principal, Teacher, and Supervisor Mean Ratings Across Key Processes</th>
<th>Teacher Rating Distributions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Effectiveness</strong></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>Mean Effectiveness</td>
<td></td>
</tr>
<tr>
<td>4.39</td>
<td>1</td>
</tr>
<tr>
<td>3.22 (0.73)</td>
<td>2</td>
</tr>
<tr>
<td>3.77</td>
<td>3</td>
</tr>
<tr>
<td><strong>Planning</strong></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>Mean Effectiveness</td>
<td></td>
</tr>
<tr>
<td>4.58</td>
<td>1</td>
</tr>
<tr>
<td>3.26 (0.82)</td>
<td>2</td>
</tr>
<tr>
<td>4.08</td>
<td>3</td>
</tr>
<tr>
<td><strong>Implementing</strong></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>Mean Effectiveness</td>
<td></td>
</tr>
<tr>
<td>4.42</td>
<td>1</td>
</tr>
<tr>
<td>3.33 (0.82)</td>
<td>2</td>
</tr>
<tr>
<td>3.91</td>
<td>3</td>
</tr>
<tr>
<td><strong>Supporting</strong></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>Mean Effectiveness</td>
<td></td>
</tr>
<tr>
<td>4.33</td>
<td>1</td>
</tr>
<tr>
<td>3.31 (0.69)</td>
<td>2</td>
</tr>
<tr>
<td>4.08</td>
<td>3</td>
</tr>
<tr>
<td><strong>Advocating</strong></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>Mean Effectiveness</td>
<td></td>
</tr>
<tr>
<td>4.25</td>
<td>1</td>
</tr>
<tr>
<td>3.09 (0.85)</td>
<td>2</td>
</tr>
<tr>
<td>3.83</td>
<td>3</td>
</tr>
<tr>
<td><strong>Communicating</strong></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>Mean Effectiveness</td>
<td></td>
</tr>
<tr>
<td>4.42</td>
<td>1</td>
</tr>
<tr>
<td>3.22 (0.77)</td>
<td>2</td>
</tr>
<tr>
<td>3.83</td>
<td>3</td>
</tr>
<tr>
<td><strong>Monitoring</strong></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td></td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td></td>
</tr>
<tr>
<td>Mean Effectiveness</td>
<td></td>
</tr>
<tr>
<td>4.33</td>
<td>1</td>
</tr>
<tr>
<td>3.09 (0.74)</td>
<td>2</td>
</tr>
<tr>
<td>2.92</td>
<td>3</td>
</tr>
</tbody>
</table>
The ratings of the six Key Processes are based on 12 items that focus on a given Key Process. Again, the higher the score, the more effective the leadership behaviors of the principal. For more details about the technical aspects of the VAL-ED scores and tips on interpreting scores, visit the VAL-ED website [http://www.valed.com](http://www.valed.com).

### Principal, Teacher, and Supervisor Mean Ratings Across Key Processes

<table>
<thead>
<tr>
<th>Total Effectiveness</th>
<th>Mean Effectiveness</th>
<th>Teacher Rating Distributions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Planning</td>
<td></td>
<td>4.58</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.42</td>
</tr>
<tr>
<td>Supporting</td>
<td></td>
<td>4.33</td>
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<td></td>
<td></td>
<td>4.25</td>
</tr>
<tr>
<td>Advocating</td>
<td></td>
<td>4.42</td>
</tr>
<tr>
<td>Communicating</td>
<td></td>
<td>4.33</td>
</tr>
<tr>
<td>Monitoring</td>
<td></td>
<td>4.39</td>
</tr>
</tbody>
</table>

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Using Results to Plan for Professional Growth

The matrix below provides an integrated summary of the principal's relative strengths and areas for growth based on the mean item scores for the intersection of Core Components by Key Processes across the three respondent groups.

- Cells that are green represent areas of behavior that are 'proficient' or 'distinguished' (P).
- Cells that are yellow represent areas of behavior that are 'basic' (B).
- Cells that are red represent areas of behavior that are 'below basic' (BB).

<table>
<thead>
<tr>
<th>Core Components</th>
<th>Key Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Planning</td>
</tr>
<tr>
<td>High Standards for Student Learning</td>
<td>P</td>
</tr>
<tr>
<td>Rigorous Curriculum</td>
<td>P</td>
</tr>
<tr>
<td>Quality Instruction</td>
<td>P</td>
</tr>
<tr>
<td>Culture of Learning &amp; Professional Behavior</td>
<td>P</td>
</tr>
<tr>
<td>Connections to External Communities</td>
<td>B</td>
</tr>
<tr>
<td>Performance Accountability</td>
<td>P</td>
</tr>
</tbody>
</table>

Leadership Behaviors for Possible Improvement

The leadership behaviors listed in each cluster on the following pages are representative of the lowest rated core component by key process areas of behavior. If fewer than six core component by key process areas of behavior are listed, that is because the principal had fewer than six that were below distinguished. If no behavior clusters are provided it indicates the principal's current learning-centered leadership behaviors are considered acceptable.

The behaviors on each page that are **boldface** type are those that were actually assessed in the evaluation. The other behaviors represent the entire pool of VAL-ED behaviors for each core component by key process. All of these behaviors are relevant targets for improvement.

For a list of all the leadership behaviors associated with each core component area, consult the VAL-ED Handbook.
## Leadership Behaviors for Possible Improvement

### Connections to External Communities × Monitoring

- Analyzes data about parental involvement.
- Uses data to make decisions about community engagement.
- **Monitors the effectiveness of community school connections.**
- Uses data on parent involvement in teacher evaluations. (Removed after 9-school pilot)
- Evaluates the effectiveness of its partnerships with the community in advancing academic and social learning.
- Collects information about the needs and interests of parents.
- **Collects information to learn about resources and assets in the community.**

### Quality Instruction × Monitoring

- Observes each teacher's instructional practices routinely to provide feedback.
- **Evaluates how instructional time is used.**
- Uses data to monitor the quality of instruction.
- **Evaluates teachers' instructional practices.**
- Monitors the instruction of students with special needs to ensure high quality.
- Monitors the instruction of students at risk of failure to ensure high quality.

### Connections to External Communities × Advocating

- Advocates for social services needed by students and families.
- Advocates for students in need of special services with the external community.
- **Challenges teachers to work with community agencies to support students with low achievement.**
- Challenges barriers from outside the school that can inhibit learning.
- Advocates to district decision makers to promote the needs of all students.
- **Promotes mechanisms for reaching families who are least comfortable at school.**

- Page 7 of 9 - Copyright 2008 Vanderbilt University
## Leadership Behaviors for Possible Improvement

### Culture of Learning & Professional Behavior X Monitoring

- Evaluates teachers' behaviors when monitoring the culture of learning.
- Evaluates students' behaviors when monitoring the learning environment.
- Monitors the school culture.
- Monitors the participation of every student in social and academic activities.
- Assesses the culture of the school from students' perspectives.
- Analyzes data regarding a safe and orderly school environment.

### Quality Instruction X Implementing

- Implements a mentoring program for new teachers focused on effective instructional practices.
- **Coordinates efforts to improve instruction in all classes.**
- Implements procedures to protect instructional time.
- Uses some of the most effective teachers to instruct students at risk of failure.
- Implements instructional strategies that maximize student engagement.
- Recruits teachers with the expertise to deliver instruction that maximizes student learning.

### Connections to External Communities X Supporting

- Supports teachers to work with community agencies on behalf of students.
- **Secures additional resources through partnering with external agencies to enhance teaching and learning.**
- Secures technology from the district and/or the community to enhance teaching and learning.
- Secures resources to support school-community relationships.
- **Allocates resources that build family and community partnerships to advance student learning.**
- Motivates teachers to be responsive to all families.
About the VAL-ED

The Vanderbilt Assessment of Leadership in Education (VAL-ED) is conceptually and theoretically grounded and its resulting scores are reliable and valid for purposes of evaluating learning-centered leadership.

The VAL-ED uses 360 degree feedback from teachers, principals, and supervisors.

Content focuses on learning-centered leadership behaviors that influence teachers and staff, and in turn are related to increases in student achievement.

Assessment is of leadership behaviors, not knowledge, dispositions, or personal characteristics of leadership.

The VAL-ED requires respondents to identify evidence on which they are basing their assessment of principal behaviors.

The psychometric properties of the VAL-ED are clearly documented. Information on norms, standards, and uses is available through a comprehensive technical manual.

"Leadership is a central ingredient - often the keystone element in school and district success as defined in terms of student achievement."

- Joseph Murphy
Vanderbilt University

"Assessments that provide ongoing performance feedback to school leaders about their learning-centered leadership behaviors can substantially help school leaders develop effective leadership for school improvement."

- Ellen Goldring
Vanderbilt University

Visit

http://www.valed.com

For more information and periodic updates on research and related articles on the use of VAL-ED

VAL-ED Authors
Andrew Porter, Joseph Murphy,
Ellen Goldring, & Stephen N. Elliott

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APPENDIX K - INSTITUTIONAL REVIEW BOARD APPROVAL
Application for Exemption from Institutional Oversight

Unless qualified as meeting the specific criteria for exemption from Institutional Review Board (IRB) oversight, ALL LSU research/projects using living humans as subjects, or samples, or data obtained from humans, directly or indirectly, with or without their consent, must be approved or exempted in advance by the LSU IRB. This form helps the PI determine if a project may be exempted, and is used to request an exemption.

- Applicant, please fill out the application in its entirety and include the completed application as well as parts A-E, listed below, when submitting to the IRB. Once the application is completed, please submit two copies of the completed application to the IRB Office or to a member of the Human Subjects Screening Committee. Members of this committee can be found at http://www.lsu.edu/screeningmembers.shtml

- A complete application includes all of the following:
  (A) Two copies of this completed form and two copies of part B thru E.
  (B) A brief project description (adequate to evaluate risks to subjects and to explain your responses to Parts 1 & 2).
  (C) Copies of all instruments to be used.
  *If this proposal is part of a grant proposal, include a copy of the proposal and all recruitment material.
  (D) The consent form that you will use in the study (see part 3 for more information.)
  (E) Certificate of Completion of Human Subjects Protection Training for all personnel involved in the project, including students who are involved with testing or handling data, unless already on file with the IRB. Training link: (http://phrp.nihtraining.com/users/login.php)
  (F) IRB Security of Data Agreement: (http://www.lsu.edu/irb/IRB%20Security%20of%20Data.pdf)

1) Principal Investigator: Dianne L. Taylor, PhD
   Dept: ETTP
   Ph: 225-578-2192
   E-mail: dtaylor@lsu.edu
   Rank: Associate Professor

2) Co- investigator(s): please include department, rank, phone and e-mail for each
   Tiffany McCoy- Thomas
   Doctoral Student - College of Educational Theory Policy & Practice (ETPP)

3) Project Title: Principals Matter: Principal Technology Proficiency - Creating a Culture of Technology Competence.

4) Proposal? (yes or no) NO  If Yes, LSU Proposal Number
   Also, if YES, either
   ○ This application completely matches the scope of work in the grant
   OR  More IRB Applications will be filed later

5) Subject pool (e.g. Psychology students)
   Principals and Teachers
   "Circle any 'vulnerable populations' to be used: (children <18; the mentally impaired; pregnant women; the ages, other). Projects with incarcerated persons cannot be exempted.

6) PI Signature ________ Date 6-27-14
   No per signatures

** I certify my responses are accurate and complete. If the project scope or design is later changes, I will resubmit for review. I will obtain written approval from the Authorized Representative of all non-LSU institutions in which the study is conducted. I also understand that it is my responsibility to maintain copies of all consent forms at LSU for three years after completion of the study. If I leave LSU before that time the consent forms should be preserved in the Departmental Office.

Screening Committee Action: Exempted ✔  Not Exempted Category/Paragraph

Reviewer Kristin A. Ganss Signature 07/29/2014 Date
VITA

Tiffanye Renee’ McCoy-Thomas was born in 1973, in Sacramento, California. She was raised by her parents the late John, III and Connie Clifton McCoy in Plaquemine, Louisiana. Tiffanye graduated from Plaquemine High School in 1991. She graduated with a Bachelor of General Studies, with concentrations in history, sociology, and psychology, in 1998, a master’s degree in educational administration in 2002, and specialist degree in educational technology in 2005 from Louisiana State University, Baton Rouge. Prior to entering the doctoral program she taught for four years at Edward J. Gay Middle School in Iberville Parish. Tiffanye has served as a classroom instructor for grades 7-12, an assistant principal, grant coordinator, and is currently the assistant director for the Louisiana Virtual School. During the course of her studies, she earned additional credits for certifications as an Educational Technology Facilitator, Educational Technology Leader, Online Instructor, and Superintendent. Tiffanye completed her Doctor of Philosophy degree at Louisiana State University in the spring of 2012. She currently resides in Plaquemine.