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Building instructional leadership capacity of school leaders through technology integration

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Building Instructional Leadership Capacity of School Leaders

Through Technology Integration

by

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DEDICATION

To My Supportive and Loving Family

Ronald Edwin Carey, Sr., Husband

Ronald Edwin Carey, Jr., Son

Herbert Houston Dickerson, Jr., Brother

Ruth B. Henderson, Dearest Friend/Second Mother

Herbert Houston Dickerson, Sr., Father

(Deceased)

Josephine Robinson Dickerson, Mother

(Deceased)

Walter Joseph Dickerson, Brother

(Deceased)

ABSTRACT

Joy Dickerson Carey
BUILDING INSTRUCTIONAL LEADERSHIP CAPACITY OF SCHOOL LEADERS THROUGH TECHNOLOGY INTEGRATION
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James Coaxum, III, Ph.D.
Educational Leadership

Research suggested that the acquisition of technology instructional leadership skills develops principals' abilities to become agents of change. "A firm foundation in technology knowledge, skills relative to the instructional process, and leadership and managerial skills in technology are required" (Geer, 2002, p. 57). It was critical for principals to enhance their technological communication skills, managerial applications, knowledge on information processing, and promote technology instruction methods in order to increase student learning (Daresh, 2006).

The purpose of this action research project was to provide six school district principals with technology professional development, which enabled them to become effective instructional leaders for technology integration into the curriculum. My action research design utilized qualitative and quantitative data collection strategies, which were appropriate to effectively answer the research questions. The collection of qualitative research allowed me to triangulate participant observations, interviews, focus groups, and artifact collection to explore the research problem (Yin, 1994). Quantitative data collection employed formative and summative surveys.

I examined my espoused authentic leadership theory within each cycle of my action research. The influence of my leadership practices was realized through the analysis of the Learning Practices Inventory (LPI) (Kouze & Posner, 2002), participant's

comments during focus groups, and their reflections within interviews and surveys. The triangulated analysis of the focus groups, interviews, surveys, and field notes revealed that the principals' perceived that their technology training provided them with the competencies, focus, and confidence to implement technology integration leadership through effective planning, evaluation, and enrollment of all stakeholders in the change process. (Fullan, 2007; Kotter 1997; Schwahn & Spady, 1998; Senge, 1990).

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Defining the Gaps for Technology Capacity of Instructional Leaders

Introduction

The No Child Left Behind Act of 2001 (NCLB) legislation mandated that students be evaluated on basis of their knowledge and understanding of technology found in the classroom. Section 2401 of NCLB is titled "Enhancing Education through Technology Act of 2001," specifically addressed the need for states to ensure comprehensive acquisition, assistance, implementation, use, evaluation, and partnerships with parents and communities in effectively utilizing technology in elementary and secondary schools. The legislation stressed the need for principals, teachers, and administrators to receive on-going, purposeful professional development that emphasizes access to the current research and learning with technology (NCLB, 2001). Schools continued to view instructional technology as a vehicle to reform schools. There was an explosion of technology utilization by students, teachers, and principals to improve student achievement over the past quarter century (Fouts, 2000). Technology usage in schools ranged from just accessing information to full integration into the curriculum. Research and studies related to the impact of technology use by students and their achievements remained inconclusive; however, principals generally supported the growth of technology for instructional purposes (Solomon, 1998). There was the belief that high expectations for student learning are expected due to the increase in student accessibility to technology.

However, there was insignificant research and studies in order to back and support the relationships between technology and student achievement. The incorporation of technology into the program of study or syllabus was not fully recognized and fallen short of expectations (Cuban, 2001; McKenzie, 2002). Skinner (2002) notes the following:

> Hopes that computers would make classroom education more cooperative and more creative have gone largely unfulfilled, as have expectations that computers would increase achievement scores, and that classrooms would become model institutions of the Information Age. Computers have not caused a fundamental reordering of the educational system. Rather they have provided an insignificant and infrequently used alternative to older but still popular tools of the trade-pens, pencils, paper, chalk, and chalkboards. (p. 112)

The integrated usage of technology in schools was an essential element of school reform movements, and school administrators needed to participate actively in order to implement this goal successfully. Principals were viewed as the change facilitators whose support was critical in the endorsement and support of initiating, planning, implementing, and institutionalizing change. This reform effort required principals to become knowledgeable about issues regarding technology, to become comfortable and adept at using technology, and to back the incorporation of technology into the school syllabus or educational program (Hall & Hord, 1987).

Dede (1993) stressed the need for educational leaders to utilize all available technologies for educational systems restructuring, model technology use, and constantly explore technology updates and modifications. Bottoms & O'Neill (2001) noted:

> Future school leaders must use the computer and the Internet to enhance their own learning. Beyond that, they need to understand how technology can engage students in learning, what a classroom looks like when technology has been successfully integrated into instruction, and how to support teachers in learning how to use technology to advance student achievement. (p.10)

Gibson (2001) noted, "The number one issue in the effective integration of educational technology into the learning environment is not the preparation of teachers for technology usage but the presence of informed and effective leadership" (p. 502). Many principals lacked hands-on experience using technology in the classroom, and they also lacked adequate technology training in their teacher preparation program. This lack of adequate training placed administrators at a major disadvantage as they pursued educational career paths (Bennett, 1995).

School administrators were expected to play an important role in the incorporation of technology in educational institutions. Principals were perceived as leaders, who give instruction and are instrumental in encouraging teachers to utilize computer technology when developing, planning, and implementing the curriculum goals within the school's organizational structure. The principal was recognized as the leader who possessed curriculum knowledge and encourages the technological needs of the educational institution. Appropriate hardware and software decisions depended upon the aims and purposes of the proposed technology plan, understanding the curriculum, and also understanding the appropriate technology needs (Bennett, 1996). The leadership role of the principal concentrated on the efficient employment of technology, however, the lack of leadership in utilizing and implementing computer technology and providing

professional development are major factors that required additional investigation (Brickner, 1996; Byrom & Bingham, 1998; Hoffman, 1996).

Problem Statement

It was a challenge for principals to view themselves as technology leaders, and many did not have the training or the experience in integrating technology in schools (Ertmer et al., 2002). This action research highlighted the International Society for Technology in Education (ISTE) standards to clearly define the principal's role in technology integration. The standards defined and identified the importance of school leadership in the growth, expansion, and incorporation of technology in educational institution program and enabled school administrators to become more effective instructional leaders by exposing the management of technology in education (Brooks-Young, 2002). "Strong leadership is the biggest key to successful technology integration" (Byrom & Bingham, 1998, p. 91). However, in an urban school district in southern New Jersey, where I served as principal, many administrators were not clear about their role, or lacked the necessary expertise to implement and integrate technology within the curriculum. Therefore, I conducted an action research study in the district to assist principals in becoming effective instructional leaders to fulfill the district's mandate for technology infusion into the curriculum. The technology vision for the school district, as noted in the longitudinal plan, was to bring the world of information and learning into the classroom. This classroom transformation into a technologically rich environment enabled independent learning and problem solving as essential elements of the technology educational program. The district's technology plan did not address the

critical role that administrators must assume as effective instructional leaders of change. Administrators needed the necessary professional development, technology resources, and instructional leadership skills to effectively and efficiently ensure that the district functions at an optimum level to support the educational program and satisfy administrative demands.

Purpose of the Study

The purpose of this action research was to provide school district principals with technology professional development to enable them to be effective instructional leaders for technology integration into the curriculum. This study was important because it focused on enhancing leadership skills for principals to apply effective technology instructional leadership activities. It was hoped that the acquisition of technology instructional leadership skills develops principals' abilities to become agents of change. As part of this action research study, I collaborated with the school district's technology department to develop approximately four technology training modules that were offered to no more than six principals on a volunteer basis in order to build their leadership capacity in technology integration. Research emphasized that principals commonly employed automated tasks such as attendance, report card grades, and student information on a daily basis, however, limited progress was made using technology for instruction. "A firm foundation in technology knowledge, skills relative to the instructional process, and leadership and managerial skills in technology are required" (Geer, 2002, p. 57). Technology professional development was targeted to teachers, yet very little progress was realized for technology integration. Professional development for

administrators was not curriculum based but focused on administrative skills. Principals must be viewed as agents of change for school reform. Initially, classroom teachers were the focus of professional development technology training, as administrators modeled a supportive role. Therefore, pressures were exerted on principals to accept their superior leadership position in the technology change process (Anderson & Dexter, 2000; Ausbrooks, 2000; Daresh, 2006).

Research Questions

The rationale for the research questions explored the instructional leadership behaviors necessary to facilitate technology integration, determine how principals could be encouraged to participate in technology skill development needed to execute technology integration, and identify barriers to instructional technology. The following research questions guided this study:

1) What major needs do urban school principals encounter while attempting to implement technology utilization within their schools?
2) How will a structured technology professional development program for principals build their capacity to integrate technology within their school building?
3) How do my authentic instructional leadership behaviors facilitate and encourage school administrators in utilizing technology skills acquired from professional development training?
4) What are best practices for fostering instructional technology leadership in urban schools?

Significance of Study

Research indicated that principals be challenged to acquire the skills and commitment needed to develop effective technology teams/committees. Team members must be empowered to collaborate in creating a vision of how technology impacts the future of their schools. Once the vision was established, it contributed to the teams' persuasive and compelling acceptance, devotion, dedication and the possibility of long lasting change (Anderson & Dexter, 2000; Rhodes, 1988). All stakeholders should have a vested interest in the application of technology in the school system and are involved in the planning and decision-making process (Moursund, 1983; Ritchie, 1996). Collaboration was the main factor in achieving the successful results in educational institutions. It was critical for a school to experience shared leadership which enabled administrators, teachers, students, and parents to work together in adapting new technologies to improve learning.

School administrators were expected to demonstrate their capability and devotion along with dedication in order to show that they are familiar with the use of technology in modern educational institutions. School administrators needed to improve their technological communication skills, managerial applications, procedures related to information processing and must concentrate on enhancement of instruction in order to promote student learning (Daresh, 2006). Ausbrooks (2000) emphasized the importance of instructional leaders making technology available for usage by both teachers and students. School administrators should use technology daily when examining the data which influences their educational decision making procedures. The infusion of technology in school districts impacted the school administration's dynamics. It was the

combination of building the principals' personal capacity and promoting technology integration within a school district that served as the basis of this action research study.

The conceptual change framework of this study focused on both theoretical concepts of technology personal mastery and Schwahn and Spady's (1998) five pillars of change model for implementing change within a learning organization. The initial framework for change concept focused on defining instructional technology leadership and the attainment of personal mastery in the utilization and implementation of technology into the curriculum. Personal mastery was at the core of Senge's (1990) conceptual framework for leadership. It was one of the disciplines in Senge's model of the learning organization. People who embraced personal mastery want to increase and enhance their own abilities as well as to improve the capacity of others (Senge, Kleiner, Roberts, Ross, & Smith, 1994).

There were two primary elements of the personal mastery leadership concept. Initially, the administrators defined and communicated the vision and goals as related to a change needed in the learning environment. Vision building involved a collaborative process inclusive of establishing committees, surveying all stakeholders, and effectively communicating. The second element involved the leader assessing progress toward achieving the goal or vision. "Principals with a high level of personal mastery are acutely aware of their ignorance, their incompetence, their growth areas" (Senge, 1990, p. 142). Principals achieving technology mastery were cognizant of the significant change process which may occur within the educational context. Schwahn and Spady's (1998) five pillars of change model suggested leadership characteristics as applied to elements of the change process to effect change within a learning organization. The authors combined five

essential leadership "performance domains" such as authentic, visionary, service, collegial, and quality with the five elements for effective organizational change: purpose, vision, ownership, capacity, and support. The rationale for using this dual approach for the conceptual framework of change was in alignment with my authentic leadership theory in use and it was described and explained extensively in the methodology section of this proposal. This study attempted to create a similar change process within an urban school district related to technology integration and mastery. The action research study is intended to improve principals' technology mastery to enhance effective instructional leadership practices for incorporating technology into the school program or syllabus. Effective professional development was required in order to make this a reality. The results from this study equipped principals with the necessary tools and knowledge base to enable teachers within their school context to effectively integrate technology across the curriculum. The data acquired assisted in the school district's effort to develop, plan, and implement future professional development opportunities for administrators to become effective instructional leaders.

Conclusion

A movement towards standards and accountability became prevalent in school districts as we became more dependent upon technology usage. Students and parents expected educators to provide technology integration across the curriculum which enabled students to become technologically literate. The role of the instructional leader was critical in determining how to best promote the integration of information technology into their learning context. Ongoing effective and purposeful professional development

aided in providing instructional leaders with the necessary information, data and abilities needed to implement and manage the sustained change process required to institute effective technology programs. As a leader of change at the building level, it was essential for administrators to focus upon building their personal mastery, developing a shared vision, and work collaboratively with all stakeholders in facilitating this change process which could support a learning community for technology integration (Senge, Kleiner, Roberts, Ross, & Smith, 1994).

It was imperative for me to demonstrate aspects of my leadership platform to gain the trust and cooperation of my administrative colleagues. Therefore, this study allowed me to utilize and reflect upon my leadership theory in use, and how my various leadership behaviors nurtured positive and collegial relationships with district principals. My leadership and intended theory in use was the focus of the next chapter.

Chapter 2

An Analysis of Authentic Leadership

Leadership Theory in Use

I was a principal in a building that incurred a major change in leadership due to the retirement of a principal who led the staff for over thirty years. The staff and students experienced a hierarchical managed environment under the previous administration. Additionally, the school was failing under the No Child Left Behind (NCLB, 2001) guidelines and had to undergo a Collaborative Assessment and Planning for Achievement (CAPA) review, as well as the New Jersey Quality Single Accountability Continuum (QSAC) review. My interactions with the staff reflected a collaborative spirit of leadership perceived by others as being "too nice or too soft." Negative feedback was a daily ritual which negatively influenced the productivity of staff and students. My staff was not prepared to become empowered or to recognize the possibilities of achieving success with me as their new leader. Each day I was challenged with the task of trying to pull together a group of grieving students, staff, and community that lacked trust in me to lead. I had the opportunity during the past few years to build a closer relationship with my students and staff as I attempt to change the school culture.

According to Barth (2002) modifying and altering the existing school culture was the most critical and difficult duties of the school-based reformer. The school culture was composed of a complicated configuration of traditions, perceptions, attitudes, behaviors, beliefs, values, customs and myths entrenched in the core of the organization. I was now in the position of having a more positive impact on my staff and students due the open

discourse that we had on a regular basis. Understanding the culture within my building, listening to their concerns, collaboratively problem-solving, planning, and implementing ideas for the good of the children enabled the staff to become more trusting of me and understand how a collaborative educational environment can be more rewarding than a strict hierarchical one. The design of my leadership platform shared examples of real-world experiences, how I recognized my social responsibility within my organization, promote shared learning, value personal development, and initiate change and creativity. When researching and reviewing various leadership theories, I determined my leadership platform is derived from the doctrine of authentic leadership. Authentic leadership was fueled by the tenets of transformational, servant, moral, and ethical leadership (Avolio & Gardner, 2005). Each of these leadership approaches and some of their related behavioral attributes were closely examined as they related to the research and my own personal experiences.

According to Goffee and Jones (2005), a leader could label himself/herself as genuine and reliably in charge. The people within the organization, who interacted and deal with the leader, have the ability to authenticate a leader. Authenticity was characteristic, which was apparent to others. I believed when exercising authentic leadership, I must be conscious of and devoted to the process of understanding my own uniqueness, abilities, strong points, weaknesses, aims and objectives, basic values, beliefs, and needs.

According to Humphreys (2005), four underlying attributes are connected with true or genuine leadership: (a) service before self- this was a recurring theme of serving and caring for others which permeates my life when I engaged in various personal and

professional activities, (b) listening as a means of affirmation- my effective listening and communication skills enabled me to build a collaborative spirit with all stakeholders, (c) creating trust – I consistently communicated with all stakeholders to alleviate misconceptions and allow others to have voice, (d) nurturing followers to become whole- I encouraged my staff to take risks and become problem solvers while participating in grade level, committee, and school leadership council meetings which encourages a non-intimidating environment. According to Begley (2005), true leadership was a symbol, which represented professionally competent, morally sensible and knowingly philosophical democratic practices in administrative area of the educational institution. Knowledge of self, the ability to reason morally and the sensitivity to the orientations of others were the main and essential requirements for this type of leadership.

Transformational Aspects of Authentic Leadership

I gravitated toward the usage of transformational strategies/techniques within my school because I believed I have the capacity to motivate and inspire my staff members, especially when our organization faced a major change in leadership. I was confident by practicing authentic transformational leadership it provided a sense of purpose and meaning that united students and staff in a common cause for academic excellence. The data collected on the influence of transformational leadership, by Leithwood and Jantzi (2000) was consistently constructive and affirmative. Transformational leadership practices are known to have significant impact on the collaboration of teachers. There were considerable associations and congruencies between the features of transformational leadership, and teacher's personal reports and accounts of changes in both attitudes

toward the improvement of school, and the changed behavior. Avolio and Yammarino (1991), Bass and Avolio (1994), and Burns (1978) discussed transformational behaviors which stimulated the following four authentic leadership practices: (a) individual consideration; (b) intellectual stimulation; (c) inspirational motivation, and (d) individualized influence.

Individual consideration. Authentic transformational leaders were acutely aware of the individual differences found in their subordinates. They had the responsibility to act as mentors to them. They coached and monitored their followers and gave them personal attention with the intent of removing personal differences and to remove hurdles that may negatively influence their productivity. The fundamental part of individual consideration was to be aware that each individual was different and changed with respect to time. Consequently, transformational leaders had the ability to critically identify and analyze the needs of each subordinate and optimize the efficiency of the staff. I was constantly affecting all of the stakeholders in my building either positively or negatively. The staff was affected by me in many different ways by how I treated them on an individual basis, when meeting with them about personal or professional issues, as well as, in group settings. Building a level of trust with all the staff was an ongoing challenge. I believed building trust among staff in schools was essential. Trust building was a catalyst for organizational improvement, increasing student achievement, increasing energy and boosting morale. Hargreaves (2006) noted "when adults in a school work well together, with reciprocal and relational trust, it increases energy for improvement that then benefits students and their achievement" (p. 67). I exercised an

open-door policy in order to develop more positive relations among my staff. I was cognizant of their personal needs and interests most of the time.

Kouzes and Posner (2007) stated:

> Success in leadership, success in business, and success in life has been, and will continue to be a function of how well people work and play together. Success in leading will be wholly dependent upon the capacity to build and sustain those human relationships that enable people to get extraordinary things done on a regular basis. (p. 71)

I was cognizant of my staff's professional needs when formative and summative evaluations were completed for each employee. Formative evaluations were, as simple as, walking by the classroom and inquiring if there is anything I could do in order to help each day, and/or completing a five minute learning walk which consisted of a simple check-off list of items to improve upon with recommendations. When a teacher experienced problems in the development and delivery of a lesson, classroom management, and any other instructional issues I met with my coaching staff and we discussed various intervention strategies/techniques in order to help these individuals. The coaches or I provided ongoing professional assistance whenever needed. This technique was extremely effective when dealing with novice teachers and prevented them from feeling neglected. Summative evaluations provided me with the opportunity to foster a more intensive face to face relationship with my staff. I believed summative evaluations should be used as a diagnostic tool that was collaboratively assessed by the administrator and the teacher. I recalled as a fourth grade teacher when I reviewed my teacher evaluations; they were always sparse in content. The administrative feedback did

not address my individual professional needs, and a trusting relationship did not exist between the administrator and me. When completing my staff's evaluations, I took the time to reflect upon the individual's strengths and weaknesses and discussed them during our conferences. Many of my staff members have commented on the value of the evaluation content and are appreciative of the professional recommendations. Marzano, Waters and McNulty (2005) noted principals should establish and depend upon the building of face-to-face relationships rather than on bureaucratic routines. It was important for school leaders to form emotional bonds among their staff which enabled them to remain in alignment and focused during times of uncertainty.

Intellectual stimulation. I believed it was paramount that I ensured that my staff was fully informed of the most current theories and practices regarding effective instructional approaches. I established a professional development committee that engaged in ongoing dialogue regarding how to improve future effectiveness. Surveys were administered and analyzed in order to determine what type of professional development was needed and an action plan was developed. My receptivity to the teacher's attitudes and philosophy regarding education stimulated intellectual talk showed that I valued their opinions. Each grade unit was involved in conducting action research about various educational theories and practices. The research was presented on a monthly basis during a staff meeting. According to Marzano et al. (2005),

> Discussing educational issues is something that the diverse actors in the education drama rarely get to do. Merely providing the time and resources to support team development around these issues seems to have a marked pay-off. By making

> overtly collective and open reflections that up to now have remained singular and closed, there emerges a strong will and capacity to innovate. (p. 53)

I engaged in modeling a high level of commitment and influenced others based upon what I believed. When challenges presented themselves, I encouraged my staff to take risks and become problem solvers while participating in grade level, committee, and school leadership council meetings which encourages a non-intimidating environment. My leadership actions allowed my staff to build upon their capacities, discover and identify their mistakes and failures, and to acknowledge their accomplishments. Using the team/committee approach instead of a hierarchical method helped to empower all stakeholders involved and could result in them exceeding their own expectations. Leithwood and Jantzi (2000) referred to three fundamental goals that transformational leaders should pursue when seeking to change the mindset and behavior of the school community:

1) The transformational leader should facilitate a collaborative and professional school culture. Staff members should have ongoing discussion, observations, critique, and planning together. When all stakeholders collectively accepted their responsibility for their role in continuous improvement, this enabled them to be better teaching role models for each other.
2) A transformational leader fostered ongoing teacher development. This process was actualizes when teachers were committed to the school's mission. Realistic goals were established and honored.

3) Transformational leaders helped teachers to become better problem solvers. Teachers may be intellectually stimulated and engaged in new activities and ideas that aided in the development of better solutions as a group.

Avolio and Yammarino (1991) state transformational leaders provided justifications to their subordinates in order to influence and change their perceptions on issues related to performance. At the same time, they concentrated on changing their attitudes and values. This is represented by encouraging intelligence, reasonableness, critical thinking and problem solving. A leader, who was intellectually stimulating, provided new and innovative ways of solving conflicts and issues between subordinates. They concentrated on educating them to look for logical and suitable solutions and to consider the difficulties as the problems and issues were resolved. On a personal level, it was my intent as a life-long learner to continually view myself as one who was always in the process of being intellectually stimulated, learning how to hone my leadership skills, and constantly growing in the art of self reflection. This thirst for knowledge and personal growth was fueled by continuing interest in professional development and post graduate studies. I trusted the ongoing developing of myself, and being flexible and receptive to innovative educational ideas enabled me to continue establishing an effective educational environment for my staff and students.

Inspirational motivation. Our school motto was "Success is expected here…we strive for excellence." According to Maak & Pless (2006) …"envisioning a desired future is an important part of responsible leadership. Having a vision that appeals to followers, that was developed with stakeholders, gives people and organizations direction" (p.100). I have been often called a "goals setter." In order to achieve our school goals, it was

paramount that my staff, community, and students had a clear understanding of our shared vision and mission statement. The vision and mission was created through a collaborative process that involved staff and administrative input through surveys and meetings. Our agreed upon goals were communicated to all stakeholders inclusive of the community through newsletters, posters, and our monthly parent meetings. According to Senge (1990) "when there is genuine vision, people excel and learn, not because they are told to, but because they want to... the practice of shared vision involves the skills upon earthing shared pictures of the future that foster genuine commitment and enrollment rather than compliance" (p. 9). My constant voicing of desired outcomes was very helpful and influential in allowing staff and students to attain a high level of commitment towards achieving these goals. It was my intent as the instructional leader, to always focus on the main educational goal for the students and ensure that each child is provided a quality education that enables them to become productive citizens. I constantly reflected about how to influence my staff to improve the quality of instruction through ongoing staff development, action research projects, evaluation, assessing techniques and research methodologies to achieve mandated curriculum standards. Avolio and Yammarino (1991) further stated transformational leaders have the ability to inspire their followers in order to achieve great accomplishments. This aspect of transformational leadership was illustrated by the interaction, delineating clear expectations, and conveying the aims and objectives in very simple language. The possibility to encourage and motivate staff was recognized by the synergy generated by illustrating personal consideration and logical and rational stimulation.

Idealized influence. As a practicing transformational leader I was acutely aware that the realization of our goals was not accomplished through the efforts of a single person but by the efforts of a team. Kouzes and Posner (2002) noted excellent leaders motivated others to act. It was critical for leaders to involve all stakeholders who were held accountable for the positive or negative outcomes of various projects. Leaders have the power to ensure that those who come under him or her achieved their accomplishments. At the same time, leaders provided teachers with a sense of empowerment and accountability in order to accomplish assigned tasks. The successful accomplishment of any project resulted in a celebration and recognition of the staff and students' hard work. I believed a leader should always take the time to acknowledge positive outcomes within their learning environment. According to Kouzes and Posner (2002) "leaders also know that celebrations and rituals when done with authenticity and from the heart, built a strong sense of collective identity and community spirit that can carry a group through extraordinary tough times" (p. 69). In order to alleviate the stress upon the stakeholders within our school environment, it was incumbent upon me to always model a positive attitude and behavior consistent with confidence and the belief that we can overcome any adversities with a collaborative spirit. I continued to celebrate our successes small or large. My staff was always surprised and grateful for this celebratory display by administration and the affirmation for a job well done.

Servant Aspects of Authentic Leadership

Serving others in my organization was another aspect of my leadership theory in use. I believed there was no greater gift than to give of yourself and to show genuine

concern about your staff and students. Greenleaf (1977) wrote that the primary function of leadership was to serve others:

> It begins with the natural feeling that one wants to serve first, a then conscious choice brings one to aspire to lead. The difference manifests itself in the care taken by the servant first to make sure that other people's priority needs are being served. (p. 12)

Initially, when I performed small acts of kindness, such as calling and/or visiting my staff or students when they were ill, sending cards, sending notes of gratitude and celebratory announcements, it was perceived as an intrusion upon my staff's privacy. I believed my staff's level of trust increased to the level of where it was now welcomed and appreciated. I found that the staff reciprocated and began to share this type of caring among each other. When my staff requested to come into school on the weekend to work on special projects, I cared enough to adjust my schedule to meet their needs. Many days I stayed late after work to assist those individuals who needed additional help. I have learned to put my needs last as I seek to satisfy and meet the needs and demands of others. Marzano et al. (2005) defined servant leadership as a method of establishing relationships with others. This form of leadership was predominantly based on involving others in the decision-making process and was strongly steeped in ethical and caring behavior, and it enriched the personal growth of employees while enhancing the constructive environment of the institution or organization. Marzano et al. identified the following 10 principles of servant leadership such as listening, having compassion, persuasion, strong conviction, conceptualization, forethought, stewardship, commitment, encouraging people and help influencing the society. The authors further noted servant

leadership involved the leader within an organization who did not assume a position of a top-down management style, but rather one who was at the center of the organization – one who had their finger on the pulse of all aspects of the operating organization. The critical key to servant leadership was to nurture those members of the organization by exercising the following skills:

1) Identifying on a personal level the needs of your staff within an organization (Marzano et al., 2005). I identified the personal needs of my staff with ongoing face-to-face conference meetings, grade level meetings, daily classroom visits, and small group committee meetings. Maak and Pless (2006) noted as a cultivator and facilitator of relationships, leaders cared about the needs and interests of others, and of the stakeholders involved.
2) Promoting healing as a result of conflict within the organization (Marzano et al., 2005). Dealing with conflict on a daily basis was inherent within the school setting for members of the administration. Situations arose among staff, students and support personnel that required administration intervention. I provided an environment conducive to face-to-face discussion and resolution of conflicting issues by having all parties meet in my office for mediation. I assumed the role as a mediator when dealing with conflicts among staff members and support personnel. Professional discussion was always encouraged in the privacy of my office to diffuse emotional interactions and encourage resolution. When students engaged in conflict, I required them to reflect upon their issues by writing about their feelings and possible solutions to resolve their conflict. Maak and Pless (2006) stated that authentic leaders

facilitated relational processes to realize the commonly shared vision, such as stakeholder dialogue, mediations of conflicts of interest, negotiations, problem solving and decision-making processes, creativity and innovation workshops, reconciliation of any dilemmas.

3) Being a steward of the resources of the organization (Marzano et al., 2005). As the leader of my building, I was responsible for addressing the needs of all stakeholders as related to ensuring the availability of all curriculum materials and other supplies, meeting staffing needs, providing a physical environment that was clean and safe, and monitoring all budgetary requirements and needs.
4) Developing the skills of those within the organization (Marzano et al., 2005). I consistently engaged my staff in research-based professional development activities to improve their quality of instruction through ongoing staff development, action research projects, evaluation, assessing techniques and research methodologies to achieve mandated curriculum standards. My goal was to build upon their capacity by facilitating the necessary teacher professional development to meet the No Child Left Behind (2001) highly qualified standards.
5) Being an effective listener (Marzano et al., 2005). It was incumbent upon me to be an effective listener and communicator. I facilitated weekly grade level meetings with my staff in order to encourage and maintain open lines of communication between faculty and administration. Parent organization meetings were held monthly which provide me with an opportunity to build stronger bonds with parents and community. I attended regular committee and

school leadership council meetings to plan, implement, and collaboratively addressed stakeholder concerns. My effective listening and communication skills enabled me to build a collaborative spirit which enhances my relations with the staff, students, and the community.

Ethical and Moral Aspects of Authentic Leadership

According to Maak and Pless (2006),

> Leaders are accountable for facilitating the relational processes with and among stakeholders as followers, they are also responsible for the quality of these relationships- that they are inclusive and based on ethically sound values that the interaction partners respect and act according to these values and that the leader-followers relationship serves a common and good person. (p. 104)

I embraced a value system that looks for the best in others before self. I consistently operated purposefully and effectively in concert with my expressed beliefs and value system which I perceived were key ingredients in being an authentic leader. I was a product of a very strict Judeo-Christian educational background through college and I graduated with a liberal arts degree. My belief system was based upon staunch Roman Catholic values and ethics. I was also morally charged and certified by the Archdiocese of Camden County with the task of serving others in my church and the infirmed with communion along with other related stewardship duties.

Each day at school I was charged with the task of using my time, talents, and resources to ensure the best possible learning environment which dealt with the requirements and needs of all learners, staff and the community. I served as a model for

the actions of others within my organization. I expected all stakeholders to strive for excellence and they be accountable when they did not meet agreed upon standards of behavior. Maak and Pless (2006) noted,

> The responsibility of a leader is to safeguard moral values, to promote them in the network of leader-follower relationships and act upon them in a consistent way. Staying true, being authentic, leading with integrity, is only possible if principles and leadership practice and match. If followers perceive that a leader value and principles match his or her actions-and then he or she walks the talk, then they will attribute the leader integrity and, ultimately legitimacy. Trust by stakeholders is what follows. (p. 105)

My authentic style of leadership required me to exhibit both ethical and relational qualities. It was vital to recognize the distinctive learning styles among my staff and students; value and celebrate their various cultural backgrounds; build strong interpersonal connections among all stakeholders; respect and honor their diverse perspectives through ongoing dialogue; and always treat my staff, students, and parents/community in a fair and equitable manner. I was motivated knowing that there is a passion within me to continually hone my intellectual and behavioral attributes as I journeyed to become a successful, knowledgeable and influential authentic leader. It was incumbent upon me to have less emphasis on self-interest and heed the call of servicing others. I believed there is no greater gift than to give of yourself and to show genuine concern for your staff and students. I recall hearing this message at a conference, A anonymous author stressed, “If you’re aiming to be like somebody else, you’re just being a copy-cat because you think that’s what people want you to be. You will never be a star

with that kind of thinking. But you might be a star – unreplicatable – by following your passion." (Anonymous)

Conclusion

As a developing authentic leader, I continued to reflect upon my past and present experiences to anticipate and enhance my future leadership capacity with the understanding that the needs and interrelationships with my stakeholders required an eclectic approach to leadership. However, my belief in the tenets of authentic leadership continued to be the core of my instructional/managerial style. My personal leadership focus progressed through a process of change. My action research project enabled me to broaden my educational context from a singular focus to a broader population involving the principals in the school district. The dynamics of this change allowed me to reflect upon elements of change theory such as systemic reform, comprehensive reform, and educational change as it related to my leadership platform. Changing individuals' beliefs, knowledge, or attitudes required careful planning by the leaders responsible for the change process. The change process provided an opportunity to improve the educational institution making teaching and learning better for all parties involved. Leaders attempting to implement change needed to have the necessary professional development to provide the process sufficient time and effort if it is to be effective. "The total time frame from initiation to institutionalization is lengthy, and even moderately complex changes take from three to five years, while major restructuring efforts take five to ten years." (Fullan, 1991, p. 49) The justification of my action research project was

supported by current literature involving personal mastery, professional development, and technology integration.

Chapter 3

Literature Review

Introduction

The literature review examined the elements of instructional leadership and their relevance to the role school administrators assumed in integrating and implementing technology into the curriculum. The professional development needs of school administrators and the necessary tools for their growth as effective instructional leaders became evident within the majority of the literature. However, there was a limited number of studies involving the assessment of administrator's perceptions, utilization, and technology integration into the curriculum. This literature review was organized using the following subtopics: (a) history of technology and progression of technology in education, (b) defining instructional technology leadership, (c) principals' perceived knowledge and skills for technology proficiency, (d) principal preparation and professional development programs (f) principals as change agents, (g) principal and teacher collaboration (h) barriers to effective technology implementation and integration, and (i) implications for future study and summary.

History of Progression of Technology in Education

The advent of computer technology in educational administration started in the fifties when a limited amount of educational institutions invested in data processing machines in order to execute daily tasks such as bookkeeping, payroll and making financial reports. In the next two decades more proficient usage of technology, an

improved and enhanced understanding of the association between knowledge and decision making emerged as new hardware and software were installed in the educational organizations (Perez & Uline, 2003).

The National Commission on Excellence in Education issued a report in 1983, A Nation At Risk, which mandated technology integration in education. The Commission strongly concentrated on the fact that technology was the main part of the educational reform. Educators were advised to ensure that all high school graduates acquire basic knowledge of computers in order to apply the knowledge at all levels. A number of states included technology as part of their reform policy as a result of this mandate (Daniel & Nance, 2002).

Computers were predominately used as administrative tools in schools during the 1980's to facilitate various office applications including word-processing, business office tasks, payroll, inventory, and billing. Computers were used on a limited basis to assist in curriculum activities. The primary computer use involved the storing and retrieving library information, solving mathematics problems, and managing information systems for processing student schedules. Computer instructional programs were designed for skill reinforcement and seldom focused on teaching, learning, and research (Moursund, 1983; Rees, 1987).

The Association of School Business officials surveyed 4,129 members regarding their school district's level of automation. The survey results indicated that in the 1980's 94.8% used a computer to perform some type of administrative functions (Touchton, 1987). Computer usage for administrative tasks exceeded instructional use as school

districts in the United States spent 1% or less of their budgets for instructional use of computers (Moursund, 1983).

The results of a 1985 survey of 26 principals and 33 senior administrators found similar perceptions. There was uncertainty among each group regarding their beliefs about computer technologies increasing teacher effectiveness. Thirty-five percent of the principals compared to 67% of the senior administrators believed computer technologies would increase administrative effectiveness. Each group believed teachers and administrators, who were novice technology users, exhibited difficulties communicating their needs and expectations to technology management. Administrative employees also believed future technology advancements would increase the amount of staffing needed to accomplish the myriad of tasks for schools and school boards. Principals and administrators were unsure concerning the new skills they would need to acquire as technology had a greater impact on the job assignments (Marche, 1987).

The birth of digital technology in the 1990's became an important tool for generating and managing stores of data, and the use of electronic games provided entertainment for the youth. An increasing number of students became computer literate, which prompted the computer industry to begin marketing their products to schools (Bozeman & Spuck, 1991). During this timeframe, two major phenomena were evident in public education: intense criticism of schools and the proliferation of computer technology. Many stakeholders believed that increasing student achievement could be obtained through using computer technology thus making teaching and learning more effective. However, the intended student achievement outcomes envisioned never came to fruition. This lack of student achievement was attributed to school administrators not

having a thorough understanding of computer technology's capabilities and not having the necessary training to integrate technology into the curriculum. The school administrator was the catalyst in supporting the teachers to adopt and implement technology. School administrators who are trained to perform the role as technology leaders are important in order to incorporate technology in the teaching and learning domains (Brockmeier, Hope, & Sermon, 2005). A major challenge to the effective integration of instructional technology into the classroom was a lack of instructional leadership at the building level (Bozeman & Spuck, 1991).

The No Child Left Behind Act (2001) mandated that policymakers, administrators, and educators develop technology integration and implementation initiatives to enrich education through technology. This bill contained two important parts regarding technology. Section one focused on the relation between the use of technology and student achievement and the second section concentrated on the association between the professional development and growth for both teachers and administrators. This mandate emphasized the improvement and development of student accomplishment in the academic domain with the employment of technology at all school levels. The document further focused on (a) technology integration initiatives, (b) building access, (c) accessibility, and (d) parental involvement, and stressed on the importance of efficient and robust incorporation of technology in order to promote professional development of teachers, administrators and the entire staff. The NCLB goals demanded schools focus on building a strong infrastructure to enable the incorporation of technology into the school syllabus and program. NCLB required states to show how technology is integrated throughout all of their curriculum and instruction by December 31, 2006. Therefore,

school administrators needed to assume an active role in integrating technology into their respective schools. This integration encompassed a change process for administrators and staff.

Defining Instructional Technology Leadership

Greenfield (1995) defined instructional leadership as "actions undertaken with the intention of developing a productive and satisfying working environment for teachers and desirable learning conditions and outcomes for children" (p. 60). Senge (1999) noted that many of the challenges organizations face can be attributed to lack of effective management. Technological advances and changes in the goals of education had dramatic effects on both people and organizations. In recent times, schools had the duty to ensure that their students were productive and that they contributed positively towards the society. Very few schools are "learning organizations" with a mutual goal to create a change (Senge, 1999, p. 27). Senge's research indicated that when staff members were seen as stakeholders and were active in promoting a mutual and shared vision, they encouraged and promoted a commitment to change. Instructional leadership was entrenched in an atmosphere which influences the inner functions and operations of the educational institution. Meyer and MacMillan (2001) identified some major tasks which encompassed the increasing role principals assume on a daily basis. The authors found that administrators acted as accountability agents for the entire developing educational system. They took an active part in issues related to social service which included socioeconomic pressures and family issues in historically underrepresented populations. Administrators had the legal obligation to ensure that all students and staff presented in

the education institution are safe and secure. It was essential that they work actively and closely with the school leadership and its councils.

Technology was considered to be a pervasive part of daily lives and it played an integral role in the daily activities of principals. They were expected to show proficiency in and demonstrate commitment in order to ensure the effective usage of technology in modern educational institutions. Principals needed to improve their technological communication skills, managerial applications, knowledge on information processing and must promote enhanced instruction methods in order to increase student learning (Daresh, 2006).

Ausbrooks (2000) emphasized the importance of instructional leaders making technology available for use by students and teachers. School administrators needed use technology daily when examining the data which can enable them to make more informed educational decisions. The infusion of technology in educational institutions impacted the school administration dynamics. A number of key areas were stressed within the study. School administrators were held accountable for students' academic achievement and behavior. Technological advances connected school administrators and teachers in innovative ways which helped to align them to the organizational purpose. This collaboration provided support for them in ways that are more sustainable. Educators and administrators made virtual communication commonplace with the use of the worldwide Internet regardless of geographic location.

Roles and responsibilities between administration and other positions were changed. Complicated projects previously addressed by principals were being transferred downward in the organizational hierarchy to teachers or staff personnel. Internet usage

and other technologies downsized many administrative functions to reduce budgetary costs and improved the effective delivery of educational services to meet diverse needs. Effective principals utilized technology daily. Communication was a necessity with all stakeholders in order to make intelligent and informed decisions (Ausbrooks, 2000).

The theme of effective technology leadership was further clarified in a study done by Anderson and Dexter (2000) which examined the economic implications concerning school leadership and effective utilization of technology. The authors selected key indicators which are necessary for effective technology leadership in a school setting. A technology committee was required in each school to determine needs and expectations for technology integration. The technology committee was responsible for developing a technology budget to determine whether or not funding was available for technology expenses. The school leader had the final authority to make decisions regarding how the allocated funds were to be spent.

Anderson and Dexter (2000), Ausbrooks (2000), Daresh (2006) noted that administrators were required to use computers to communicate daily with administrative staff, students, and teachers. The principal's utilization of technology provided a model for all stakeholders. This effective modeling ensured a level of commitment for successful technology integration.

There are three primary roles for principals addressed in the literature: (a) role model, (b) instructional leader, and (c) a visionary. Principals were considered to be role models when they implemented computer knowledge in the administrative domain. Principals, who have the knowledge of computers, showed commitment, and personally helped their staff to become familiar with it. As instructional leaders, school

administrators facilitated teachers' incorporation of computer technology into their teaching and learning domain. Their knowledge of hardware and software could be applied to instructional practices and contribute to technology's incorporation into the syllabus. Leaders, who had the visionary role, showed the ability to create an atmosphere for technology in schools. They had the knowledge on how it coud be implemented in order to change the learning environment and to allow students and teachers to be technologically astute (Bozeman & Spuck, 1991; Hope & Stakenas, 1999; Senge, 1999).

Educational institutions and other areas of society were changed by the many facets of technology. These technological changes required the acquisition of new skills and knowledge essential for school leaders to provide vision and guidance to effectively integrate technology in the school setting. The Technology Standards for School Administrators (2001) contributed to the growth and expansion of a nationwide consensus on what P- 12 administrators should know to have the ability to integrate the use of technology in an effective manner. These standards represented a national consensus among educational stakeholders concerning how school administrators effectively used technology in the school setting. The following standards were developed as a project of the Technology Standards for School Administrators Collaborative (2001):

• Leadership and Vision: Educational leaders inspired a shared vision for comprehensive integration of technology and foster an environment and culture conducive to the realization of that vision.

• Learning and Teaching: Educational leaders ensured the curricular design, instructional strategies, and learning environments to integrate appropriate technologies which maximize learning and teaching.

• Productivity and Professional Practice: Educational leaders applied technology to enhance their professional practice and to increase their own productivity and that of others.

• Support, Management, and Operations: Educational leaders ensured the integration of technology to support productive systems for learning and administration.

• Assessment and Evaluation: Educational leaders used technology to plan and implement comprehensive systems of effective assessment and evaluation.

Bozeman and Spuck (1991), Hope and Stakenas (1999), and Senge (1999) stressed leadership and vision as key components in developing a climate that facilitated successful technology integration. Further, Anderson and Dexter (2000) and Ausbrooks (2000) incorporated elements of productivity and support within their research indicators. Ausbrooks emphasized the learning and teaching indicator through effective ongoing professional development and academic achievement.

Principals' Perceived Knowledge and Skills for Technology Proficiency

A significant area of concern which became evident was the principals' perceived knowledge and skills for technology proficiency when examining the tools that they needed for effective technology integration Stegall (1998) reported the most notable finding from her study of technology in schools was the leadership of the school administrator was paramount and she referred to this finding as the *"Principal Principle."*

School administrators and teachers were surveyed to ascertain their perceptions' of leadership on technology integration into the curriculum. Principals mentioned in several schools that the administrative leader was influential in ensuring technology integration. Some principals did not credit themselves, however the teachers consistently gave credit to the principals as the driving force behind proper technology integration. Stegall (1998) found that the most important element of successful technology integration seemed to be the principal's belief that technology is important and their willingness to support that conviction with concrete actions. The principals supported their beliefs with actions such as allocation and distribution of resources, hiring workers who have the knowledge of technology, setting up classes, concentrating on staff development and penning proposals.

Principals needed to understand the strength of planning as well as creating a technological plan, which would be compatible with aims and objectives of the educational institution (Holland, 2000; Hope & Stakenas, 1999; TSSA, 2001). A number of studies connected vision, technology and information skills and came to a conclusion that academic performance can be improved by any coincidence. Research studies recommended that the principal must be a strong visionary and must have sound knowledge of technology. At the same time, he or she needed to have an understanding of the pedagogy necessary to harbor innovation in the school and ensure that students became active learners. These studies demonstrated that a written vision statement needs to be devised in collaboration with all the stakeholders (Bozeman & Spuck, 1991; Senge, 1999; Todd, 1989; TSSA, 2001).

There are several studies that examined the principal's technology skills and the need for meaningful professional development. Hope, Kelley, and Kinard (1999) piloted the Principals' Computer Technology Training Needs Survey instrument to ascertain school administrators' professional development needs to facilitate the integration of technology in schools. Thirty school administrators were randomly selected to participate in the pilot project. Fourteen school administrators responded to the 16-item questionnaire. The results showed 50% of the school administrators did not receive adequate training to facilitate appropriate technology development for teachers. Fifty-percent of the school administrators revealed they did not participate in staff development opportunities that could enable them to choose appropriate hardware and software for instruction. School administrators noted they were too busy to engage in technology professional development. The sample size of this study was not large enough to extrapolate the findings to the general population.

A study by Crandall and Loucks (1982) emphasized principals vary widely in their skill levels and in their understanding of any topic, therefore their leadership preparation program should begin with a personal assessment pertaining to the implementation of technology. Personalized and individualized training was recommended for principals. Schools led by administrators who received training which focused on curriculum-specific technology and those who received training that was specific to their individual needs experienced higher levels of technology integration than other schools. Based on these findings, when administrators applied professional development experiences on a consistent basis and linked them to the technology curriculum, schools were more likely to make progress toward technology integration.

In contrast, Brockmeier and Hope (2002) reported results from a study that revealed eighty-three percent of school administrators wanted to participate in professional development designed to help them to use computer technology in their work. A significant number of school administrators were not engaged in professional development in order to integrate computer technology into the school curriculum. The researchers noted there is a need for school districts to focus on professional development and technology usage. School administrators needed to acquire the knowledge and have an understanding of computer technology to facilitate implementation into the schools.

Principals' Preparation and Professional Development Programs

Effective principals needed the skills and knowledge base regarding both administrative and instructional applications of technology. However, technology preparation during administrator preparatory programs offered by colleges and universities was often lacking. Administrators who used technology consistently acquired their skills and knowledge on the job or as a result of self-directed studies. Administrators often lacked the needed preparation to effectively manage programs in schools (Anderson & Dexter, 2000; Spuck & Bozeman, 1988). A 1988 national survey of more than eighty educational administrators across the United States examined the deficiencies in their technology preparation. The following experiences were noted in the survey results: (a) faculty who taught computer or technology applications generally are self-trained, (b) faculty were not familiar professional organizations, publications, or leaders in the field of administrative technology, (c) a lack of consistency existed across the higher education curriculum, (d) technology was not integrated into traditional courses, (e) technology

courses were limited and the level of difficulty was questionable (Spuck & Bozeman, 1988). Bozeman and Spuck (1991) surveyed school officials who worked daily with information processing concerning which topics should be included in administrator preparation courses. The study group indicated the areas of general tools (word processing, database, and spreadsheets), instructional applications, student scheduling, attendance, and grade reporting as priority areas.

A similar study by Davidson and Mauer (1995) interviewed graduates of educational administration programs and found that administrators requested more preparation in the area of instructional technologies. The recurring theme as noted in Spuck and Bozeman (1998) stressed the need for adequate technology professional development for administrators. Davidson and Mauer suggested three knowledge bases that needed to be covered in administrator preparation programs. These included instructional models and strategies, hardware and software applications, and leadership theory. Administrators needed exposure to hands-on experiences that demonstrated effective and appropriate instructional applications of technology.

Dawson and Rakes (2003) found that the amount of technology training principals earned,was responsible for influencing the application of technology in their schools. The research noted that school administrators with more than 51 hours of technology training led schools that are noticeably different from other schools. The study confirmed that long-term training was worth the effort and expense. This finding supported the argument that increasing school administrators' training produced higher levels of technology integration into schools.

The principal's role in staff development included being responsible for both instructional and administrative technology training. The school system played an integral role in developing the skills of the teachers. The system ensured that educators receive adequate training and ongoing support in the usage of technology to improve learning in the classroom. If a school system focused on enriching the learning experiences of the students by providing access to a variety of educational technologies, then teachers must be provided with equal access, training and experience (U. S. Department of Education, 1996).

It was critical that superintendents acknowledged the impact principals had on technology usage in their schools and encourage administrators to become directly involved in technology initiatives. Significant amounts of technology training specifically designed for principals was considered at the university, district, and school level with a focus on infusing technology into the curriculum. A key element of this training included strategies in which school administrators supported teachers in their attempts to amalgamate technology into the school syllabus (Dawson & Rakes, 2003).

Blasé and Blasé (2000) in a similar study noted effective school principals provide staff development opportunities that address teacher needs or concerns. These opportunities along with teacher collaborative input resulted in active teacher innovation, originality, vision, inspiration, concentration, impact on encouragement, efficiency and self-esteem. The study discussed key strategies to promote teacher's professional growth. Teaching and learning must be emphasized in all professional development programs. These programs focused on innovative teaching strategies to integrate technology into the curriculum. School administrators provided a supportive and collaborative environment

to foster professional development efforts among educators. This collaborative process promoted a positive environment for teaching and learning which encourages sharing and peer observation. Principals provided opportunities for mentoring and coaching relationships to be developed among educators. Administrators were encouraged to use a collaborative process to include the staff in the needed redesign of programs. All phases of professional training programs applied the values and main beliefs of adult, growth, and development. However, the concept of change theory was not a common element in principals' professional development.

Principals as Change Agents

Instructional leaders must be cognizant about the change process when developing and implementing a change strategy. Change strategies utilized to initiate system-wide reform must be usable for educators while maintaining their effectiveness (Dede, 1998). The following research presented a global overview of various change theories that provided a catalyst for systemic reform for the educational context.

Kurt Lewin (1947) developed a change theory approach for planned change when implementing reform initiatives that recommended the following three steps: (a) unfreeze the current state or create an encouragement to change; (b) move towards the new state and (c) refreeze the new state. His research served as the foundation for other more current change theories. When examining the concept of change, the critical challenge was whether organizations can provide the impetus and conditions needed to create a learning organization. There was the belief that the theory of change was omitted from the equation leading to successful reform which results in the failure of many reform

strategies. Educational change must be accomplished systemically and must be represented by a moral purpose. The research proposed that the only moral purpose of educating was to develop productive citizens by preparing students for the dynamic and continuous change they may encounter throughout their lives (Fullan, 1993).

Curry (1992) described this change process as "unfreezing oneself from currently held beliefs, knowledge, or attitudes; absorbing new or alternative attitudes and behavior; and refreezing oneself in a new state" (p. 51). Changing individuals' beliefs, knowledge, or attitudes required careful planning by the leaders responsible for the change process. The principal was required to facilitate planning and implementation of change within their context. Fullan (2001) states,

> Leading in a culture of change means creating a culture (not just a structure) for change. It does not mean adopting innovations, one after another; it does mean producing the capacity to seek, critically assess, and selectively incorporate new ideas and practices-all in time, inside the organization as well as outside it. (p. 44)

Kotter (1996) proposed the following eight step process for implementing top-down transformation: creating the awareness of urgency, establishing a guide for the sense of urgency, promoting coalition, creating a mutual vision and strategy, conveying the shared vision, empowering, establishing short term goals, firming the gains and concentrating on changes and promoting new changes in the atmosphere. Schwahn and Spady, 1998 noted successful leadership was accepting and supportive of the challenges that the change process involves. In an effort to prepare principals, sustaining the following five pillars of change were critical: (a) purpose-must be clear and meaningful, (b) vision statement- must be clear and compelling, (c) ownership-all stakeholders want

to be part of the change, (4) capacity-is about the ability to know and how to engage in productive change, and (5) support-leaders exhibit commitment to and involvement to the change process.

Hall and Hord (2001) examined the perceptions and feelings of participants in the change process. These participants' perceptions and feelings are identified as "stages of concern" and focuses on developmental patterns that evolved as the change process unfolds (p. 57). There was the belief that any interferences to support modification needs to be associated with the concerns of those participants, who are involved with the change constitute a fundamental principle in the development and use of the Concerns Based Adoption Model (CBAM). This model could be used to identify people's concerns at different levels in the change process to observe their progress in implementing context innovations (George, Hall, & Stiegelbauer, 2006).

Principals acquired a better understanding of the change process when they faced the challenges related to the integration of technology. For this change process to be implemented effectively and appropriately, the principals needed to be cognizant of how their stakeholders experienced this change. These experiences evolved around one's emotions, understanding, and growth as apart of this process. Principals as instructional leaders needed to identify and provide the necessary resources, professional development in order to foster positive growth, and implementation of the technology. Principals became cognizant that change was a continuum of events and not a single event. Stakeholders often experienced an *implementation dip*. This experience represented a downturn in functioning and certainty which required the principal to assess which leadership style was appropriate to encourage and support all stakeholders (Fullan, 2001).

Effective school administrators acknowledged that joint interaction among educators was necessary for efficient teaching and learning.

Principal and Teacher Collaboration

The principal needed to collaborate with the staff to facilitate implementation. Principals are challenged to acquire the skills and commitment needed to develop effective technology teams/committees. Team members must be empowered to collaborate in creating a vision of how technology impacts the future of their schools. Once the vision is established, it contributed to the teams' ability to accept, to commit and the possibility to ensure long lasting change (Anderson & Dexter, 2000; Rhodes, 1988).

Brennan (1997) noted even if a principal did not understand the technological aspects of a program, he must have a vision of its impact on the students. A successful transition occurs when leaders articulated and shared a vision. The author implied that school administrators should execute the change through example, education, support, empowerment, shared decision-making, and collegial leadership with faculty and staff (Ritchie, 1996).

Technology in the classroom improved student's motivation and attitude, increased family involvement in their children's education, and served as a tool to help teachers improve their classroom practice. All stakeholders should have a vested interest in the application of technology in the school system. Each group should be involved in the planning and decision-making (Moursund, 1983; Ritchie, 1996). Collaboration was considered to be the key factor in achieving the effective results in schools. It was critical

for a school to experience shared leadership which enabled administrators, teachers, students, and parents to work together in adapting new technologies to improve learning. Principals and teachers were faced with the challenge of reforming schools and classrooms in to a community which has been converted and changed the technologies. Many felt anxiety from the federal and state mandates to integrate computer technology across the curriculum. The school administrator's commitment was crucial to the success of any changes within an organization. The more committed the administrator and teachers were to an innovation, the more they practiced behaviors that would promote the success of the innovation. Teachers and principals needed ongoing professional development and opportunities to practice these learned behaviors in order for them to become proficient (Crandall & Loucks, 1982). However, this success may be hindered as a result of external factors.

Barriers to Effective Technology Implementation and Integration

Several barriers impedeedthe incorporation of technology in to the school syllabus. According to the National Center for Education Statistics (NCES), 82% of the teachers cited time as a barrier to implementing technology, 78% cited access, 68% lack of support in devising methods to incorporate telecommunications into the school program, 67% inadequate training opportunities, 64% inadequate technical support or help, and 43% lack of administrative support (NCES, 2000). Another roadblock to advancing technology in the classroom was accountability. The issue of accountability became critical with the No Child Left Behind Act (2001). Administrators and teachers

were accountable for student's test scores and pressure was placed upon them to increase scores.

Flanagan and Jacobsen (2003) discussed barriers to technology integration within Canadian school systems and categorized them into the following four basic themes (a) pedagogical issues, (b) issues related to fairness and impartiality, (c) insufficient professional growth and development, and (d) deficient informed leadership. The first theme examined pedagogical issues which involved the shifting of the teacher and school administrator focus from hardware, writing and skills acquisition to their questioning the role of technology in education. The following questions were considered within the pedagogical issues: (a) How can teachers use the research to better understand the link between technology, learning of students and pedagogy? (b) How technology can be employed in order to address the needs and requirements of different learners in schools and other educational institutions? (c) How support can be given to teachers in their uses of technology in order to enhance curriculum? (Flanagan & Jacobsen, 2003; Ausbrooks (2000) also reviewed the issues of teaching and learning through the auspices of academic achievement and behavior.

The second theme examined equity issues concerning technology integration in schools. All students who attended public schools should have the opportunity to obtain the essential skills needed to take part in the age of technology. The "digital divide" disaggregated students along gender, socioeconomic status, and ethno-cultural lines. There was increasing partiality in the access of technology and in the process incorporated for educating educate the children. Inequities impacted students on the basis of their region, students coming from poor families, minority students, gender, students

who did not excel academically, students who were learning English and disabled students (Ausbrooks, 2000; Flanagan & Jacobsen, 2003).

The third theme identified insufficient professional growth and development as the core impediment to the incorporation of technology in the school program. Teachers had limited exposure to ongoing professional development. Technology leaders were challenged to provide opportunities to excel professionally, which concentrated on the integration of technology and not on applications of computer (Blasé & Blasé, 2000; Dawson & Rakes, 2003; Flanagan & Jacobsen, 2003).

The fourth theme addressed how the lack of informed leadership was applicable to many school administrators who not ready to become technology leaders. There were a limited number of school administrators who used computers in efficient manner in order to educate children and they did not have the needed pedagogical vision and experience to manage and direct teachers (Ausbrooks, 2000; Bozeman & Spuck, 1991; Daresh, 2006; Flanagan & Jacobsen, 2003).

Hoffman (1996) identified principal support to be the most critical aspect contributing to the success or failure of any technology program. Hoffman further noted seven variables which contributed to the failure of the implementation and integration of educational technologies. Many of these variables were included in studies by Ausbrooks (2000), Bozeman & Spuck (1991), Daresh (2006), Flanagan & Jacobsen (2003), and Holland (2000). The first variable was a lack of administrative support for technology integration. The second variable involved inadequate staff development and technical support for educators. The third variable incorporated limited quantity, quality, and access of technologies in the classroom. The fourth variable indicated schools lacked

plans of action for execution and amalgamation of technology into the school program. The fifth variable encompassed budgetary restrictions which did not allow for the hiring of a technology coordinator to provide knowledge and technical help and support for both teachers and administrators. The sixth noted that funds and inadequate personnel to maintain hardware and software were insufficient. The seventh variable indicated technology committees were not established to plan, implement, and provide ongoing assessment of technology curriculum content. School administrators needed to establish a technology culture inclusive of all stakeholders to establish and maintain an effective program.

Spodark (2003) identified five obstacles to technology integration using a hierarchical pyramid. These obstacles included starting at the pyramid base: faculty participation, appropriate incentives, access to machinery, senior leadership, and institutional vision. However, Spodark emphasized if the first four elements were not present, a high level of staff participation is not realized.

Implications of the Literature Review

Flanagan and Jacobsen (2003) identified five key elements which addressed technology integration and implementation through effective administrative leadership. There was a shared vision, student engagement, equity of access, professional development, and ubiquitous network. These five elements contained some of the aforementioned criteria expressed in many of the previous studies for successful technology implementation in educational settings (Bozeman & Spuck, 1991; Brennan, 1997; Hope & Stakenas, 1999).

Flanagan and Jacobsen (2003) identified the first element as shared vision. The introduction of technology was accompanied by opportunities for all stakeholders to develop a common vision and shared purpose that included the integration of digital technologies. The second element was student engagement. Learning extended beyond the classroom walls through online collaboration, research and communication, sometimes with experts in the field. Students posed their own questions to guide research. The school administrator facilitated the creation of an environment which supports technology-rich classrooms that promote social interactions among students and respects the needs of the diverse learner. The third element was equity of access. The administration ensured equal access for all students and teachers in a manner which respects diversity and differences. Technology opportunities were made available for all students irrespective of gender or academic abilities. Effective technology use addressed individual learning styles and offered choice, while encouraging students to select activities that challenge stereotypes.

Flanagan and Jacobsen (2003) noted the fourth element involved effective professional development. Successful technology implementation into the classroom curriculum can be achieved with ongoing and timely professional development. Teachers were not expected to utilize tools and processes for which they had no training. Effective professional development included coaching, on-site in-services, individualized instruction, observation of information communication technology integration in practice, and self-directed learning.

The final element was ubiquitous networks. The school's technology network supported file sharing so that students collaborated on projects. Tools for preparing

presentations, analyzing data, mapping concepts, and communicating with others needed to be available without restriction for the students. Computer availability within classrooms encouraged daily usage, as opposed to, maintaining them in a lab setting, which reinforces the perceptions that computers were "add-ons", not central to the daily work of teaching and learning (Flanagan & Jacobsen, 2003).

Conclusion

There was limited research exploring how principals utilize technology or facilitated the integration of technology into the curriculum. An essential theme that surfaced within the body of the literature was the necessity for school administrators to become proficient in the utilization of technology in order to provide support, knowledge, and effective decision-making in developing a technology-rich learning environment (Anderson & Dexter, 2000; Ausbrooks, 2000; Brockmeier; Meyer & Mac Millan, 2001). Research regarding various change models supported the critical need for leaders to fully understand and accept the elements of the change process in order to effectively and successfully implement any innovations. A number of studies revealed the perceptions of school administrators are essential to determining their level of proficiency and belief in the validity of technology integration (Crandall & Loucks, 1982; Hope, Kelley, & Kinard, 1999; Stegall, 1998). The need for effective instructional leadership was an integral element emphasized throughout the literature. Principals were not utilizing the leadership tools and procedures necessary to ensure technology implementation and integration into the curriculum. A leadership style based upon collegial interactions with all stakeholders was the most effective. Various studies suggested that the school

administrator was responsible for providing a vision and guidance to integrate technology into the learning environment (Bozeman & Spuck, 1991; Brennan, 1997; Hope and Stakenas, 1999; Senge, 1999; Todd, 1989). The literature indicated the need for school principals and teachers to be afforded professional development opportunities. However, many school districts lacked sufficient funding for professional development, hardware, and software due to budgetary constraints (Blasé & Blasé, 2000; Dawson & Rakes, 2003; Hoffman, 1996).

There was a critical need for additional research to investigate principals' perceptions concerning the implementation and integration of technology into the curriculum. An assessment of their technology skills proficiency was a necessary component to meet professional development requirements in the planning process. Instructional technology leaders needed to model a high level of commitment to technology usage and promote a shared vision with all stakeholders. The challenge of implementing technology into the curriculum faced by principals required more than a single approach or outcome. It became paramount that principals executed a multi-faceted, multi-dimensional implementation process to facilitate change.

Chapter 4

Methodology

Introduction

This action research project provided school district principals with technology skill sets to enable them to become effective instructional leaders for technology integration into the curriculum. This was important because it focused on enhancing leadership skills for principals to apply effective technology instructional leadership activities. The acquisition of technology instructional leadership skills developed the principals' abilities to pass the acquired knowledge to teachers and students within the school context, and to integrate technology across the curriculum. I collaborated with the District Technology Department to develop at least four technology training modules that were offered to no more than six principals on a volunteer basis to build their leadership capacity in technology integration.

The research emphasized that school administrators need to play an integral role in the process of integrating technology into the curriculum. Gibson (2001) notes, "The number one issue in the effective integration of educational technology into the learning environment is not the preparation of teachers for technology usage but the presence of informed and effective leadership" (p. 502). Professional development was targeted for teachers, yet there was limited progress in the development of instructional leaders who utilized technology to complete automated tasks on a daily basis. Initially, classroom teachers were the focus of professional development technology training, as administrators modeled a supportive role. Technology was seen more as a vehicle of

change in school reform. However, teachers alone cannot implement technology integration. Principals were being pressured to take on a greater leadership role in the technology change process (Anderson & Dexter, 2000; Ausbrooks, 2000; Daresh, 2006).

Research Questions

The rationale for the research questions involved exploring the leadership behaviors necessary to facilitate and encourage principals to become effective instructional leaders for technology integration. The key elements that the research questions investigated were identification of critical technology needs principals may incur in the urban school setting, technology skill training through professional development, and identifying my leadership theory in use to encourage principals to effectively utilize the instructional leadership practices necessary for successful technology integration. This study explored answers to the following questions:

1) What major needs do urban school principals encounter while attempting to implement technology utilization within their schools?
2) How will a structured technology professional development program for principals build their capacity to integrate technology within their context?
3) How do my authentic instructional leadership behaviors facilitate and encourage school administrators in utilizing technology skills acquired from professional development training?
4) What are best practices for fostering instructional technology leadership in urban schools?

Research Design

I utilized the action research process as a method of inquiry to respond to the research questions. I worked collaboratively with other agents of change who helped to clearly identify the problem, enable others to better understand the dilemma, and then take action by working together to find a viable resolution (Glesne, 2006).

Action research was inclusive of the observing, reflecting and acting cycles. These cycles were essential elements within the qualitative research methodology (Glesne, 2006). Hinchey (2008) defined action research as a "process of systematic inquiry, usually cyclical, conducted by those inside a community rather than by outside experts; its goal is to identify action research that will generate some improvement the researcher believes importance" (p.4). Kurt Lewin (1946) categorized the action research process into a cyclical pattern. This pattern involved identifying a general idea, examine the facts of the situation, and then plan for the first step of action to take. After the first action step, a cycle of evaluating, fact finding, planning, and continued leading to an overall plan and additional steps of action continued throughout the action research process. The three stages involved in planning change through action research are: Stage 1-*Unfreezing* resulted when an individual or learning context becomes cognizant of a real-life dilemna or problem requiring the need to change. Stage 2-*Changing* occurred after the situation is diagnosed and new models of behaviors are researched and tested. Stage 3-*Refreezing* occurred after the new behaviors are evaluated and adopted.

My action research design employed a mixed methods approach consisting of qualitative and quantitative data collection which was appropriate to effectively answer the research questions. The rationale for choosing mixed methods research was

predicated upon the belief that all research methods had limitations and researchers posit that “biases inherent in any single method could neutralize or cancel the biases of other methods” (Creswell, 2003, p. 15).

When examining qualitative research, the following attributes were noted in the literature: qualitative researchers dealt with the process and did not concentrate on the result or outcome; they wanted to know about the individuals, their experiences, their lives and the world. Qualitative data sources for this action research resulted from holding focus group meetings and in-depth interviews (Patton, 1990) with selected principals. “Interview data for program evaluation purposes allow the evaluator to capture the perspectives of program participants, staff, and others associated with the program” (Patton, 1990, p. 278). An aspect of conducting my qualitative research involved engaging in fieldwork, collecting data onsite, setting or institution and recording behaviors in the natural ambience (Creswell, 1994; Merriam, 1988). Collecting qualitative research allowed me to triangulate participant observations, systematic interviewing, focus groups, and artifact collection to explore the research problem (Yin, 1994).

The quantitative approach involved the use of objective data collection and analysis in order to make generalizations concerning the study participants. The analysis of quantitative data involved the employment of various research methods inclusive of a questionnaire or a survey. The survey findings were expressed numerically and may be subjected to statistical analysis, which allowed the researcher to calculate future events in order to draw a suitable conclusion (Glesne, 2006; Hinchey, 2008). “By utilizing qualitative and quantitative techniques within the same framework, mixed methods

research can incorporate the strengths of both methodologies" (Johnson & Onwvegbuzie, p. 23).

Data Collection Strategies

Quantitative data collection commenced when each school was administered an in-depth technology proficiency *Levels of Teaching Innovation Digital-Age Survey* (LoTi) which the school district subscribed to and was available for this study to determine the levels of proficiency in technology usage. This instrument evaluated the teachers' and the administrators' level and knowledge of technology integration, particularly in context to the use of computer in each building. The LoTi survey developed by Chris Moersch, has 50 questions with seven technology implementation levels. These ranges included from non-use, which was (0) level and to refinement, which was level six (6) (Moersch, 1995). The survey was devised in order to evaluate the practices found in classrooms by using microcomputers. Majority of the educators (more than fifty percent) were between the level zero and two which showed that technology implementation was very low (Moersch, 2001).

The main focus of the *Levels of Teaching Innovation Digital-Age Survey* (LoTi) framework was that both principals and teachers progress from lower levels of technology incorporation, which included teacher oriented, higher levels of use, based on the learner based project development. Moersch (1995) suggested that school districts concentrate on the development of staff which permitted teachers and administrators to advance curriculum incorporation of technology at their personal pace. Moersch also suggested that the administrators should develop long term technology vision, goals, and

action plans that incorporated funding and technology expansion. It was critical for principals as instructional leaders to create an atmosphere, which would promote the need and the efficient use of technology incorporation in the daily school program. Additionally, when measuring the level of technology integration, the LoTi survey measured the Personal Computer Use (PCU) and Current Instructional Practices (CIP) of the principals. The PCU profile determined the comfort and competence level of the participant, who used the computer. The CIP profile calculated the preferences of the participants in context to instructional practices available for the particular subject (Moersch, 2002). The answer choices were given in the Likert-type scale where 0 is "no answer," 1-2 is "not true of me now," 3-4 is "somewhat true of me now," and 5-6 is "very true of me now." The respondents selected the given number, which defined their technology practice. Then, each answer was converted to a response table, which was arranged for the given question in accordance to the level. Each LoTi level illustrated the different and distinctive level of implementation, which ranged from nonuse and refinement (see Appendix A).

Upon completion of the *Levels of Teaching Innovation Digital-Age Survey* (LoTi), principals were invited to take part in the study and ethical guidelines were considered. The number of study participants was limited to a small sample size of no more than six principals. The criteria for selecting the participants were based upon the need for technology professional development as evidenced by the results of the LoTi survey and their willingness to participate. The study excluded district supervisors, vice principals, and directors. Additional quantitative data was collected through formative and summative surveys administered after the training modules in order to have

continuous feedback regarding the progress of the training series, to gauge the principal's perceptions of the training modules and to facilitate any changes that occurred as a result of the professional development. The results were quantified by employing the responses of the participants to the Likert-scale item, which was equal to each tool or instructional strategy.

Qualitative data collection consisted of multiple processes such as field notes, individual interviews, and focus group interviews which were utilized for this research project (Glesne, 2006). According to Lichtman (2006) qualitative research is defined as:

> …a way of knowing that assumes that the researcher gathers, organizes, and interprets information (usually in words or in pictures) with his or her eyes and ears as a filter. It is a way of doing that often involves in-depth interviews and/or observations of humans in natural and social settings. It can be contrasted with quantitative research, which relies heavily on hypotheses testing, cause and effect, and statistical analyses. (p. 23)

Field notes were recorded throughout the data collection process of this action research. According to Bogdan and Biklen (2003) field note data chronicled what I heard, viewed, and experienced during my interactions with the study participants in their natural settings. All field notes gathered from participants were written and typed following each session in order to maintain the integrity of the data (Glesne, 2006; Hinchey, 2008).

The interview and focus group protocols were in alignment with the research questions. The protocol questions were pre-tested on principal colleagues to determine if additional revisions were recommended. Creswell (2003) noted when the researcher was engrossed in the subject and communicated with the people during the action research,

the researcher was prone to acquire knowledge through every interview and data collection and could utilize this data to modify questions and path of the investigation with the next participant. The interview sample was purposeful. The intent of interviewing individual principals further investigated their individual usage of technology, how their school's technology vision was communicated to their staff, their level of technology proficiency, and the integration of technology across the curriculum. According to Yin (2003) interviews were defined as "guided conversations rather than structured queries" (p. 89). Purposively selected principals were interviewed one-on-one with their consent. Kvale (1996) noted the purpose of the interview was to collect rich qualitative data and discover how study participants understood their world around them. The following were attributes of a quality interview:

a) The extent of spontaneous, rich, specific, and relevant answers from the interviewee.
b) The shorter the interview's questions and the longer the subjects' answers, the better.
c) The degree to which the interviewer follows up and clarifies the meanings of the relevant aspects of the answers.
d) The ideal interview is to a large extent interpreted throughout the interview.
e) The interviewer attempts to verify his or her interpretations of the subject's answers in the course of the interview.
f) The interview is "self-communicating" — it is a story contained in itself that hardly requires much extra descriptions and explanations (Kvale, 1996, p. 145).

Focus group interviews were advantageous because they provided the participants an opportunity to express multiple perspectives on various issues involving their technology usage. Berg (2007) stressed …"focus group interviews are a useful strategy either as a standalone data-gathering strategy or as a line of action in a triangulated project" (p. 144). Data collected from the focus group meetings served as a critical component of data triangulation strategy utilized for this action research.

Each principal was assured that all data collected remained strictly confidential. Creswell (2003) stressed "qualitative methodology is well suited for investigative research where the researcher intends to develop new knowledge and create a base understanding of a problem set" (p. 215).

Setting

The school district profile data was acquired by interviewing the district's communications officer. The setting of this study was a large urban school district of thirty-three sites consisting of five high schools, five middle schools, three alternative education schools and 20 elementary schools serving a pre-K – 12th grade population of approximately 15,000 students. The school district was operated by a three part board, three members were appointed by the Governor and three were appointed by the Mayor, and the remaining members were elected by the public. The school district was represented by a multiplicity of ethnicities consisting of 54% percent African-Americans, 43% percent Hispanics, 1% Caucasian, and the remaining percents were composed of Asian and Mexican students. The school district experienced a 20% inter-district an intra-

district student mobility rate. The certificated staff was composed of 53% percent African- American, ten percent Caucasian, and 10% Hispanics.

Seventy-five percent were female and the 25% were male. Seven percent had bachelor's degrees, 28% have a Master's degree, and 2% have attained doctorate degrees. Seventy-five percent of the students were eligible for free lunch and 5% receive a reduced price lunch. Total cost per pupil was approximately $15, 407. The district was subsidized primarily by federal, state and embedded grant funding. Approximately 7.4 million dollars of the total budget was derived from local taxes and this figure has not changed in the last ten years due to the state legislation which dictated that taxes cannot be raised. The budget for 2009-2010 was based on level funding which was the same operating budget from the previous year.

Additionally, the school district was in need of improvement according to the sanctions legislated under the No Child Left Behind (NCLB, 2001) guidelines. Only ten schools have achieved Adequate Yearly Progress (AYP) in the 2007-2008 and thirteen have made Safe Harbor according to these federal guidelines. As a result of the district not achieving the mandated benchmarks, the district has undergone a Collaborative Assessment and Planning for Achievement (CAPA) review, as well as the New Jersey Quality Single Accountability Continuum (QSAC) review in order to improve academic achievement in Language Arts Literacy, Math and Science with technology integration. These assessment teams provided best practice recommendations for the management of schools and their instructional staff. The No Child Left Behind Act of 2001 mandated that policymakers, administrators, and educators developed technology integration initiatives to enhance education through technology. There were two important parts to

this bill in regards to technology. The initial part of the bill focused on student achievement through the use of technology and the second part focused on professional development for teachers and administrators. Title II, Part D, Goal 1 of the NCLB Act, emphasized the improvement of student's achievement in academics with the use of technology in elementary and secondary schools. The document also focused on (a) technology integration initiatives, (b) building access, (c) accessibility, and (d) parental involvement. Title II, Part D, Goal 2(b) of the Act stressed effective integration of technology into the professional development of teachers, principals, and other school staff. The NCLB goals caused schools to focus on building a strong infrastructure to enable the integration of technology into the curriculum. Therefore, school administrators were required to get involved in technology integration in their respective schools. There were approximately 166 district administrators, however, this study focused only on the 33% district principals who lead these schools. A purposeful sample of up to six participants was chosen from the district's principals based upon the results of the initial technology assessment questionnaire, and their willingness to participate. I followed the mandated ethical guidelines inclusive of the five basic principles:

> Research subjects must have sufficient information to make informed decisions about participating in a study; research subjects must be able to withdraw without penalty, from a study at any point; all unnecessary risk to a research subject must be eliminated; benefits to the subject or society, preferably both, must outweigh all potential risks; and experiments should be conducted only by qualified investigators. (Glesne, 2006, p.130)

The small sample size of this study limited the ability to generalize the results of the study. The internal validity of the study was assured by the triangulation of data, and the external validity was assured by generalizing the findings to theory in current literature (Yin, 1994).

Conceptual Framework for Change

Instructional leaders who understood the change process prior to implementing system-wide reform must be equipped with the necessary tools to provide positive leadership (Senge, 1990). Therefore, the conceptual framework for this action research was dually guided by the concept of Senge's leadership through personal mastery and Schwahn and Spady's (1998) five pillars of change model for implementing change within a learning organization. The rationale for using this dual approach for the conceptual framework of change was in alignment with my leadership theory in use.

Personal mastery was at the inner core of leadership (Senge, 1990). Senge described personal mastery as, "Learning to expand our personal capacity to create the results we most desire, and creating an organizational environment which encourages all its members to develop themselves toward the goals and purposes they choose" (Senge, p. 7). Principals needed to participate in effective professional development to acquire the necessary technological skills in order to lead in this digital culture. Senge (1990) wrote, "Organizations learn only through individuals who learn. Individual learning does not guarantee organizational learning. But without it no organizational learning occurs" (p. 139). Administrators needed to practice the discipline of personal mastery for technology to be successful in schools.

Schwahn and Spady (1998) noted successful leadership was accepting and supporting the challenges incurred from the change process. In an effort to prepare principals, sustaining the following five pillars of change were critical: (a) purpose-must be clear and meaningful, (b) vision statement-must be clear and compelling, (c) ownership-all stakeholders want to be part of the change, (d) capacity-was about the ability to know and how to engage in productive change, and (e) support-leaders exhibit commitment to and involvement to the change process.

Schwahn and Spady's (1998) five pillars of change model provided a framework for implementing change within the organization which is in alignment with the core characteristics of the authentic leader. The authors linked five essential leadership "performance domains" such as authentic, visionary, service, collegial, and quality with the five elements for effective organizational change: purpose, vision, ownership, capacity, and support. The first pillar was purpose – establishing a clear and compelling need. The need was established utilizing the transformational tenets of my authentic leadership. A District Technology Committee (DTC) was established to identify those principals who were in need of improving their instructional leadership technology skills. This committee was responsible for evaluating the needs of the principals and developing the training modules for professional development. Until levels of technology proficiency were realized, teachers and students within the school district were not in compliance with the technology sanctions of the NCLB legislation. This sanction required educators and students to attain technology proficiency and effective integration of technology into the curriculum.

The second pillar of change was reflected in the development of a clear and compelling technology vision statement. My actions as a visionary leader were predicated upon my ability to work collaboratively to inspire all participants to actualize the district's technology vision. These actions provided a blueprint for technology success. Technology leadership required new knowledge, policies, and strategies in order to facilitate effective utilization of information technology in the learning context and teaching profession (Anderson & Dexter, 2005). The third pillar of change was developing *ownership* through *collegial* leadership. The researcher must build a high level of trust with all stakeholders which empowered them to be passionate in fulfilling the technology vision. "Leaders who exhibit characteristics of a collaborative leadership or transformational style have greater opportunities for success in developing a professional learning community" (Huffman and Jacobson, 2003, p. 248).

The fourth pillar of change focused on building *capacity* by employing quality leadership. The professional development modules and focus group discussions potentially impacted the principal's technology capacity and enhanced the quality of their instructional leadership. Researchers noted, "Technology leaders needed to identify their own technological skills and address those skills in the same manner that they seek to develop the skills of their teachers" (Braswell & Childress, 2001, p. 474). Failure to do this caused administrators to lag behind their staff in utilizing technology skills which potentially made them ineffective as technology leaders. When principals were cognizant of the technology standards and accountable for the classroom integration taking place in their buildings, providing opportunities for meaningful professional development helped

to motivate them to develop personal mastery in the area of technology and enhanced their instructional leadership capacity (Senge, 1990).

The fifth pillar of change provided support through modeling servant leadership. My servant leadership incorporated an ethic of care, determination, and consistent dedication to support the principals' abilities to achieve the district's technology vision. Transformational leadership provided intellectual direction while at the same time empowering and supporting teachers as partners in the decision making process (Marks & Pritny, 2003, p. 371). Principals were not able to effectively model the integration of technology in the classroom unless they were sufficiently proficient and therefore, needed to commit themselves to their own personal mastery (Senge, 1990; Schwahn and Spady, 1998).

Overview of Action Research Project

Cycle I. Cycle one of the action research study commenced January, 2009 and ended in March, 2009. This cycle facilitated in the establishment of the District Technology Committee (DTC), that analyzed the needs assessment and developed a professional development program, surveys, and questionnaires for the study participants. I scheduled a minimum of four meetings with the DTC in order to establish a viable Committee composed of members from the District's Technology Department, and the Assistant Superintendent. The content validity of this study was determined by the members of DTC who had experience or knowledge of instructional technology usage, implementation, and needs in an urban school district. The DTC reviewed all questionnaires and surveys for clarity, appropriateness, relevance, and meticulousness of

the content. The interview, focus group, and survey questions were piloted by three principals who were not participants in the study group. Internal validity was assured through the triangulation of data collected from multiple sources. Data collection procedures and data analysis were assured reliable when the data was carefully recorded so that future researchers could conduct the same action research study and may reach similar findings and conclusions (Yin, 2001). Maintaining the integrity and validity of this action research study was paramount to me and my leadership of this project. The establishment of this committee was in alignment with my authentic leadership theory in use which provided me the opportunity to utilize my transformational leadership skills to establish a clear, heartfelt, and meaningful purpose to conduct this study. As a visionary leader, it was critical to establish the needed blueprint for change by working collegially with the technology committee to ascertain the type of professional development training modules required to effectively train the study participants. Discussion determined the appropriate timing administrators to participate in the school district Levels of Teaching Innovation Digital-Age Survey (LoTi). Once the assessment was taken by all district principals, the results were shared with the District Technology Committee (DTC). Principals who exhibited low levels of skill proficiencies and integration received an invitation to participate in the study. Letters of participation and consent forms were sent to those selected principals requesting their consent to participate in the study. (see Appendices B & C). Self-addressed envelopes were provided for the return of the consent form. Each participant received a follow-up phone call and/or e-mail if a response was not received by the requested date. Participation was limited to no more than six principals. Based upon the analysis of the LoTi data and collaborative discussions with

the DTC, the appropriate content was developed for four professional development training modules that were offered to participants who achieved low level technology proficiency scores.

Cycle II. Cycle two continued from April 2009 until the end of August 2009. Cycle two activities implemented the professional development modules using various software applications used to enhance the curriculum and collect rich qualitative and quantitative data. Participants completed an initial participation survey (see Appendix D). This survey was developed using a Likert scale and provided quantitative data composed of six demographic questions and an additional six questions to ascertain the principal's perception about his/her professional development experiences. Principals were informed about the professional development training titled "Techie Tuesdays for Principals", which were held on select Tuesdays from 2:00 pm-4:00 pm at the District Technology Department. Principals were granted release time from their buildings by the Board of Education to participate during the regular workday. An initial focus group meeting was held prior to the implementation of the training modules to engage all participants in a discussion of six open-ended questions which provided qualitative rich narrative data (see Appendix E). Reponses to the questions were audio-recorded and immediately transcribed verbatim. Four professional development modules were implemented and each session was conducted for two hours. Additional quantitative data was collected by administering formative surveys to evaluate training effectiveness (Appendix F). Each survey consisted of six questions based on the Likert scale and two open-ended questions. The same formative survey was utilized at the completion of each training module. Observations of the participants during the training sessions provided useful qualitative.

The administrators were identified throughout the research project using pseudonyms. Field notes from participant observations were written and typed following each observation session in order to maintain the integrity of the data. Additional collaborative meetings with the District Technology Committee were held to assess the progress of the technology training modules and plan for additional training sessions as needed. Additional training modules were held during this cycle if needed. Utilizing transformational elements of my authentic leadership, I empowered the participants through fostering their sense of ownership. In order to gain their commitment and willingness to participate, they must trust in how these training modules built their capacity (Senge, 1990; Schwahn & Spady, 1998).

Cycle III. Cycle three events occurred from September 2009 through December 2009. These cycle activities provided ongoing support for the participants to foster sustained change through using servant elements of my authentic leadership. At the culmination of the four training modules, each participant completed a summative survey to assess the impact upon the principals' instructional leadership activities as a result of their participation in the professional development workshops (see Appendix G). The summative survey consisted of six questions based on a Likert scale and four open-ended questions, which would take only fifteen minute or less to complete. A final focus group meeting allowed all participants to further reflect upon their individual progress and the effectiveness of the professional development training modules. This focus group meeting gave the participants a voice in determining their level of ownership and commitment to the district's technology vision. This meeting engaged the participants in a discussion of six different open-ended questions which provided additional qualitative

rich narrative data (see Appendix H). This focus group session was approximately forty-five minutes to one hour and the responses to the questions were audio-recorded and immediately transcribed verbatim. I visited each principal's school to conduct individual interviews and allowed the principal to give voice to her overall experience. The participants responded to six open-ended questions and the interview lasted no longer than thirty to forty minutes to complete (see Appendix I). Additional rich qualitative data was gleaned from these interviews. Reponses to the questions were audio-recorded and then immediately transcribed verbatim following each interview session in order to maintain the integrity of the data. The interview session with each participant was the last event to finalize data collection.

This study had the following limitations for all three cycles: (a) the sample size consisted of up to six elementary principals located in one large urban school district; (b) The results were not universally generalized because of the small sample size; (c) some principals who participated in the study would not continue in their present positions; (d) principals would not actually use the newly acquired instructional leadership and technology skills to enhance the curriculum; (e) the budget of the school and the level of technology within the principal's school could be limited; (f) the data from the interviews, focus groups, and survey questionnaires represented responses that were self-reported and may not be completely accurate; and (g) because the training was voluntary, I could not force or guarantee that principals would participate.

Cycle IV. Cycle four events evolved simultaneously during the cycle three timeframe from September 2009 through December 2009. The purpose of this cycle was to discuss my new role assignment as the new Director of Technology for the school

district and its impact on my action research project. This cycle provided me with the opportunity to reflect upon my relationship to the school district's organizational structure, technology vision, and activities needed to foster the continuation of the district's technology change process. My position as the new Director allowed me to focus on the culture of the organization by analyzing the following four frames, consisting of structural, political, human resources, and symbolic identified by Bolman and Deal (1997). When I critically reflected and viewed my organization from the four frames, I was able to clearly understand my role in the organizational dynamics and interrelationships.

Although the professional development training sessions had been completed with the study participants, I decided to continue the vision of building capacity by extending the trainings to all District administrators. An additional training session was held on November 21, 2009, and an anonymous survey was administered to all participants to collect quantitative data. A discussion of the analysis of the change process and my leadership as it applied to Schwahn and Spady's pillars of change was expounded upon in this cycle.

Cycle V. The development of my espoused leadership theory in use was at the core of my action research and my personal focus while taking this doctoral journey. I believed that it was paramount for me to continue to monitor my leadership progression while completing the dissertation process. My intent was to use the following plan of action that incorporated a triangulation of leadership data gleaned from a) my evaluation of self, b) how others perceived my leadership, and c) examining my leadership practices noted in my leadership journal during this action research project. The evaluation of self

and how you were by others was accomplished by utilizing the Leadership Practices Inventory (LPI) designed by Kouzes and Posner (2003) (see Appendix J). This tool engaged me in measuring my leadership skills based upon inventories distributed to myself, my direct reports, the study participants, and others. This quantitative data showed how my self-perceptions compared to the perceptions of others. The instrument provided feedback, developmental focus, and recommendations to individuals about their management strengths and developmental needs.

I also reflected upon how strongly I believed in my actions described in my leadership journal and how they related to my leadership behavior during the research project. The art of daily journal reflection concerning my field experiences whether positive or negative enabled me to celebrate successes and learn from my mistakes as a leader. As I progressed in my doctoral journey, my continued growth was rooted in the value of ongoing self-reflection regarding my leadership practices. The process of daily journaling provided me a tool to facilitate the opening of my mind, heart which was necessary for affecting change. One of the most insightful facets of leadership gleaned from my graduate studies was to develop my capacity to better understand "Self" as the vehicle to allow new changes to emerge within my organization (Scharmer, 2009). Engaging in the process of reflection continued to empower me to build a strong foundation of trust, service, and partnership with all stakeholders involved in this action research project. This data was reread and coded in order to analyze patterns of leadership behaviors and my level of personal mastery as I conducted my action research. Utilizing and assessing these objective measures helped me to determine the enactment of the tenets of my authentic leadership practices. The need for triangulation of the data

regarding my leadership behaviors came from the ethical requirement in order to verify the authenticity and validity of processes (Glesne, 2006).

Data Analysis

Data analysis was defined as the "Process of deciding what new information the collected data provide. During the analysis process, researchers sifted through the data looking for patterns or themes. Data analysis yields the researcher's findings" (Hinchey, 2008, p. 86). Qualitative data collected from observations, interviews, focus group meetings, journal entries was color-coded and categorized by using a hand written matrix. This data was analyzed by rereading all observations, interviews, focus group responses, and journal entries in order to analyze patterns of technology leadership behaviors, level of personal technology mastery, and the level of technology integration within the school environment. There was a need for triangulation, which came from the ethical need to verify and confirm the authenticity of the processes. This was attained by employing several sources of data (Yin, 1984). I used the process of member checking to ensure the accuracy of fieldnotes, observations, and interview transcripts. Once the predominant themes surfaced, the findings section of the study is completed (Bodgan & Biklen, 2003). Quantitative data collected from questionnaires and surveys was analyzed utilizing an online software application titled Survey Monkey. This web-based tool allowed me to input the data, collect the responses, and review the results in real-time. The presentation of data can be accomplished by displaying charts and/or graphs utilizing the Microsoft Office Excel Spreadsheet application.

Conclusion

When principals were provided with necessary development for technology implementation, they could become more effective leaders for technology. Their teaching staff was positively supported and influenced to utilize and implement technology into the classroom on a daily basis. It was hoped that sustained technology integration followed as a result of my action research project. It was my intent to employ professional development training and evaluate the outcomes for principals to build their personal capacity which provided the participants with a link for technology integration and the anticipated changes within their learning context.

Chapter 5

Project Implementation

Introduction

The successful integration of technology in schools required effective leadership through modeling its use, being visionary, and most importantly acquiring personal proficiency in educational technology. Recent studies suggested that the most important issue in the effective integration of educational technology in schools "is the presence of informed and effective leadership" (Gibson, 2001, p. 43). However, many experienced administrators were not proficient with technology use and acquired minimal or no training in this area (Gibson, 2001). Acquiring the necessary technology skills was noted as critical in moving forward and implementing change in the educational process in the 21st Century (CEO Forum, 2001, Partnership for 21st Century Skills, 2006). Fullan (2001b) stressed essential roles for educators for facilitating the change process: initiation, implementation, and institutionalization. The principal became a key agent in the change process. "The principal has always been the 'gatekeeper' of change, often determining the fate of innovations coming from the outside or from teacher initiatives on the inside….Principals are now expected to lead change, and thus they have become a critical source of initiation" (Fullan, 2001b, p. 59). "All major research on innovation and school effectiveness shows that the principal strongly influences the likelihood of change, but it also indicates that most principals do not play instructional or change leadership roles" (Fullan, 2001b, p. 82). Managing change was a complex process. The principal was the person most likely to initiate change with effective implementation.

The principal influenced organizational conditions including: shared goals, collaboration, and monitoring (Fullan, 2001b).

This action research project provided school district principals with technology professional development. My vision initiated a change process which enabled them to become effective instructional leaders for technology integration into the curriculum. This action research project involved the utilization of facets contained within Schwahn and Spady's *five pillars of change* which were (a) purpose-required clarity and meaning, (b) vision statement- must be clear and compelling, (c) ownership-all stakeholders wanted to be part of the change, (d) capacity-the ability to know how to engage in productive change, and (e) support- leaders exhibited commitment to and involvement to the change process, and Senge's leadership through personal mastery for effecting change within an organization. The five pillars of change were evident in the initial planning process which involved the collaborative participation of the District Technology Committee to develop, and implement the action research project. These *five pillars of change* were essential elements embedded throughout the change project. Senge's personal mastery framework was realized within the professional development activities of the action research project which was critical for increasing the participants' leadership capacity.

My project was based upon the cyclical tenets of action research. Action research tends to be cyclical when the clients and informants were involved as partners, or at least active participants, in the research process; qualitative when it pertains frequently with the spoken language than with numerical data; and reflective when there was critical reflection upon the process and outcomes were important components of each cycle.

A commonly known cycle was one based upon the model of Kemmis and McTaggert (1988) consisting of the following steps: plan, act, observe, reflect, and the plan for the next cycle. Each cycle discussed in this chapter was composed of a continuing spiral of *planning, acting* (implementing plans), *observing* (systematically), *reflecting* and then re-planning if necessary noted in Figure 1.

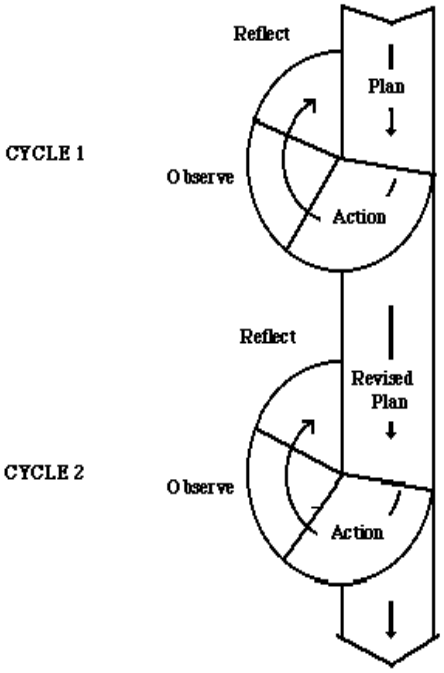

Figure 1. Action Research Protocol after Kemmis (cited in Hopkins, 1985)

My action research was inclusive of five cycles. The first cycle was inclusive of the process for developing the fundamental components of the change project. This involved the establishment of a District Technology Committee, identification of an appropriate needs assessment to select project participants, and the creation of

professional development training modules to facilitate the augmentation of effective leadership technology capacity. The second cycle encompassed the implementation of the professional development training modules. The third cycle encompassed collecting and analyzing the data of my project's effects upon the study participants', my leadership, and the change process. The research activities within the third cycle allowed the study participants to have a voice in the change process through dialogue and reflection. Cycle three included an analysis of my new role as the district's new technology director, and its impact on my action research project, interviewed each participant as a follow-up to the professional development trainings, held a post professional development modules focus group meeting, and collected and analyzed the participants' responses to the summative survey. This cycle represented the culminating activities with the study participants and yielded a number of themes relating to leadership implications and the change process.

During the third cycle, there was a major change in my leadership role. I was no longer a peer of the principals due to my acceptance of the position of the Director of Technology for the school district. This change in my leadership allowed me to provide ongoing support for the participants to foster sustained change through using servant elements of my authentic leadership. This staff management position placed me in an advisory and support position for the study participants and other district administrators. However, this positional change transitioned my authority upon the District Technology Committee as I became their direct manager. The fourth cycle further investigated my leadership in relation to my change in my position from a principal to the Director of Technology in detail. The fifth cycle involved an analysis of my leadership theory in use while engaging in this action research project.

Cycle I - Developing the Change Project

Cycle one of the action research project commenced in the month of January, 2009 and ended in March, 2009 after the appropriate submission of my action research protocols to Rowan University IRB for approval. The ethical conduct of research on human subjects was of paramount importance, and I made the commitment to conduct my action research project with my colleagues in an open and respectful manner. I completed the necessary documents to apply and received IRB approval. I noted in my journal, after checking the website I had achieved IRB success. It was a proud moment for me as an approval code was assigned to my project. I recalled in the Changing Organization class taught by Dr. Coaxum, it is important to celebrate the small things that occur within your organization (Leadership Journal, January, 2009)

Purpose. This cycle involved the establishment the District Technology Committee (DTC). This committee was created to analyze the technology needs assessment of the District's principals in order to provide a professional development program to increase their personal technology capacity and enhance their instructional leadership skills. This committee was also charged with the task of reviewing the validity and clarity of the surveys and questionnaires I developed for the study participants. There were five planning sessions scheduled to meet the needs for the project development and implementation.

Planning meeting one. The prelude to the first cycle activities began with a brief meeting with Ms. Carter, the Technology Director, which occurred on December 1, 2008 at 10:00 a.m. in the office of technology. After several phone calls, I was able to secure an appointment to discuss my research proposal and requested her support in undertaking

this project. I arrived at the technology conference room and was graciously greeted by the Director. I initiated the conversation by reminding her that a few years ago, during a conversation in my school building, that I expressed an interest in working with the Technology department as I pursued my dissertation research. She recalled that my focus involved principals exercising a more effective leadership role in technology integration into the classroom and building their technical skills through professional development. Ms. Carter commented, "It has always been my dream for our department to do a much better job at showing the principals how to fully understand the need for technology integration to be used on a daily basis in the classroom and getting more professional development." We continued our discussion about the large amounts of software and hardware that the District has invested in, however, there needed to be a greater awareness of how the teacher and principal infused technology into the curriculum in order to meet the NCLB requirements. Ms. Carter noted that the teachers in the district needed to become more proficient at developing their skill sets in embedding technology as a part of their lesson planning and daily teaching strategy in the classroom. The Director also stated, "The district's technology vision would be realized by providing intensive and extensive professional development training for the educational staff to incorporate technology into their instructional activities." She noted that the principals were a catalyst in making this change happen within each school building. She then excused herself and noted that she would return quickly with some of the members of the department to meet with me. When Ms. Carter returned, she was accompanied by four individuals, who eventually became members of my action research District technology committee. The first individual was an African-American male who introduced himself

as Mr. Chipworth. He was the Department Chief Engineer who had served in that position for ten years. His primary responsibility was to monitor and maintain the District's network functions. The second African-American male was one of the department's instructional supervisors and introduced himself as Mr.Wainright. Mr.Wainright had recently joined the department from another school district and he possessed a wealth of experience working with the middle and high school staff and students. The third person was an African-American female named Ms. Prindable, who had been a member of the school District with an excess of fifteen years experience as a classroom teacher, technology coordinator, and presently an Instructional Supervisor who worked with elementary students and staff. The last member introduced was an African-American female named Ms. Whitman. She was an individual who also had served the District for over fifteen years in the capacity of a classroom Instructional Para Professional, Teacher, Technology Coordinator, and presently the department's Educational Program Supervisor Specialist. Her primary role was to facilitate the scheduling of global telecommunication instructional experiences for students and teachers, and she also provided technology professional development for District staff. In addition, the two instructional supervisors were also responsible for providing professional development at the district and school levels. I realized early on that these individuals would be a great asset to my action research project.

Ms. Carter, the Director and her immediate staff listened intently as I provided a brief overview of my action research. I expressed how providing professional development for the principals was a grassroots effort in building technology capacity with a select group of principals. Ms. Prindable, the instructional supervisor noted, "This

sounds like a good project, ah Yes, each time I visit some of my schools, I am concerned about the lack of integration on the teacher's part in the classroom.” Mr. Wainright, the instructional supervisor spoke about the problem with some of the high school principals and their lack of technical and integration skills. Mr.Chipworth, the Network Engineer smiled and stated, "I do not know that much about technology integration either but I'd like to learn more about it and how we can help you." The Director stated, "There is a need for more professional development of principals. I believe you have a good project. I would love to read your research paper when you are finished."

As I summed up my proposal, each of the meeting participants were smiling and agreed to lend their support to provide professional development opportunities for the District's principals. The meeting lasted approximately ninety minutes and at the end, each person shook my hand and wished me well in my endeavors. I promised each person that I would e-mail a copy of my research proposal for their perusal. I noted in my journal it was my intent to schedule a second meeting while present at the first one, but I waited upon the Board of Education to approve my proposal. Patience was certainly a virtue. Now, I must wait upon the political stamp of approval before I can get started. The initial meeting went well and it was great to have the support of the technology department. Having that buy-in was so critical to achieve success when attempting any task. I was excited about getting started and I appreciated the department members’ collaborative spirit. (Leadership Journal, December, 2008). As an authentic leader, it was necessary for me to seek the commitment from each of the members of the technology department by fostering teamwork and establishing a clear vision for the technology project. According to Schwahn and Spady (1998) significant tasks that were undertaken globally were

achieved in creative teams because projects were too massive and multifaceted for one individual to accomplish on his or her own.

Planning meeting two. Prior to the second meeting, I received some disappointing news about the existing Director. There was an obstacle thrown into my path of progress. The Director of Technology unexpectedly retired earlier than scheduled. She decided to retire effective the end of December, 2008 instead of June, 2009. During the last few years it was rumored that she may retire, but she was always persuaded by administration to remain in her position. Persuasion from the superintendent did not work, and she officially retired right at the onset of my project. The retired Director and I spoke briefly by telephone and she tried to comfort me by stating, " Don't worry...I will let the person in charge know when I leave they are to help you out ... cooperate with you on this project." My response was one of disappointment due to this drastic change in leadership, but I was encouraged by her parting statement. I reflected in my journal, change certainly hurts and created a level of intense stress and anxiety. What did the future hold for me and this project? Practicing patience was oftentimes so much harder than one thinks when trying to initiate change. (Leadership Journal, December, 2008).

I realized that I had to be true to my espoused authentic leadership to ensure the continuation of my framework for change. This became quite evident when I exhibited patience and resolve to the project when there was a major modification of the leadership dynamic with the retirement of the Director. My authentic leadership practices allowed me to utilize two elements of Schwahn and Spady's (1988) five pillars of productive change, as I focused on *supporting* and motivating the members of the District Technology Team concerning the *purpose* of my action research project. I continued to

express to the DTC that if there was no meaningful purpose for building the principals' technology capacity then there would be minimal productive change within the organization to integrate technology into the curriculum. I was an advocate for the importance of productive change needed in my organization. According to Schwahn and Spady, "Purpose lies at the very heart of both organizational change and organizational success. Establishing purpose is a Total Leader's most basic and important task" (p. 22).

The second meeting with Mr. Chipworth, the Acting Technology Director occurred on January 15, 2009 at 10:00am. The meeting was occurred in the same conference room in the Technology Department, and the two instructional supervisors and the educational specialist were present at the meeting. I was welcomed back by the team and then I proceeded to ask if anyone had the opportunity to read my proposal. Mr. Chipworth responded, "Yes, I did and it was interesting." He further noted that he was very receptive to the idea of monthly ongoing professional development for our principals. Mr. Chipworth recalled that the previous Director's technology goals were to have more administrator involvement in integrating technology across the curriculum. However, during our discussion, he stated, "I view technology usage strictly from the hardware user perspective as opposed to the implementation of technology across the curriculum." The Acting Director posits that based upon conversations with the previous Director, the administrators needed to become good role models and equipped with the necessary skills when trying to initiate sustaining technology change within the school building. Costello (1997) noted that

> Technology presents new opportunities to change how we function, and leaders need to model the use of technology to change and improve the environment in

> which educators function. As we plan technology in our schools, we must keep two issues in mind: technology has the potential to change how we work, teach, and learn in our school districts, and this potential will only be realized if leaders assume the lead role in realizing this potential. (p. 58)

Mr. Chipworth commented that he thought my brief presentation about my project was interesting and helpful. He also expressed his concern about wanting to learn more about the instructional curriculum facet of the department by providing the necessary training to our administrators so that they became proficient in their usage. Ms. Prindable, the Instructional Supervisor expressed the importance of administrator's receiving appropriate and meaningful professional development based upon assessing their technology needs in order to build their technology capacity. There was discussion regarding the *Levels of Technology Innovation Digital-Age Survey* (LoTi) in order to evaluate the staff's current practice in integrating technology across the curriculum. Ms. Prindable continued to explain how LoTi was intended to assist educators in assessing their levels of integration and aided in the development of a school wide plan for professional development that increased the integration levels in the classrooms. I shared that my research project was the catalyst to acquiring the necessary data from the principals taking this assessment in order to determine their needs in effectively implementing technology within their school buildings. Each of the meeting participants nodded their heads in agreement. Ms. Prindable continued to share the importance of the LoTi assessment by stating, "I have spoken to Chris Moersch the creator of the LoTi assessment and we are planning to meet to discuss a district proposal so we can better determine the needs of the District. Will keep you posted about the outcome."

Mr. Wainright agreed that it was necessary to review the LoTi data in order to prepare for the professional development sessions." Ms. Whitman stated, "While reading your proposal, I began to think about some professional development training sessions we could provide for the principals that would engage them in utilizing the new Web 2.0 tools such as Animoto, Flickr, Twitter etc." Mr. Wainright added, "Principals also need to know about how to use their laptops and check their e-mail each day." Laughter was noted by each participant.

Mr. Chipworth the Acting Director appeared enthusiastic about the project and commented that there would not be any hardware challenges since each administrator was recently awarded a laptop and printer for their personal use. He further commented that he was in favor of the district proposal for the assessment tool titled *Levels of Technology Innovation Digital-Age Survey*(Loti). I believed the positive discussion regarding the usage of the LoTi assessment was a critical first step in understanding how to measure the principals' perception of their level of technology integration in the school and their personal skill achievement. Mr. Chipworth furthered explained that the next step involved the board approval of the proposal, and then the last step involved scheduling a timeframe for the LoTi assessment administration to the District's teachers and principals. Once the assessment was completed and data analyzed, then the professional development commenced. Our meeting concluded and we agreed to continue working as a collaborative committee to further my vision to build instructional leadership capacity for a select group of principals. He commented at the end of the meeting, "I will assign our two Instructional Supervisors and the Educational Program Specialist Supervisor to be responsible for a training session. I will do one too once we

decide upon the type of training." I reflected in my journal that this has been a great start to my project. I trusted that the board of education approved the LoTi proposal so I could move forward. It pleased me to know that I could begin to make a difference in enabling my colleagues to improve how they may utilize technology in their school buildings (Leadership Journal, January, 2009).

Planning meeting three. A second roadblock thwarted my efforts in moving forward because I had not received approval from the Board of Education to conduct my action research. My request for approval had been submitted, but it never appeared on the January 27, 2009 Board minutes. Securing the approval of the Board allowed me to conduct my professional development for a select group of principals who volunteered for the training.

I scheduled a third meeting to share my plan of action to the Assistant Superintendent who was unable to attend the previous two meetings. I believed that having the Assistant Superintendent's presence and support at this meeting along with members of the District's Technology Committee validated and solidified the direction of my research project. The third meeting occurred February 19, 2009 with the Assistant Superintendent, Technology Director, and the two Instructional Supervisors, and Technology Education Supervision Specialist. This meeting shared the purpose of my action research and petitioned the approval from the Assistant Superintendent, my immediate superior. The meeting occurred in my office conference room and all persons in attendance brought their laptops for note taking. I was pleased to see each of them being good role models as they exhibited their level of proficiency in utilizing technology to record this event. I provided the participants with another overview of my action

research project in order to acquaint my immediate supervisor. The Assistant Superintendent appeared to be very focused as she listened to the project goals. The other members of the District Technology Committee were heard striking the keys on their laptops as they took notes and listened while I spoke. When I completed my presentation, the Assistant Superintendent commented,

> The district is in the process of purchasing a great deal of hardware for our new reading curriculum but there is a serious need to monitor and evaluate how teachers are integrating technology into the daily curriculum...the principals will certainly benefit from your study.

A brief explanation of the Levels of Technology Innovation Digital-Age survey (LoTi) assessment was provided for the Assistant Superintendent by Ms. Prindable, the elementary instructional supervisor. Ms. Prindable also stated,

> We are in the process of reviewing the LoTi proposal submitted by Chris Moersch, he created the survey...we will submit it for Board approval as soon as possible. Um, we want to try and administer the survey to the principals and teachers before the end of the school year...

The Assistant Superintendent stated, " I want to see the data once it has been complied for the District." Ms. Prindable further noted, "We are also going to inquire about getting the district data disaggregated just to show how the principals ranked on the survey...this will help Ms. Carey determine how she chooses the principals for training." The Assistant Superintendent stated, "This should prove very interesting...remember to make sure I see the results." She then inquired about when the training sessions would begin and stated, "Send me an e-mail and I will try and come." I shared with her that my

request to the Board was not approved and that I could not move forward with scheduling the training sessions until I received the blessing from the Board. The Assistant Superintendent responded by requesting another copy of my Board request and commented, "I do not know what happened but I will make sure that it gets on the February minutes." I provided her with the document and thanked her for her support. Mr. Chipworth noted, "Ms. Carey and the technology department have been working hard to put this thing together (project)...we agreed that the team will begin the training as soon as we have approval." The other team members smiled as they nodded their heads in agreement. Mr. Wainright, the Instructional Supervisor for middle and high schools appeared quite enthusiastic as he smiled and commented, "I'm already thinking about various topics for training the principals and we should look into Microsoft Outlook, Survey Monkey, Distance Learning, or Video Streaming. Ms. Prindable concurred that "Any professional development we do should show principals how they could use it to increase their level of personal capacity as Ms. Carey shared. ...they need to know how they could recognize technology integration being utilized by teachers in the classroom in a creative and innovative manner." The Assistant Superintendent shook her head in agreement and commented, "Yes, you are right and I'm glad to see this is happening in the district." Mr. Chipworth added, "We will spend some time discussing the type of training modules at our next meeting. Ms. Prindable and Mr. Wainright will do some research and we'll choose then based upon the LoTi data." I had the audience of the entire committee and I requested that they review the surveys and questionnaires for validity and clarity. Ms. Prindable, the instructional elementary supervisor pointed out that there were a few misspelled words on two of the documents. The Assistant Superintendent

questioned when the survey would be scheduled in the schools... and then she commented, "I think these are great questions and I don't see a problem with them." The team continued to review the documents and concluded that the questions were clear and there were other no revisions needed except for the misspelled words which were corrected. The meeting adjourned after a productive two hour discussion regarding the establishment of the small learning community of principals to be professionally developed and the collaborative spirit generated amongst the entire District Technology Committee.

I noted in my journal, this was a great day and as a result of the collaboration that took place during the meeting, I was excited about having the support of the Assistant Superintendent who was in full agreement of my project. Obtaining administration's support was key to any successful project within an organization (Leadership Journal, February, 2009). Schwahn and Spady (1988) addressed the need to garner *support* as another pillar of productive of change. I realized that without seeking the support of the administration, there were minimal opportunities for the success of my change project. The authors noted, "Support comprises the policies, decisions, attention, resources, and procedures that enable employees and constituents to make and sustain the changes implied in purpose and vision" (p. 23).

As I reflected upon my authentic leadership, I realized the importance of my service leadership in changing the culture of an organization. The meeting with the Assistant Superintendent was orchestrated to gain her support through revealing the relevance of my action research project to her goal of effective technology integration within the school district. This process of service leadership through orchestration

fulfilled the *support* pillar of change (Schwahn & Spady ,1988). I continued to espouse authentic leadership practices by having others buy-into my action research project. I believed that by utilizing my supportive leadership skills each of the study participants were exposed to a learning environment that was conducive for making sustained change within the organization (Leadership Journal, February, 2009).

Levels of technology innovation digital-age survey results. Dr. Chris Moersch developed *Level of Technology Integration Digital-Age Survey* (LoTi) in 1994 in an effort to evaluate educators' authentic technology integration levels in classrooms. The foundation upon which the LoTi survey was built included the assessment of classroom practices that were tied to higher order thinking skills, relevant, and engaging curricula. This survey was based on the self perceptions of the participants' own technology use. The LoTi survey was used in its entirety without modification. There was a section of the questionnaire which was designed for teachers and another for administrators. The goal of this researcher was to utilize the LoTi survey as a means of defining the administrator's perception concerning the current level of technology integration (LoTi) utilized in the classroom on a daily basis by teachers, evaluating the current instructional practices (CIP), and their own personal computer use (PCU). The LoTi survey instrument was administered to the district's teachers and principals the first week of March, 2009. However, only twelve of the district's thirty-three principals actually completed the LoTi survey. The results of the LoTi survey were received on March 20, 2009, and for the purposes of this research, the principals' data was disaggregated and the results were shown in Tables 1 through 3.

Table 1.

District Level Staff LoTi Survey Results (State of New Jersey: Spring 2009)

LoTi Level	Number of Staff	Percent of total
Level 0	0	0%
Level 1	1	8%
Level 2	3	25%
Level 3	2	17%
Level 4a	2	17%
Level 4b	2	17%
Level 5	0	0%
Level 6	2	17%

Note: N= 12 Median LoTi Score: Level 3
Mode LoTi Score: Level 2
LoTi Digital-Age Profile: Created for District Level Staff , Spring 2009.

Table 1 above reflected a median LoTi Level of 3 (Infusion). The level 3 Infusion ranking involved educators demonstrating teaching strategies which incorporated instructional technologies. Technology became an effective instructional and productivity tool. Educators used computers and peripheral devices to enhance instruction. Therefore, the focus of instruction stressed usage of technology that was interdisciplinary, students utilizing higher order thinking skills, and engaged learning. The instructional leader was mandated ensure that the learning environment engaged students in activities which may

or may not be perceived as realistic by the student. In order to achieve levels of technology integration higher than level three, it was incumbent upon the instructor to focus upon instructional strategies that enabled student directed exploration of real world issues using technology based resource (LoTi Digital-Age Profile: Created for District Level Staff , Spring, 2009).

Table 2.

District Level Staff Current Instructional Practices Results (State of New Jersey: Spring 2009)

CIP Level	Number of Staff	Percent of total
Level 0	0	0%
Level 1	0	0%
Level 2	0	0%
Level 3	1	8%
Level 4	2	17%
Level 5	2	17%
Level 6	4	33%
Level 7	3	25%

Note: *N*= 12 Intensity Levels Legend. Level 0 - Level 2: Not True of Me Now
Level 3 - Level 5: Somewhat True of Me Now Level 6 - Level 7: Very True of Me Now
LoTi Digital-Age Profile: Created for District Level Staff, Spring 2009.

The second area of data reviewed within the assessment noted in Table 2 was the Current Instructional Practices (CIP), which identified the principals' perception of

preferences with regard to instructional practices for a particular subject-matter or learner-based curriculum design (Moersch, 2002). The chart above reflected a median CIP Intensity Level of 6 (Refinement) (Very True of Me Now). Therefore, at the Refinement level, technology was perceived as a process, product (e.g., invention, patent, new software design), and/or tool for students to find solutions related to an identified "real-world" problem or issue of significance to them. At this level, there was no longer a division between instruction and technology use in the classroom. Technology provided a seamless medium for information queries, problem-solving, and/or product development. Students had ready access to and a complete understanding of a vast array of technology-based tools to accomplish any particular task at school. The instructional curriculum was entirely learner-based. The content emerged based upon the needs of the learner according to his/her interests, needs, and/or aspirations and was supported by unlimited access to the most current computer applications and infrastructure available. The focus of instruction stressed a constructivist approach. The instructional leader ensured that the learning environment engaged students in activities that enabled them to problem-solve and perform student inquiry that was in alignment with the curriculum in preparing our students to meet the demands of the 21st century skills. (LoTi Digital-Age Profile: Created for District Level Staff, Spring, 2009).

According to the Partnership for the 21st Century (2006) skills, the education system needed to develop learning environments for students and educators that emulated high-performance, knowledge-driven organizations. Organizational leaders needed to motivate everyone to contribute, expect all stakeholders to meet high standards, and most importantly modeled effective strategies. Leaders were accountable for cultivating a

culture of knowledge-sharing and collaboration that extended beyond their organizations, engaged people in purposeful work, challenged them to recognize and solve problems, gave them opportunities to learn and grow, and rewarded them for creative solutions. In addition, leaders must provide educators with the technology tools and support they needed to succeed. Technology integration utilized on a daily basis can be a compelling hook that engaged and motivated students to succeed in work and life in this new global economy (Partnership for the 21st Century Skills, 2006).

The final area of data reviewed in Table 3 within the assessment was the Personal Computer Use (PCU) based upon the principals' perception of usage in the educational environment. Table 3 reflected a median PCU Intensity Level of 3 (Somewhat True of Me Now). A PCU Intensity Level 3 showed that the participant exhibited average proficiency using digital tools and resources within the learning environment. Participants at Intensity Level 3 started to become frequent users of a variety of digital-age media and formats such as the web, email, office applications, and multimedia to (1) communicated with all stakeholders and (2) exhibited effective usage in the classroom to encourage exploration and knowledge seeking. Those individuals achieving this level were cognizant of copyright restrictions and had knowledge of the influence of present and emerging digital tools and resources on student learning. (LoTi Digital-Age Profile: Created for District Level Staff, Spring, 2009).

Table 3.

District Level Staff Personal Computer Use Results (State of New Jersey: Spring 2009)

PCU Level	Number of Staff	Percent of total
Level 0	0	0%
Level 1	0	0%
Level 2	2	17%
Level 3	5	42%
Level 4	1	8%
Level 5	3	25%
Level 6	1	8%
Level 7	0	0%

Median PCU Score: PCU Intensity Level 3 (Somewhat True of Me Now)
Mode PCU Score: PCU Intensity Level 3 (Somewhat True of Me Now)

Note: N=12 Intensity Levels Legend
Level 0 - Level 2: Not True of Me Now
Level 3 - Level 5: Somewhat True of Me Now
Level 6 - Level 7: Very True of Me Now
LoTi Digital-Age Profile: Created for District Level Staff, Spring, 2009.

Planning meeting four. The fourth meeting was scheduled with Mr. Chipworth, the Acting Technology Director and District Technology Committee (DTC), which occurred on March 25, 2009 at 10:00am. The meeting occurred in the same conference room in the Technology Department, and the two instructional supervisors and the educational specialist were present at the meeting. The Assistant Superintendent had another meeting to attend and could not join us. I wrote in my journal, I was welcomed back by the team and there was an air of excitement as I was congratulated by the DTC

team for finally attaining board approval for my project during the February, 2009 Board meeting (Leadership Journal, March 25, 2009).

The meeting content revealed the results of the *Levels of Technology Innovation Digital-Age Survey* (LoTi) data to the District Technology Committee to facilitate planning the structure of the training modules for the principal's professional development. According to Moersch (2002), the intent of the LoTi provided stakeholders with specific needs assessment data that helped shape future decision-making regarding (a) professional development opportunities; (b) budgeting priorities; and (c) instructional and assessment challenges. The assessment was an online survey and the principals were requested by the Technology Department to use their computer laptops to complete the survey.

I expressed concern over the small percentage of principals who engaged in the survey. There were only a total of 12 participants out of 33 principals represented. I attributed this small number due to the lack of permanent leadership in the Technology Department and an Acting Director who was not well versed in the need to advocate technology integration into the curriculum by teachers and instructional leaders. In addition, the Assistant Superintendents for Curriculum and Instruction for elementary and secondary schools did not require mandatory participation in the survey for all principals. It became very evident that since the Director of Technology was a staff management position, this individual could not dictate to a school administrator concerning the completion of any task. The Director could only make recommendations and utilized his/her influence to facilitate change within the organization.

The *Levels of Technology Innovation Digital-Age Survey* (LoTi) data was presented by Ms. Prindable the instructional supervisor who immediately commented, "The survey results indicated that there was a definite correlation to the lack of technology integration in the classrooms and the low range LoTi scores. Mr. Wainright agreed and noted, "The technology department must do a better job in enabling principals to recognize effective integration when visiting classrooms. Mr. Chipworth began the discussion about the type of professional development that was offered to the principals by asking, "Did everyone do their research about training?" Each of the team members bought folders to the table and began to share their data. Ms. Prindable stated, "Before we start, I believe we should make sure that whatever we do, principals need to receive training in how to integrate technology into the curriculum...this will help them know good integration when they see it in the classrooms." The principals' perceptions of technology integration by their staff as noted in the initial participant survey and the Current Instructional Practice (CIP) of the LoTi survey was high. However, the principals also indicated that they needed more training concerning recognition of effective technology integration or infusion into the curriculum. The members of the team nodded their heads in agreement. Mr. Wainright added, "The easiest way to determine what PD is needed is to list all of the titles on the board for discussion and ranking. Each of the training modules were listed on the board and Ms. Whitman educational specialist supervisor noted the importance of principals learning how to use their computer laptops. She stated, "Many principals still do not feel comfortable with their laptops...I do not believe that we can move ahead without additional training." Sounds of agreement could be heard from the group and Laptop 101 was ranked as the first training session to be

offered. It became very obvious from the various comments, building the principals' personal capacity was paramount. Mr. Chipworth concurred and responded, "I recently pulled a usage report and found that many principals are not turning on their new laptops...more training is definitely needed." Mr. Wainright volunteered to conduct the laptop training and Mr. Chipworth agreed and noted his name on the board. Ms. Whitman spoke up again and commented, "Principals need to understand about how video streaming works and integrating digital media resources into the classroom. Using video streaming allowed the principal to learn how to recognize enhanced lessons by using videos, graphic images, articles and clip art...this would be fun for them and I do not mind doing this." Mr. Wainright noted, "This is your area of expertise and think we should list this one as the second session." Again heads nodded in agreement as all eyes were focused on Ms. Whitman as she was smiling. The third training session ended in debate about the three choices raised for discussion such as using Survey Monkey, experiencing a Distance Learning telecommunication experience, or Microsoft Outlook 2007. Survey Monkey was an online tool that allowed one to create and publish a custom survey and view results in real time. Mr. Wainright reminded the team that this training was provided for administrators during the summer of 2008 and that another session should be considered. Distance Learning provided instructional content to students who are not physically "on site". Ms. Prindable commented, "Many of our schools use distance learning all the time...I think we need to consider training principals on Microsoft Outlook 2007...this is really needed since it is so new." Mr. Chipworth said, "I agree, since we have migrated to Outlook 2007, everyone needs to learn how to communicate with the new version...I'll do it." Principals need effective means to

communicate with their staff. Learning to navigate the Microsoft Outlook 2007 application provided the principals with the necessary tools to track their email, create a distribution list, create appointments, and share calendars. Mr. Chipworth proceeded to the board and placed the Outlook 2007 as the third choice. Mr. Wainright stated, "I think this is a good choice...we've been getting a lot of calls from people having difficulty using this...need to consider more training this summer." The final choice was providing training using Web 2.0 tools. Ms. Whitman indicated that she completed research on utilizing these tools and how they could be beneficial for classroom presentations. Web 2.0. Ms. Whitman said, "I am looking forward to getting started. I am sure the principals will enjoy what I have planned for them." Mr. Chipworth spoke to the team and asked them, ..." Is everyone okay with their training modules?" The members nodded their heads and smiled as they continued to take notes about our conversations. Mr. Chipworth. furthered shared, "Check your calendars and I will assign dates for the trainings...Ms. Carey, when we meet again, I will have some tentative dates on the calendar.

The meeting was adjourned with a defined plan of action and a sincere level of commitment to implement the training and build principal technology instructional capacity. According to Senge (1990)

> People with a high level of personal mastery live in a continual learning mode. They never ‘arrive’. Sometimes, language, such as the term ‘personal mastery’ creates a misleading sense of definiteness, of black and white. But personal mastery is not something you possess. It is a process. It is a lifelong discipline. People with a high level of personal mastery are acutely aware of their ignorance,

their incompetence, their growth areas. And they are deeply self-confident. Paradoxical? Only for those who do not see the 'journey is the reward.' (p.142)

Planning meeting five. The fifth meeting was scheduled with Mr. Chipworth, the Acting Technology Director which occurred on April 21, 2009 at 10:00 a.m. The meeting was held in the same conference room in the Technology Department with the Acting Director. The Assistant Superintendent, the two instructional supervisors, and the educational specialist were not present at the meeting. This meeting provided me with a tentative listing of available professional development dates. Mr. Chipworth noted that all training dates would be predicated upon any unforeseen technical issues or other district demands. We successfully penciled in four training sessions on the calendar between the months of April, 2009 and August, 2009. Principals were given permission to attend these professional development modules scheduled once a month on a Tuesday, from 2:00-4:00 p.m. We agreed to name these training sessions *"Techie Tuesday for Principals*."

We discussed which Computer Lab was available for training and I shared that all participants were provided refreshments. Mr. Chipworth stated, "All agendas, sign-in sheets, and any other materials for training would be provided by the technology department." We agreed that I would be responsible for notifying all participants by e-mail and fax. We shook hands and our meeting adjourned at approximately 10:30 a.m. I wrote in my journal, the first professional development training occurred in April, 2009 immediately after the spring break. I was anxious, excited, and thankful that I could finally move forward with the implementation phase of this project. I anticipated full cooperation of all participants (Leadership Journal, April 21, 2009).

Levels of Technology Innovation Digital-Age Survey (LoTi) Survey Analysis and Discussion

As a visionary leader, it was essential to establish the required blueprint for change by working collegially with the technology committee to ascertain the type of professional development training modules required to effectively train the study participants (Schwahn & Spady, 1998). Prior to the scheduling of the professional training modules, the administrators were requested to participate in the school district provided *Levels of Technology Innovation Digital-Age Survey*(LoTi). Quantitative data collection commenced when each school was administered an in-depth technology proficiency *Levels of Technology Innovation Digital-Age Survey* (LoTi) survey which the school district subscribed to and was available for this study to determine the levels of proficiency in technology usage. This survey assessed the teachers and administrators' perceptions of their level of technology integration, specifically related to computer usage within each building. The instrument was based on the LoTi framework developed by Chris Moersch, composed of 50 questions with seven technology implementation levels ranging from non-use (level 0) to refinement (level 6) (Moersch, 1995). The survey was created to assess classroom practices using computers. Most educators (59%) ranged between level 0 and level 2, indicating low levels of technology implementation (Moersch, 2001). The concept of the *Levels of Technology Innovation Digital-Age Survey* (LoTi) survey provided a framework for teachers and principals to develop long-range technology vision, goals, and action plans which emphasized staff development that permitted teachers and administrators to progress through the various levels of technology integration at their own pace. Principals as instructional leaders needed to establish an environment that stressed the importance and effective use of technology integration into the daily curriculum so that

student learning progressed from low levels of technology integration, which were teacher-centered, to higher levels of use, which were learner-centered (Moersch, 1995).

In addition to measuring the level of technology integration, the *Levels of Technology Innovation Digital-Age Survey (*LoTi) also measured Personal Computer Use (PCU) and Current Instructional Practices (CIP). The PCU profile determined the respondent's level of proficiency in using computers, whereas the CIP profile determined the respondent's preferences with regard to instructional practices for a particular subject-matter or learner-based curriculum design (Moersch, 2002). The answer choices were presented in a Likert-type scale where 0 is "no answer," 1-2 is "not true of me now," 3-4 is "somewhat true of me now," and 5-6 is "very true of me now." The respondents chose the number that best represented their technology practices. Each answer was transferred to a response table that has arranged each question according to its particular level of integration from 0 to 6, as well as a PCU and CIP column. An extensive explanation of Loti Levels is defined in Appendix A. Each LoTi level represented a different level of implementation along a continuum from non-use to refinement. The LoTi survey identified teacher behaviors, perceptions, and classroom practices using digital tools and resources which cooperatively have the greatest impact on student achievement and success in the learning environment (LoTi Digital-Age Profile: Created for District Level Staff, Spring, 2009).

There was limited participation with only twelve out of thirty-three principals who participated in the survey. I believe that the limited response was due to the lack of permanent leadership and little follow-up on the part of the Technology Department. A special report was requested from Chris Moersch to disaggregate the data from the school

district's results in order to specifically analyze the principals' responses to the questionnaire. An extensive explanation of *Levels of Technology Innovation Digital-Age Survey* (LoTi)performance levels can be found in Appendix A. The first area of data reviewed within the assessment was the (LoTi) through the principals' perception of teacher innovation. Based upon the analysis of the LoTi results, and collaborative discussions with the District Technology Committee, the appropriate content was developed for the four professional development training modules which offered to participants who achieved low level technology proficiency scores. Letters of participation and consent forms were sent to those selected principals requesting their permission to participate in the study and a due date was established for a response (see Appendix A & B). Self-addressed envelopes were provided for the return of the consent form. Each participant received a follow-up phone call and/or e-mail if a response was not received by the requested date. Participation was limited to no more than six principals. I received six signed consent forms agreeing to participate in the study and additional follow-up was not needed.

Analysis of Change

My vision was to initiate a change process which would enable them to become effective instructional leaders for technology integration into the curriculum. This action research project involved the utilization of facets contained within Schwahn and Spady's *five pillars of change* which were (a) purpose-needed be clear and meaningful, (b) vision statement- needed to be clear and compelling, (c) ownership-all stakeholders wanted to be part of the change, (d) capacity-was about the ability to know and how to engage in

productive change, and (e) support- leaders exhibited commitment to and involvement to the change process, and Senge's leadership through personal mastery for effecting change within an organization. The five pillars of change were evident in the initial planning process which involved the collaborative participation of the District Technology Committee to develop, and implement the action research project. These *five pillars of change* were essential elements embedded throughout the change project. Senge's personal mastery framework was realized within the professional development activities of the action research project which was critical for increasing the participants' leadership capacity.

Cycle one activities provided me with many opportunities to cogitate about the many facets of organizational change and the affect it had on key stakeholders and me in the development of my action research project. When dealing with members of my organization, the most significant aspect of changing organizations involved the collegial spirit of support and trust as we functioned as the District Technology Committee team dedicated to meeting the needs of the study participants. I especially found rewarding the opportunity to analyze an authentic change project within our organization which allowed me to step back and use the skill of "getting off the dance floor and going to the balcony" regarding how change impacts my research (Heifetz & Linsky, 2002 p. 51). When I applied an appropriate research change model such as Schwahn and Spady's (1988) *five pillars of change* to my action research project, I recognized and anticipated the litany of events that often occur during the change process. The following pillars of change were predominant throughout the cycle one activities: *vision building, purpose, and support.*

Establishing a clear, focused, and coherent vision was a necessity to initiate this action research project. This vision building process was apparent throughout my interaction with the retired Director of Technology and the District Technology Committee. The process of vision building was initiated when I met with the retired Technology Director about my project. My goal was to remind her of my vision for the principals' to be provided with necessary professional development in order to become effective integrators of technology within the curriculum and build their technology capacity. Ms. Carter recalled that my focus involved principals exercising a more effective leadership role in technology integration into the classroom and building their technical skills through professional development. She commented, "It has always been my dream for our department to do a much better job at showing the principals how to fully understand the need for technology integration to be used on a daily basis in the classroom and getting more professional development." The Director also stated, "The district's technology vision would be realized by providing intensive and extensive professional development training for the educational staff to incorporate technology into their instructional activities." I discussed my vision with all members of the District Technology Committee during subsequent meetings. I shared that providing professional development for the principals was a grassroots effort in building technology capacity with a select group of principals. Ms. Prindable the elementary education instructional supervisor concurred that the project was needed due to the lack of technology integration observed during her school visits. Mr. Wainright, the secondary education instructional supervisor expressed that the vision was appropriate due to his observations that many of the high school principals lacked technical proficiency and knowledge of

technology integration techniques. Therefore, in order to achieve my vision it was necessary for the study participants to receive professional development to enhance their skills. Building the personal capacity of the principals enabled them to provide the support necessary for educators to use technology effectively in the classroom environment (Anderson & Dexter, 2000; Ausbrooks, 2000, Brookmeier, 2000; Dawson & Rakes; Hope & Stakenas, 1999).

The *purpose* element of Schwahn and Spady's (1988) five pillars of productive change was revealed in my interactions with the District Technology Committee to assure the vision remained meaningful and purposeful. I continually communicated to the District Technology Committee during our planning meetings, the importance of having a meaningful purpose for building the principals' technology capacity. Without consistently reflecting upon the purpose of the project, it was difficult to achieve needed change through this action research project. I was an advocate for the importance of productive change needed within my organization. Much of the literature on change highlighted the importance of support for those who were involved in the change process. Educators who were most successful in implementing change were supported by leaders who had a clear and coherent vision of where the school is headed (Guskey, 2000; Hall and Hord, 2001; Fullan, 2007).

The *support* element of Schwahn and Spady's (1988) five pillars of productive change were revealed through the actions of myself and the District Technology Team. I supported the efforts of the District Technology Team to effectively plan the professional development training modules for the District's principals by providing resources and procedures for effective planning implementation. An agenda was created for each

meeting to address a specific topic. This committee was charged with the task of reviewing the validity and clarity of the surveys and questionnaires that I developed. The District Technology Committee provided support by suggesting that the *Level of Technology Innovation Digital-Age Survey* (LoTi) was an excellent tool to evaluate the staff's current practice in integrating technology across the curriculum. The Assistant Superintendant's provided the political support to validate and solidify the direction of my research project and she provided the necessary influence to obtain Board approval for the action research. Administrative support for professional development was crucial at the school and the administration levels. The district and school level administrators were accountable for carrying out the stated mission of the district's technology plan. Leadership style plays an important part in effectiveness of the leader while styles may vary based upon various conditions. However, the administration must support implementation and changes to be brought about by the professional development if they were used effectively on that campus (Guskey, 2000; Hall & Hord, 2001; Fullan, 2007).

Leadership Reflection and Application

Working with the District Technology Committee was in direct alignment with my authentic leadership theory in use which provided me with the opportunity to utilize my transformational leadership skills to establish a clear, heartfelt, and meaningful purpose to conduct this study. One aspect of exhibiting my transformational leadership was keeping abreast of the latest technology developments. An extensive range of skills and practice proficiencies were required. Principals must develop an understanding of how to utilize these skills and tools to create a vision and effect change in his/her school

building (Fullan, 2001; Thomas, 2000). According to the National Education Technology Standards for Administrators 2009 (NETS-T) from International Society for Technology in Education (ISTE), Standard I -Visionary Leadership focused on educational administrators who:

a) inspired and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support inspire and facilitate transformation throughout the organization.
b) inspired and facilitated 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.
c) engaged in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision.

An effective instructional leader participated in local and global learning communities, evaluated and reflected upon current research and professional practice involving the use of digital tools and resources. The leader also exercised leadership in promoting the technology skills of others as well as improvements to the educational profession. My visionary leadership skills were utilized to create a small learning community of committed principals dedicated to becoming instructional technology leaders within their learning context. I reflected upon the value of utilizing my transformational skills, needed to create to create higher levels of performance by principals. According to Leithwood and Jantzi (1999) transformational leadership only

recently become the subject of systematic empirical inquiry in school contexts. As has been pointed out, this approach to leadership fundamentally aims to foster capacity development and higher levels of personal commitment to the organizational goals on the part of leaders' colleagues increased capacities and commitment are assumed to result in extra effort and greater productivity (p. 119). I became motivated by enabling principals to understand the rationale for achieving second-order change with a focus on teaching and learning, and a focus on student learning rather than short term non-transformational results in effectively utilizing technology within their buildings. I facilitated in the establishment of a professional development learning environment which encouraged each principal to build their personal capacity, and become innovative and creative risk-takers (Berquist, 1993). The professional development activities outlined in Cycle II provided a viable framework to build instructional leadership capacity and promote ongoing technology integration into the curriculum.

Chapter 6

Cycle II Professional Development Training Modules

Introduction

Research noted many university preparation programs were slow to recognize the technology needs of aspiring principals while many experienced administrators were not comfortable with technology and had minimal or no training in this area (Gibson, 2001). Recent studies suggested, however, that the most important issue in the effective integration of educational technology "is not the preparation of teachers for technology usage, but the presence of informed and effective leadership" (Gibson, 2001, p. 43). Without the professional development for principals that focused on "current and future technologies and how they can be used in the work and learning environment, computer technology will continue to be underused in schools" (Hope & Stakenas, 1999, p. 26). Unfortunately, the kind of professional development needed for principals was an uncommon commodity, and some suggested that this type of training was missing all together (Hope & Stakenas, 1999). When there was a lack of ongoing and quality professional development, technology presented an overwhelming hurdle that was misused and created obstacles for effective teaching and learning. There was a great need to implement a system of continuous professional development to provide educators to become proficient users of technology (Hamza & Checker, 2000).

Professional development allowed educators to create and develop instructional modules that utilized technology capabilities to assist them in understanding major concepts, ideas, and theories in education to assist in the overall design, delivery, and

evaluation of instruction. Principals needed to understand the potential of technology integration, the importance of creating an environment conducive to the effective use of technology and therefore required continuous quality professional development. Principals needed knowledge of the potential use of technology integration in education to make the commitment to facilitating its successful implementation in their school buildings (Roblyer & Edwards, 1997).

Leaders gained technology skills and confidence required to teach new literacies through ongoing, consistent, and leveled professional development trainings. Some larger school districts were afforded instructional staff to provide needed support and established an instructional teaching cadre to assist in district-wide training. These training sessions should not be one-time only programs but they should offer ongoing and consistent support. It was important that the school leadership become creative in establishing the best professional development solutions to move their buildings forward while collaborating with all stakeholders. Principals needed to make every effort to promote effective technology integration in the classroom as educators prepared the 21st century learner for their futures (Larson, Miller, & Ribble, 2009).

Cycle two continued from April 2009 until the end of August 2009. The purpose of cycle two implemented the professional development modules and collected rich qualitative and quantitative data. The cycle activities began with the distribution of the *Principals' Initial Participation Survey* found in Appendix D. This survey was distributed to the participants during the week of March 30, 2009 by mail, a week prior to the initial focus group meeting and collected during the meeting. The initial focus group meeting was held on April 7, 2009 to apprise the participants of the process and

procedures of the action research project. The purpose of this focus group was to ask participants to respond to a few questions regarding their buildings' experiences concerning technology infusion. This cycle concluded with the implementation of the professional development training modules.

Principal Participation Initial Survey

Participants were requested to complete a Principal Participation Initial Survey (see Appendix D). This survey was developed using a Likert scale and provided quantitative data composed of six demographic questions and an additional six questions to ascertain the principal's perception about his/her professional development experiences. This survey was distributed to the participants prior to the initial focus group meeting.

Data Collection and Discussion

The demographic section of the questionnaire provided information about the individuals who served in the role of principal. Inquiries regarding the ethnicity and gender revealed that 100% of the participants were African-American females. Their experience as a principal revealed 4 of the 6 participants had 11-14 years of experience while one of the participants had 7-10 years experience, and the remaining one had 0-3 years experience as a principal. The highest level of education completed revealed 5of 6 participants held a Masters Degree and one participant attained a Doctorate degree. The state required individuals who worked as principals to hold a principal certificate, which requires a Masters degree and additional course requirements as well as an administrative

internship. Their school configuration showed that 4 of the 6 participants were principals of middle schools, grades 6-8 configuration, and the remaining two participants were principals of elementary family schools that served Pre-K through 8th grade student populations. The participant's level of computer technology expertise revealed that when asked to rate their own experience with technology, 4 of the 6 principals identified themselves as novice-users and the remaining two principals rated themselves as intermediate-users. These results appeared to emphasize the need to build the principal's personal computer use capacity to effectively manage their buildings. These findings were comparable to the LoTi Personal Computer usage (PCU) Level 3 result which indicated that the principals were just beginning to become regular users of selected digital age media. Based upon ethnicity, gender, experience as a principal, school configuration and technology usage, the sample of principals was a fairly homogeneous group. The Personal Professional Development section of the questionnaire (Table 4) consisted of six statements and provided information about the individual principal's perception regarding their personal development experiences.

Table 4.

Personal Professional Development Experiences (N=6)

	Statements	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1)	The school district has provided training for principles on the use of computer technology to develop budgets.	1	1		4	
2)	The school district has provided training for principals on the use of computer technology to create databases.	1	1	1	3	
3)	The school district has provided Professional development experiences for principals and using the Internet for research purposes.	1	1	1	3	
4)	The school district has provided professional development for principals an software applications such as spreadsheets presentations, e-mail, and word processing	1	1	1	3	
5)	I have participated in training designed to develop skills to facilitate teachers integration of computer technology into the curriculum.	1	5			
6)	I would benefit from professional development experiences that inform me on to integrate computer technology into the curriculum.	5	1			

Four of the six participants did not feel that the District provided sufficient training for principals to use computer technology to develop budgets. The data continued to support the need to improve the principal's capacity to utilize technology for managing the budgetary affairs within their buildings. The second question noted four of the six principals believed support was needed in order for them to become proficient

using technology applications to manage student and staff population data within their buildings.

The third question indicated the majority felt that there was a significant need to become proficient at utilizing the Internet as a valuable research tool to further equip the teachers and students with a global perspective. The fourth item indicated the majority of the participants felt that the District did not provide adequate training for principals to use various software applications such as spreadsheets, presentations, E-mail, and word processing. Responses to item five showed all participants agreed that they benefited from professional development experiences that enabled them to assist teachers in integrating computer technology into the curriculum. The research indicated that as the instructional leader of the organization, when the principal valued the use of technology, and was consistent in the modeling of the acquired skill sets from effective professional development experiences, this sent a positive message to teachers regarding the importance of quality integration instruction into the daily curriculum. Leaders needed to exhibit a strong desire to become a learner of technology with their students and staff members (Yee, 2000). Principals should never request their staff to perform a task that they would not do. If principals continued to stress the importance of professional development in technology integration, then they should exhibit the same commitment in order to convey the importance of technology usage by staff and students (Rudnesky, 2006). The final item revealed all participants strongly agreed that they would benefit from additional professional which increased their instructional leadership capacity as related to technology integration into the curriculum. The significant finding from the

participants' responses to questions five and six indicated that the principals were not confident in their training to lead their staff in effective technology integration.

Principals needed to lead by example while developing their personal technology skills on a consistent basis and modeling their proficiency in using presentations and electronic communications. Principals needed be become comfortable and proficient at utilizing a spreadsheet application to manipulate and manage school data, create power point presentations to graphically display in an outline format the school's agenda, communicate internally and globally with all stakeholders, and utilize word processing skills to generate different types of written communication. Each of these software applications when modeled by the principal could have a positive impact in promoting instructional use in the classroom (Anderson & Dexter, 2005; Flanagan & Jacobsen, 2003; Ritchie, 1996; Rudnesky, 2006).

I found that the quantitative data obtained from the initial participant survey correlated with the results found in three domains of the Level of Technology Innovation Digital-Age survey; Level of Technology Integration (LoTi), Current Instructional Practices (CIP), and Personal Computer Use (PCU) noted in the LoTi scores. The District Technology Committee (DTC) and I analyzed the participants' responses to ascertain if there were additions or changes required with the planned professional development modules. We concurred that the instructional leader should be technologically astute in understanding how technology can support best practices in instruction, curriculum, and assessment and to provide guidance and leadership for teachers. Prior to initiating the professional development modules, I advised the District Technology Committee that a focus group meeting with the participants provided them an opportunity to have an in

depth discussion to validate and determine the participants perceptions and needs for personal growth and technology infusion.

Initial Focus Group Meeting

An initial focus group meeting was held in one of the computer labs of the Technology department on Tuesday, April 07, 2009. This meeting occurred prior to the implementation of the training modules to engage all participants in a discussion of six open-ended questions which provided qualitative rich narrative data (see Appendix D). Reponses to the questions were audio-recorded and immediately transcribed verbatim. The purpose of this focus group was to ask participants to respond to a few questions regarding their building experiences concerning technology infusion. These questions allowed me the opportunity to gain insight into the participants' perceptions concerning strategies to better prepare teachers and administrators to integrate technology into the curriculum in the future. Each participant present was reminded that their responses were anonymous and that all the data gathered would be confidential. All participants were made aware that any information obtained during the focus group meeting may be used for planning future trainings and/or for other educational purposes, provided that their name was not used. Each participant understood that there were no physical or psychological risks involved with their participation in this focus group, and that they were free to withdraw their participation at any time without penalty (Glesne, 2006; Hinchey, 2008).

The following profile was generated for each of the participants in the action research. Principal Worthy was an African-American female in her late forties. She was a principal of an elementary school with grades Pre-K through fifth grade. She has been in the field of education for over 15 years and has been an administrator for the last 5 years. She perceived her personal level of technology expertise to be a novice.

Principal Kincade was an African-American female in her early sixties. She was a teacher of Basic Skills, Helping Teacher, Elementary Vice-Principal, High School Vice-Principal, Middle School Principal, and worked for the school district in excess of twenty-five years. She was always fascinated with technology and what it can bring to students and those who use it. She indicated that her personal level of technology expertise was at a novice level.

Principal Harrington was an African-American middle-aged female who served the school district in excess of twenty-five years. She held the following positions of an elementary teacher, writing teacher, teacher mentor, project developer for Saturday and extra-curricular programs, supervisor of curriculum and instruction and, principal of a middle school. She considered her personal level of technology expertise to be a novice.

Principal Farber was a principal of a family school with grades Pre-K through eighth grade. She was an African-American female in her forties was in the field of education for over 25 years, and was an administrator for the last 15 years. She considered her personal level of technology expertise to be intermediate.

Principal Sanders was an African-American female who was in her forties and worked in the school district for over 15 years and has worked as an administrator for the

last four years. She considered her level of technology expertise to be intermediate or higher because she utilized most programs and software without assistance.

The initial topic of our focus group meeting was the discussion of implementing a technology committee within each school building. Each participant made it very clear that their buildings established a technology committee which aided in the development of the required technology plan. The school district required each school to complete a plan of action every three years that was in alignment with the district's technology plan. Principal Worthy lead a technology rich, state of the art newly built elementary family school building, noted the importance of developing a technology committee in cooperation with all stakeholders. She also shared, "Even though the technology plan exists, there was minimal technology integration in the classroom with all of the technical facilities, and that there was a need to complete an ongoing needs assessment." Principal Kincade of a middle school shared that the technology committee in her building was formulated out of necessity because she was without a technology coordinator for approximately a year. She noted, "The technology committee was collaboratively designed from individuals who exhibited technology skills such as a 6th grade teacher who had a Master's degree in technology, some regular and special education students, and other stakeholders. These members of the committee took an active role in determining how technology should be infused into the daily curriculum as well as addressing any other technical needs. "Principal Harrington of a middle school commented, “Our technology committee is very active and we would constantly look at the needs of the building and staff. The committee would decide what hardware and software materials were needed and the type of professional development required to

improve the staff's skills set." The principal also commented, "When all stakeholders are involved in the creation of the plan, everyone plays a part in what occurs in the building." Principal Farber of an elementary family school noted the technology committee constantly discussed the needs assessment results noted in the plan.

Mr. Chipworth, the Acting Director shared that there was a need for the District's Technology Committee to be composed of instructional supervisors, technicians, network personnel, and representatives from the schools to maintain an active committee. He stated, “We must bring everyone together so that the District's technology vision is consistent with what we put down on paper in our technology plan. There is a need to review the plan on an ongoing basis". An emerging theme from the first topic appeared to support the need for effective instructional leaders to promote a trusting, creative, and collaborative environment for change.

The second topic of discussion focused on schools having instructional goals related to technology. All participants concurred that the District had existing instructional goals. However, Principal Harrington of a middle school stated,

> We are all over the place, and we are at different places based upon the confidence level of the staff charged with infusing technology into instruction. At our school, the goal is to increase the daily inquiry of how we want to provide a 21st century lesson on a daily basis in the classroom. When you say 21st century, you think of technology.

Principal Kincade of a middle school also concurred by commenting,

> Part of the technology instructional goals had to be related in the lesson plans at least three times per week. Some part of the instruction had to be related to the

> student and teacher using technology in the classroom. At certain times during the week, my administrative team and I would pinpoint exactly how technology was being used during our learning walks.

Principal Sanders offered the importance of effective technology modeling exhibited by the instructional leader in each school and holding teachers accountable for implementing those goals in the classroom. She noted,

> Once the administration grabs hold of it, then you will see technology filter down to the staff. It has got to be where teachers will be held accountable for doing it and once it is enforced and they do not have a choice, then we will start seeing different instructional strategies used in the classroom instead of talking and lecturing.

As I reflected upon the comments shared by the principals, the emergent themes were relevant to technology usage by educators and the need for effective instructional leadership through ongoing assessment through learning walks, review of lesson plans, and annual evaluations.

The fourth topic investigated the principal's perceptions regarding their staff's areas of opportunity as related to technology skills. Principal Worthy of the technology state of the art building commented, "The District offers on-site professional development that is provided by the District's professional development team, and in-house training is provided for the staff by the technology coordinator. Professional development can also be attained using an online web based application purchased by the District called PD360."

Principal Harrington suggested that, "The technology coordinator should be utilized more to provide training for teachers in the building instead of using them to be technicians". Principal Kincade also suggested, "Principals should free up the Technology coordinators time to complete more opportunities for demo lessons in the classroom. Principal Farber stated, "Principals should make more time in the school schedule to increase the staff's areas of opportunity to more professional development". Principal Sanders noted the importance of taking a pro-active approach in identifying those staff members who are actively engaging in daily infusion of technology in the classroom. She stated, "The administrator should highlight what the teachers are doing in their classroom and share those best practices at a staff meeting". The emerging theme noted in this topic involved effective instructional leadership that analyzed and promoted a culture conducive for educators to share best practices. Another aspect of instructional leadership theme was the propensity to empower the Technology coordinators to assist in training and modeling technology to the staff.

The fifth topic of discussion focused on the type of support required from administrators in order to enhance technology integration in the schools. Principal Worthy immediately commented, "What gets monitored gets done. There is a need to look at the teacher's lesson plans regularly and check out the activities to see if they are related to the lesson's purpose." Principal Harrington noted, "The principal must look at scheduling to give people an opportunity to attend lessons and demonstrations of how to integrate technology into the curriculum." Principal Sanders added, "There needs to be a listing provided for all staff in the building to show who has been trained and those that

have not. Ongoing follow-up should take place to make sure all staff received training". Principal Harrington stressed that,

> One of the problems with the teaching staff is that they do not really know how to infuse technology...definitely there is a need to have more professional development and it is something that has got to be put out there...It's got to be where teachers will be held accountable for doing it otherwise, they will not do it.

Principal Farber added, "When conferencing with teachers they should show in their (PIP) Personal Improvement Plan how they are going to increase their technology skills and use technology in the classroom." Principal Worthy stated, "There should be ongoing discussion with the technology coordinator to determine the level of technology proficiency attained by all staff and get updates regarding the type of professional development that has taken place in the school." Principal Sanders emphasized, "It is also important for administrators to receive professional development on an ongoing basis so that we know what to look for in the classroom when it comes to integration." Effective instructional leadership as related to support, evaluation, and ongoing follow-up was the predominant theme of this discussion.

The final topic of discussion addressed the amount of the school budget that is allocated for technology staff development. Principal Worthy stated, "There is a large enough budget allocated that the staff does not have any excuses not to integrate technology into the classroom". Principal Kincade of a middle school commented, "There is a generous allotment for professional development and a lot of it is earmarked for increasing technology usage in the classroom during the school year." Principal Sanders noted, "It is important to review the technology plan to make sure the allocated

monies are used for technology professional development. You can always seek help from the technology department for additional support." The theme of this final discussion appeared to indicate that the instructional leader must ensure that adequate funding was allocated for technology professional development.

The meeting concluded after approximately an hour of discussion. Each participant was acknowledged and thanked for participating in the discussion. Many of the participants wanted to extend the discussion due to the wealth of strategies and suggestions that were shared. I informed the participants that at the end of the professional development sessions, we would schedule a final focus group to engage in more valuable discussion.

I noted in my journal I was nervous that this meeting was not going to be a success but it was a very valuable experience for each of us. Members from the technology department felt the need to share their voice along with the study participants as they were graciously welcomed to participate in our discussion. I believed that this was time well spent. A buffet luncheon was served so that the participants could feel comfortable. Five out of the six participants were in attendance. Each participant eagerly responded to the questions and provided rich qualitative data during the discussion. I continued to value the need to have others give voice to my research and I appreciated their willingness to exhibit such a cooperative spirit. I believed in utilizing my servant and transformational leadership skills that allowed me to build a level of trust, effectively use my communication and listening skills, and provide a collaborative environment for all to share their experiences (Leadership Journal, April, 10, 2009).

Focus Group Data Analysis

As I reflected upon the elements of discussion and analyzed the data, there were four emerging themes that surfaced during the discussion and corroborated with the review of the literature. The first theme was the overall impact of instructional leadership. The second theme which emerged was technology usage on the part of the leader, staff, and students. The third theme spoke to professional development needs required for the instructional leader, students and staff. The fourth theme identified some of the key barriers which could hinder the effective infusion of technology in the schools.

Emerging theme 1 - Instructional leadership. Effective instructional technology leadership was clearly the most critical element needed in creating a catalyst for technological change in the school environment. Technological advances and changes in the goals of education had dramatic effects on both people and organizations. Instructional leaders had the responsibility for preparing students to be productive, contributing members of a technological society (Moursund, 1983; Ritchie, 1996, Hope & Stakenas, 1999). Comments made regarding the need for more technological professional development supported the research indicating the lack of informed leadership was applicable to many school administrators who were not prepared for their role as technology leaders. There were a limited number of school administrators who used computers in meaningful ways with children and they lacked the required pedagogical vision and experience to lead teachers (Ausbrooks, 2000; Bozeman & Spuck, 1991; Daresh, 2006; Flanagan & Jacobsen, 2003).

Emerging theme 2 - Technology usage. Principals had to become technology leaders and effective users of technology in their schools. Principals needed to provide the necessary resources and training to prepare teachers and students to become effective users of technology. It was critical that principals remain in the forefront of technology integration in their schools. The instructional leader needed to receive the appropriate professional development training for effective technology implementation (Brockmeier, Sermon, & Hope, 2005; Hope & Stakenas, 1999; Anderson & Dexter, 2005). Professional development opportunities needed to address the comprehensive and dynamic nature of technology requirements by providing training in the usage of new applications, policies, and current issues. Instructional leaders needed professional development in developing their technology skills and knowledge in two areas: (a) technology utilized in the non-instructional methods of managing and leading schools, and (b) technology utilized for instruction and learning (MacNeil & Delafield, 1998).

Emerging theme 3 - Professional development. Assessing individual needs was crucial and provided ample opportunities for training enabled the administrator and staff to grow in their use of technology usage and integration in the classroom. Once the assessment of the individual's needs was completed, ongoing professional development was key to the technology integration process as noted by a Principal, "Professional development training is needed for staff and principals that model how to integrate technology into existing curricula, align it with student learning goals, and use it for engaging students in the classrooms." The literature indicated the need for school administrators and teachers to be afforded professional development opportunities (Blasé & Blasé, 2000; Dawson & Rakes, 2003; Hoffman, 1996). The instructional leader played an integral role

in ensuring that effective technology usage be implemented in their schools. Principals needed to make every effort to celebrate and introduce their staff to best practices in technology utilized in the classroom. These strategies should be expressed to the staff with the understanding that technology should be used as an instructional tool and a means to build capacity in students and staff.

Emerging theme 4 – Barriers. Two predominant barriers such as inadequate professional development and budgetary constraints as a hindrance to effective technology integration in the schools emerged as the final theme from the discussion. Some of the participants indicated that there was a need for more professional development for teachers. However, teachers had minimal access to appropriate ongoing professional development. Principals were challenged to provide professional development opportunities which focused on technology integration and design, rather than computer applications for their staff.

It was crucial for administrators to receive adequate technology professional development in order to recognize effective technology integration in the classroom. Without this training, there was an inherent barrier to achieve effective technology leadership capacity. (Blasé & Blasé, 2000; Dawson & Rakes, 2003; Flanagan & Jacobsen, 2003). A few of the participants noted how necessary it was to have a technology coordinator to assist in the professional development of the building staff. In addition, principals noted the there were budgetary constraints which prevented the hiring of necessary personnel to address the technical hardware and software hindrances (Ausbrooks, 2000; Bozeman & Spuck, 1991; Daresh , 2006; Flanagan & Jacobsen, 2003; Hoffman, 1996).

Conducting the focus group meeting provided me with a vehicle to express an essential pillar of change: *being a visionary leader*. This process gave all participants a voice in the exploration of technology implications for enhancing their personal capacity and instructional leadership proficiencies. This activity of exploration and dialogue promoted the establishment and ownership of the vision by all participants. Therefore, this focus group meeting activity allowed me to continue to exhibit the aspects of authentic leadership to create purpose, visionary leadership to promote the vision and cultural leadership to gain cooperation, and ownership between the participants, the Technology Committee and myself. The focus group meeting engaged participants in identifying the purpose, content, and relevance of the professional development training modules (Schwahn & Spady, 1998).

Training Module 1-Laptop Refresher 101

Principals were sent invitations by E-mail reminding the participants of the professional development training titled *"Techie Tuesdays for Principals*", which was held monthly on a selected Tuesday from 2:00 pm-4:00 pm at the District Technology Department. Principals were granted release time from their buildings by the board of education to participate during the regular workday to receive training.

The first "Techie Tuesday for Principals" occurred on Tuesday April 28, 2009. This training module provided participants with building their capacity in utilizing their new laptops. Five out of the six participants agreed to be in attendance. The sixth participant called and indicated that due to school issues in their building, and a lack of a vice principal to provide school monitoring, she would not be able to continue

participating in the study. I was concerned and disappointed that she could not reap the benefits of the professional development that was going to be provided to increase her capacity. I recommended that she consider joining us in the future and thanked her for participation (Leadership Journal, April 28, 2009).

At approximately 1:50 p.m., I welcomed each of the participants to the technology lab, and applauded them for having brought their individual laptops. The servant leader in me provided snacks and participants were requested to get comfortable before training began. The technical manager was present to address any technical concerns. I observed that two of the principals acted very nervously as they opened their laptops to prepare for training. The following comments were heard when Principal Kincade stated, "I cannot wait to get started..." as she began setting up her laptop, Principal Worthy commented "We should have had this training a long time ago" and Principal Harrington responded "Yes, I need help..." Principal Sanders noted, "Maybe, I will use my laptop more often after training" as she eagerly turned it on to prepare for the training The other participants were looking for electrical power connections to maintain their battery supply. Once each principal was settled, one of the instructional supervisors from the Technology Department introduced himself as Mr. Wainwright and stated the purpose of the training was to provide a hands-on opportunity to engage in Laptop 101-Refresher. Each of the participants began to smile as they eagerly awaited the next step.

I reflected in my journal an immediate red flag went up for me as I realized how deprived many of our administrators were when it came to receiving much needed technology professional development. I reflected upon how much work was needed in order to have our principals reach that comfort zone of not only using technology for

personal and work reasons but leading the mission of technology integration in the school buildings. (Leadership Journal, April 28, 2009). Mr. Wainright continued to provide a complete laptop tour by pointing out every external feature of the machine. He proceeded to show everyone how to log-on using their individual ID's and Passwords. Once connected, directions were shared how to connect to the District's H:Drive in order to save data and using a Thumb Drive to also save files, and insert a CD or DVD. Questions were posed and responses were provided by Mr. Wainwright when Principal Worthy asked, "Why should I use the H:Drive instead of my desktop of my documents?" Then Principal Kincade raised her hand and wanted to know, "What is the difference between CD or DVD?" Principal Farber also requested, "How can I connect to the District website when I am away from home...Can I send messages to my staff?" Each of the participants exhibited looks of satisfaction on their faces as their questions were answered by Mr. Wainright.

He continued to provide an explanation about how to use the keyboard, and each of the function keys were reviewed for their purpose. Additional comments were shared among the participants when Principal Harrington noted, "I am really getting this...", while Principal Farber commented, "I never knew this before.. as she continued to finger the keyboard. Principal Sanders also shared, "I understand the importance of the function keys...." and Principal Worthy added, "Now I can carry my laptop when I go into the classroom and do my teacher evaluations and then save them to the H-Drive" as each of them continued to apply their new skills.

The presentation ended by having participants learn how to connect to a projector for presentation purposes, safely removing all thumb drives, and closing the computer

down. Each of the participants were absorbed in following the assigned tasks and their eyes were focused on the presenter while looks of interests shown on their faces. Learning to navigate the laptop became a symbol of success for each participant. It was evident from this workshop that the participants were enthusiastic and verbally acknowledged their need for a technology professional development.

Training Module 1-Formative Survey Analysis

The comments made by the participants during the training module appeared to support the theme for increased professional development as expressed by the participants in the initial focus group meeting. This initial training module revealed the need for the study participants to acquire personal mastery which was an essential component of the change framework. Senge (1990) noted "organizations learn only through individuals who learn. Individual learning does not guarantee organizational learning. But without it no organizational learning occurs" (p.139).

Participants were thanked for their participation in the training session. They were requested to give their input by completing a very brief survey to evaluate their personal experience regarding the professional development session. They were provided with a Likert designed formative survey consisting of six multiple response questions, and two open-ended questions. The study participants were notified that all responses remained anonymous and that this was the procedure after each of the future training session. For reporting purposes, I combined the measuring scales of strongly disagree with disagree and strongly agree with agree. Combining this data provided me with a comprehensive look at whether or not the participants were favorable or not favorable about their professional development experiences. They were also informed that the quantitative data

collected was used to improve planning and professional development for administrators in the future.

This data collected was shared with the District Technology Committee. Members of the committee concurred that additional support was needed on an ongoing basis in making sure that all participants became comfortable and reached a level of personal mastery on using the hardware. It was decided among the committee members, that additional support could be provided by the instructional supervisors for all future training sessions. Table 1 represented the anonymous responses of the participants' concerning the survey questions.

Table 5.

Training Module 1-Laptop Refresher 101 Formative Survey (N=5)

	Professional Development Experiences:	Strongly Agree (n)	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1)	Were the objectives of the module clearly stated?	5				
2)	Did the training module meet your expectations?	5				
3)	Was the instructor competent, well-prepared, organized and knowledgeable about the module content?	5				
4)	Did you have the necessary resources to accomplish the tasks required of you?	5				
5)	Did the content of this training module enhance your leadership capacity?	5				
6)	Were the skills provided applicable to your school setting?	5				

Responses to all six multiple choice questions revealed that each participant strongly agreed to each question. The remaining two questions of the survey were open-ended to allow the participants to share additional comments and suggestions. Question number seven requested: *Would you change anything in this training module? What would you change and how would you accomplish this?* The following comments were written by the participants: I would not change anything; Do not change anything; I would like to see a part two added to this training; No need-the instructor was very good and organized; and Let it remain the same. Question number eight requested any additional comments and there was one: "This was a great workshop"

Training Module 2-Discovery Streaming

The second Techie Tuesday session occurred on May 12, 2009. Invitations were communicated by E-mail and Fax one week prior to the training module. Each participant was reminded again that they should bring their laptop to the training session. I commented in my journal that I hoped my colleagues trusted in my ability enough to facilitate in building their capacity, and that they would return to the next session (Leadership Journal, May 12, 2009).

On the day of the training, I welcomed back all five participants. Snacks were served and some commented that their day was so hectic that they did not have the opportunity to eat their lunch. It became important for me to provide the principals with some nutrition in order for them to remain focused on the training. Members of the Technology Department were assigned by the Acting Director, Mr. Chipworth to provide technical support if needed, and one of the instructional supervisors to conduct the

training. At approximately 2:05 p.m., the five participants' computers were turned on and they appeared eager to get started as they enjoyed their snacks.

The focus of this training was devoted to how to integrate technology into the curriculum. Ms. Whitman, the Educational Program Specialist was introduced and she shared that her purpose was to show administrators how to share with their teaching staff the concept of *video streaming* and integrating digital media resources into the classroom. Comments generated among the group such as, Principal Kincade noted, "This sounds like this is going to be interesting," Principal Harrington added, "...streaming, I am not that familiar with how to do this...," and Principal Farber said, "I always wanted to know how to do this to."

The presenter quickly shared the agenda and noted that there were opportunities for discovery and hands-on training during this session. Part one of the training involved the presenter completing a *web site overview* utilizing the SmartBoard which consisted of her a) demonstrating how to use the search tools and advanced search features,
b) providing instruction for playing video clips and downloading procedures, and
c) understand how to utilize the content features and uses. Participants were carefully guided through each of the steps to improve their searching skills. The following comments and questions began to surface once they became comfortable with navigating the search site such as: Principal Farber asked, “How do I download a picture”? and Ms. Whitman took the time to acquaint all participants with the required steps to accomplish the task. Once everyone understood the process to upload a picture, Principal Harrington was heard stating, “This is a great website!” while Principal Worthy commented, "I know I can find something for every subject area." Principal Farber added, "Teachers will be

able to use this to enhance their lesson plans as Principal shook her head in agreement as she commented, "I just wish we had more time to explore this site"

Principal Kincade, the novice level user participant signaled that she needed help by raising her hand and stating, "You are going a little too fast for me, I need some help in downloading my video." She had a look of frustration on her face, she stopped typing on her keyboard, and just folded her hands. The trainer requested assistance from the other instructional supervisor who sat down next to Principal Kincade and provided the additional support needed to keep her engaged in the training. The novice participant began to smile and began to search the website again with the help of the instructional supervisor. Ms. Whitman continued to emphasize that united video streaming is connected to the required New Jersey Core Curriculum Content Standards (NJCCC) and using it appropriately can help to enhance any lesson. Participants were given a additional time to search about a topic of their choice at the appropriate grade level. Each person was very focused and engaged in the search process as the trainer walked around the room and provided additional support.

Part two of the training consisted of sharing *digital media integration strategies* as the trainer provided a) a brief overview of common classroom uses and implementation data, b) learning how to embed an image or video into a PowerPoint slide by providing a brief session on how to use the application, and c) sharing how to create a hyperlink to a video in a Word file. A brief discussion transpired about some common classroom uses and implementation. After the discussion, Principal Farber noted, "...Sharing that video clip of Dr. Martin Luther King, Jr. could help my students learn and write about his life, while Principal Harrington stated, "There are limitless ways these pictures could be

utilized in the classroom", and Principal Sanders added, "Videos can be heard in Spanish and this will help my ESL students". Principal Sanders agreed that the site is very helpful and stated, "Math is my favorite subject and I would use this to check out how we can improve our third and fourth grade math skills". Principal Worthy continued to investigate the site and added that, "This is a valuable resource that can bring real world experiences right into the classroom for our children..." Each participants continued to remain focused on searching the site for personal preference I noted it was quite evident that these principals were discovering how this form of technology utilization could be an effective tool in curriculum instruction.

The next segment involved the trainer who surveyed the participants about their knowledge and usage of the Microsoft Office Power Point application. Three of the participants indicated that they observed and used the application. The novice level user observed many Power Point presentations but did not feel comfortable using it and additional assistance was provided for this participant. Ms. Whitman provided the basics about the application with just enough knowledge to engage the participants in downloading and embedding an image onto a slide. Step by step directions were given using the SmartBoard and all of the participants concentrated on the trainer but they had looks of frustration on their faces. Comments could be heard from Principal Kincade stating, "This is really complicated, Ms. Whitman, you make it look so easy," while Principal Farber called out, "I need more training." Principal Sanders commented, “This is interesting, I have never done anything like this before." Then Principal Worthy asked, "Will we have additional training on using Power Point so I can really learn how to use it?" Other heads nodded in agreement and Ms. Whitman assured everyone that training

could be scheduled for a date in the future. She apologized for not providing a more detailed response to their questions but indicated that there was not enough time.

Part three of the training involved the trainer using the *teacher center tools* which involved a) demonstration about how to use an image to create a writing prompt. A multitude of images from various content areas were shared so teachers could use these graphics as writing prompts to motivate students to engage in the writing process for persuasive, narrative and expository activities, b) a brief overview of the lesson plan library, c) an explanation of how to use the interactive calendar for lesson plan starter activities. Participant comments were heard regarding how useful the writing prompt would be in helping our students to become better writers. After the introduction of the lesson plan library the principals were engaged in finding various content subject lesson plans. Principal Harrington stated that, "Reviewing lessons with this type of information in them would be a welcome sight." Principal Farber added, "I am amazed at how many lesson plans there are to choose from..." A few additional minutes were granted to allow the participants to continue review lesson plans of their choice.

The final activity involved the sharing of the calendar. The trainer showed a few videos about historical events that occurred on this date in history, and noted that video resources are provided for everyday of the year in all subject areas. The look of excitement appeared on all participants' faces as they eagerly searched a particular day of their choice. Each person exhibited a level of proficiency as they navigated throughout the calendar library. Responses could be heard when Principal Kincade noted, "This is a great tool and I cannot wait to share this with my staff," Principal noted, "Students would really get a kick out of this website...," while Principal Sanders added, "This sure would

enhance any lesson and make learning fun..." Principal Worthy continued to navigate the calendar and stated, "I am going to check out my birthday and see what occurred on that date in history...this is a great tool to help teach students special events in history." Ms. Whitman concluded the session by sharing with the participants that any teacher could participate in interactive training lessons that provided a certification option if all lessons were completed using the online professional development resources. Applause was heard from all of the participants and the trainer reminded everyone to sign off properly from the website and shut down their computers.

Training Module 2-Formative Survey Analysis

Participants were thanked for their participation in the training session. They were requested to give their input by completing a very brief survey to evaluate their personal experience regarding the professional development session. They were provided with a Likert designed formative survey consisting of six multiple response questions, and two open-ended questions. Participants were reminded all responses remained anonymous and that this was the procedure after each of future training session. For reporting purposes, I combined the measuring scales of strongly disagree with disagree and strongly agree with agree. Combining this data provided me with a comprehensive look at whether or not the participants were favorable or not favorable about their professional development experiences. They were informed that the quantitative data collected were used to improve planning and professional development for administrators in the future. Table 6 represented the responses from the second training module.

Table 6.

Training Module #2- Discovery Streaming Formative Survey (N=5)

Professional Development Experiences:	Strongly Agree (n)	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1) Were the objectives of the module clearly stated?	5				
2) Did the training module meet your expectations?	5				
3) Was the instructor competent, well-prepared, organized and knowledgeable about the module content?	5				
4) Did you have the necessary resources to accomplish the tasks required of you?	5				
5) Did the content of this training module enhance your leadership capacity?	5				
6) Were the skills provided applicable to your school setting?	5				

Responses to all six multiple choice questions revealed that each participant strongly agreed to each questions. Again, these results appeared to support the themes for increased professional development and technology usage in how to model effective

technology integration in the classroom as expressed by the participants in the initial focus group meeting. Question number seven requested: *Would you change anything in this training module? What would you change and how would you accomplish this?* The following formative survey comments were written by the participants: I would give more time to be able to do more searching the site; Do not change anything; Additional training would be great**;** No, need-the instructor was very helpful and patient to me**;** and Let it remain the same but have another part two. Question number eight requested any additional written comments and the following were noted: I want more training in Power Point; A great workshop, More training needed on Power Point; and Our teachers would find this so helpful especially the writing prompts and using the calendar.

This data was shared with the Technology Committee and they concurred that additional scheduling should take place in the Fall, 2009 to provide more professional development in the usage of Power Point application for the principals to become proficient. As I reflected upon the training that these individuals received, I was cognizant that many remained uncomfortable using the website and expressed the need to become proficient in the Microsoft Power Point application. Some appeared stressed and needed additional support as they tried to navigate their way around the various segments of the website. Building capacity of the instructional leader in the area of technology was paramount in making this project a success. How would principals know when he/she viewed the effective application of technology across the curriculum in the classroom if he/she has not attained mastery? I was pleased to know that there was truly a need for my action research project as I continued to provide our participants with added support (Leadership Journal, May 15, 2009)

Training Module 3-Microsoft Outlook Exchange 2007

The third Techie Tuesday session occurred on June 02, 2009. The invitations were communicated by E-mail and faxed one week prior to the training module. Each participant was reminded to their laptop to the training session. At approximately, 1:50 p.m., Principal Worth and Principal Farber entered the lab. They began to make themselves comfortable and turned on their computers. At 2:00 p.m. the remaining two Principals Harrington and Sander joined us and were welcomed by all of those present in the room. The fifth, Principal Kincade participant informed me in advance that she had a District level meeting and could not attend today. Refreshments were served and comments of gratitude were expressed. Members of the Technology Department were assigned by the Acting Director, Mr. Chipworth to provide technical support if needed, and one of the instructional supervisors to conduct the training. At approximately 2:05 p.m. the participants' computers were turned on and they appeared eager to get started as they enjoyed their snacks.

The focus of this training enabled principals to learn to use Microsoft Outlook as a management tool to manage all incoming and outgoing e-mail messages. Mr. Chipworth, the Acting Director was introduced and he shared that his goal was to provide the principals with a cursory overview of some of the important tools in Outlook during a two hour period which would normally take a full day of training. He shared his purpose was to show administrators how to use Outlook to *track their email, create a distribution list, creating appointments, and sharing calendars.* He noted that by using some of the important features of this application, you were able to continuously monitor your mail and keep the lines of communication open especially with all building staff. He also

expressed using Outlook would decrease the level of paper that is generated from memos and faxes. Comments could be heard from Principal Kincade, "We certainly have enough of that (paper) going around," while Principal Farber commented, "I need this training," and Principal Worthy noted, "I really need to learn how to do this..."

The initial segment training involved the presenter sharing a power point presentation about some of the important features of Microsoft Outlook. Participants were reminded that there was no need to take notes because each participant would be forwarded a copy of the presentation by e-mail and everyone called out "thank you." Participants were then asked to open their Outlook on their desktop. The Acting Director carefully guided the participants through each of the steps needed to download their personal e-mail using the SmartBoard. Principal Kincade, the novice level principal required additional support and asked if one of the instructional supervisors could sit next to her to provide her with additional support. Once each person accessed to their e-mail, the Acting Director proceeded to discuss the purpose of *tracking e-mail.* He shared that as principals, it is important that when you communicate using e-mail, you should be able to track, and make sure all communications were received and read. Participants were asked to create a new e-mail message. Next, they were shown before sending their mail how to choose the options "Delivery Receipt" which shows that the e-mail was received, and "Read Receipt" which indicated that the recipient has opened and read the message. Principal Worthy commented that, "I never knew this before," and Principal Farber noted "This is really helpful, ... my staff can't say they never got my e-mail." E-mails were forwarded to one another in the group and these mailing options were practiced by all. No one appeared to exhibit any difficulty in performing this task. The next segment involved

participants learning how to create a *distribution list.* The Acting Director, Mr. Chipworth shared that a distribution list (e-mail recipients) was a means to create and categorize a listing of people to send e-mail messages. It was further explained that instead of sending individual messages that were the same for groups of people within the organization, it was more efficient to create a mail distribution listing of staff members. The steps to create a listing began with creating a "*Techie Tuesday"* list of participants was carefully shared using the SmartBoard. I observed that some steps were reviewed more than once because some of the participants exhibited questionable looks on their faces.

The following comments and questions were heard when Principal Kincade called out, "I don't have a distribution list...what happened to mine?" as she stared at her computer screen. Principal Farber added, "I don't see the arrow you are pointing to...that makes a difference..." as she kept pointing to the area where it should be located on her screen. The trainer became aware of their need for extra reinforcement among the group when Principal Harrington questioned, "Why am I having so many issues with this?" Mr. Chipworth addressed their concerns with patience and assisted each person while meeting their individual learning needs. While he was in the process of helping other principals, a conversation took place with Principals Worthy and Sanders regarding how important it is to have Techie Tuesday. Principal Worthy stated, "We need to come to this training every month. I am learning so much and the trainings are really helpful for me." Principal Sanders replied "You're right. We need to spread the word about *"Techie Tuesday"* to other principals and how it can help them. I am going to send a couple of e-mails…"

Once the training resumed and everyone appeared comfortable with the process, participants were given the opportunity to practice setting up special distribution lists for their building. Positive comments could be heard when Principal Worthy noted, "I can set up special groups for my cabinet members and grade level chairpersons," and Principal Farber added, "I can send e-mail just to my fourth grade staff requesting a grade level meeting." Principal Kincade appeared much more at ease a she continued to stroke her keyboard and stated, "This is great...now I won't need to type in all those names and Principal Harrington replied, "You're right...e-mailing folks will be so much easier."

The next segment involved principals learning how to briefly review the calendar using the daily, weekly, and monthly views and *create appointments*. The Acting Director, Mr. Chipworth assured everyone that this tool was a great way to manage the events that can occur in the principal's daily schedule as he went through the steps of viewing the calendar with sample events. Documenting all events allowed the building principal to always return and view what was scheduled on weekly, monthly or yearly basis. This feature enabled the secretary or a member of the clerical staff to collaboratively manage the principal's calendar, schedule appointments, manage, and add appointments. This feature proved to be an asset to each participant. The secretary, with permission, was able to share the calendars of other building staff and determined if they were busy or free to schedule a meeting.

Each principal was given the opportunity to practice how to schedule their own appointments, identifying the time, location, and attached a copy of a staff agenda. The Acting Director, Mr. Chipworth walked around the lab offering assistance. Principal Harrington called out with a smile on her face, "I need this to manage my life…," and

Principal Farber stated, "This is really cool." The Acting Director stressed the importance of the *"Reminder Feature"* option with the alarm sound if selected, which would send a pop-up reminder message to the desktop. Principal Worthy spoke out with a look of concern and disappointment in her voice, "I'm not getting pop-up reminders on my computer at work...now I'm getting the reminder messages but I don't hear the alarm sound…" The trainer returned to the SmartBoard and showed everyone how to select that option. Principal Farber responded, "Thank you, now I can go back (school) and set up my desktop."

The final phase of training engaged the participants in learning how to send an invitation to attend a meeting. The Acting Director, Mr. Chipworth shared that using the invitation function was equivalent to sending an e-mail message. He had each participant involved in creating and sending an invitation to each staff member and showed them the selection box for required or optional attendance at the meeting. Upon receiving the invitation, they were also taught to select the option of whether they were free to attend or busy. The Acting Director concluded the workshop and reminded everyone that there would be additional training scheduled for the Fall, 2010 school year. Applause could be heard and the following comments were shared, Principal Worthy stated, "This was a very resourceful workshop," while Principal Kincade agreed and commented, "This was great today." As the principals began to pack their computers Principal Farber noted, "I really like the way you can use the shared calendar," and Principal Worthy replied, "I can't wait to get back to the office and set up my calendar." I commented in my journal that the participants appear to be enjoying their time together as a learning community. I have watched them grow in their ability to support and learn from each another during

the last two sessions. It pleased me that I was a catalyst in facilitating how they are making small baby steps in improving their technology personal mastery (Leadership Journal, June 2, 2009).

Training Module 3-Formative Survey Analysis

Participants were thanked for their participation in the training session. They were requested to give their input by completing a very brief survey to evaluate their personal experience regarding the professional development session. They were provided with a Likert designed formative survey consisting of six multiple response questions, and two open-ended questions. Participants were reminded all responses would remain anonymous and that this would be the procedure after each of future training session. For reporting purposes, I combined the measuring scales of strongly disagree with disagree and strongly agree with agree. Combining this data provided me with a comprehensive look at whether or not the participants were favorable or not favorable about their professional development experiences. They were also informed that the quantitative data collected would be used to improve planning and professional development for administrators in the future.

This data collected was also shared with the District Technology Committee. Members of the committee concurred that additional support would be needed on an ongoing basis in making sure that all participants became comfortable and reached a level of personal mastery on using Microsoft Outlook. The committee members decided that additional support could be provided by the instructional supervisors for all future training sessions. Table 7 represented the responses from the third training module

Table 7.

Training Module 3-Microsoft Outlook (N=4)

Professional Development Experiences:	Strongly Agree (n)	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1) Were the objectives of the module clearly stated?	4				
2) Did the training module meet your expectations?	4				
3) Was the instructor competent, well-prepared, organized and knowledgeable about the module content?	4				
4) Did you have the necessary resources to accomplish the tasks required of you?	4				
5) Did the content of this training module enhance your leadership capacity?	4				
6) Were the skills provided applicable to your school setting?	4				

The participants' comments during the training session and their notations on the formative survey appeared to support the theme for increased professional development and the need to increase the participants' personal mastery in being effective

communicators in using technology. Responses to all six multiple choice questions revealed that each participant strongly agreed to each questions. Question number seven requested: *Would you change anything in this training module? What would you change and how would you accomplish this?* The following comments were written by the participants: More training time**;** Do not change anything; Need part two**;** No! I would not change anything. The instructor was informative and very flexible for varying instructional levels. Question number eight requested any additional written comments and the following were noted: Very helpful workshop; Great Job; Needed this; I enjoyed the session and plan to be at the next session

Training Module 4-Web 2.0 Tools

The fourth Techie Tuesday session occurred on August 25, 2009. Principals were invited to this session by e-mail and fax communication one week prior to the training module. Each participant was reminded that they should bring their laptop to the training session. At approximately 2:00pm, Principal Worthy and Principal Kincade entered the lab. They began to make themselves comfortable and turned on their computers. While waiting for the other participants each person was observed checking their e-mail. They were also told to enjoy the available refreshments. At approximately 2:15pm, Principal Sanders and Principal Harrington joined us and were welcomed by all of those present in the room. The fifth participant, Principal Farber called the office and stated that she would be running late due to a crisis in her building, but she would attend.

The focus of this training was enabled principals to have an overview of a few of the Web 2.0 tools social networking websites. Ms. Whitman, the Technology

department's educational program supervisor specialist was introduced and she shared that her goal was to provide the principals with an overview of some of the important Web 2.0 tools found on the Internet. and experience hands-on training with two of the popular websites. She explained that a Web 2.0 tools site allowed its users to interact with other users, or to change website content in contrast to non-interactive websites where users are limited to the passive viewing of information that is provided to the user. Ms. Whitman simplified the definition by sharing that by using Web 2.0 tools such as Twitter, Flikr, Voice Thread, or Animoto, this was a free way of communicating with others globally using a computer online. For the purposes of this training session, the trainer indicated that the agenda focused on establishing accounts for participants using Animoto and VoiceThread websites. Principal Worthy asked, "What is Twitter? I have never heard of that before." Principal Kincade commented, "I don't have a clue about Twitter or any of the other things she mentioned." Principal Farber stated, 'I am interested in hearing about anything free..." The supervisor provided a brief definition about each site and then proceeded to share the website address for Animoto using the SmartBoard. She explained that by using the Animoto application, a picture trail of all photos taken could be stored and shared using a PowerPoint slide. The website took an extremely long time to appear on the screen. While waiting, the trainer provided a few more details about another website called Flickr which allowed you to create a free account to upload your personal and professional pictures. It was shared that this was a convenient way for you to store and/or share your photos without paying for photo processing fees. This was also a great tool where a teacher could upload student pictures and choose the option of sharing them with the world or keeping them private. Security mechanisms provided by

the website were discussed as well as additional benefits to the classroom teacher. Principal Worthy asked, "So you can really take your photo selections and organize them on Flickr?" and Principal Kincade commented, "Sharing these pictures would make a great writing prompt to encourage our students to write." The focus returned to the slowness of the network system while some of the participants looked anxious and appeared to be impatient waiting for the site to appear. Comments were heard from Principal Farber as she stated with annoyance in her voice, "Gee, it's so slow, and Principal Sanders concurred, "This is ridiculous...is something wrong with the system today." Principal Worthy responded with laughter in her voice as she commented, "Look, the screen went blank...it's good to see that this happens to the technology department and not just us." There was a great deal of laughter as they waited and during that time Principal Harrington arrived at approximately 2:45 p.m. She was welcomed and told that her arrival was perfect timing. I noted in my journal how faithful and dedicated these participants were in attending these sessions even in the midst of crisis that often occurred in their buildings. I made a special point of sharing how grateful I was to the late participant that she was motivated to continue coming to the training sessions. I could see that art of trust building was really working (Leadership Journal, August 25, 2009).

Once the site loaded, the trainer shared how students could take pictures of various events in the school, upload them to the site and then create a power point slide to share in class. She reminded them that the cost was free and by creating an account with Animoto, they were able to upload thirteen pictures and share them. The website finally appeared on the screen and the training resumed. Step by step instructions were modeled

so each participant could acquire a login account and create a password. They were shown how to create a background of choice using the Power Point application provided on the website. Next, they were provided the steps to upload selected saved pictures provided by the trainer. The trainer continued to emphasize that uploading pictures was an easy process and Principal Kincade stated, "Yes, I need Web 2.0 tools for dummies." Laughter and agreement from the rest of the participants ensued. Principal Worthy noted, "I can see using this (Animoto picture slide show) as a intro tool for professional development...take pictures of different teachers in the classroom using them to share best practices." Principal Sanders agreed and stated, "Yes, you are right, that's a great idea...you could use it at a faculty meeting. Principal Harrington concurred, "you have thousands of pictures you take in school all the time...this is a great way to share with students and staff."

The next step involved the participants adding music to their slide show which was carefully orchestrated by the trainer. This process appeared to be very entertaining for all participants as they tapped their feet, moved their heads, and had smiles on their faces as they chose their musical preference to add to the slide show. The trainer walked around the room and provided assistance especially to the novice level user. Once all participants had achieved the task, they took great pleasure in viewing their personal slide show. Ms. Whitman ended this segment of the training by emphasizing the importance of reflecting upon how you can use these tools for yourself and then how it can be best used in the classroom setting to enhance student learning. The next area of focus involved the overview of how to use another Web 2.0 tool titled VoiceThread. The trainer defined VoiceThread as a vehicle that allowed students and staff to have rich dialogue to take

place in and out of the classroom, fostering authentic critique, analysis, demonstration, reporting and practice using media online. She assured all participants that once an account was established the content is restricted to K-12 educators, students, and administrators. It was a controlled site and students could communicate with one another without the need for valid e-mails.

Ms. Whitman proceeded by sharing how VoiceThread enabled the students in a classroom to read a book, and challenge students in another classroom or globally to read and comment about the same book. Comments were voiced using audio (recording into a microphone), creating text (typing in), and using a telephone (just calling in). Students' books were shared and comments were made between the two classrooms. Principal Worthy, stated, "Very good, students read well. This is a good way to enable students to communicate and critique each other's work." Principal Farber added, "This will help students to hear themselves and self-correct. Principal Harrington noted, "Students of different learning styles will be able to communicate in a manner that is comfortable for them," and Principal Sanders agreed and said, "Wow! What a great tool." The trainer continued to stress using this tool in the classroom would help to motivate students to create a project that would involve using reading, writing, speaking and media skills which are part of meeting the New Jersey Core Curriculum Content Standards (NJCCCS). Additional book reviews were viewed by the participants and the following comments were noted: Principal Worthy said "So all these tools for book reviews are free like the other tools?" Principal Harrington stated, "All Language Arts teachers at the middle and high school level would find this really beneficial." Principal Kincade asked, "Is this how this professor post her lecture notes through her webpage by using

VoiceThread...she provides audio podcasts. Ms Whitman concurred and then showed the participants how to cut and paste the VoiceThread link directly into their personal websites. The participants had smiles on their faces and appeared very excited over having a sample link placed onto their website. Principal Sanders stated, "Now I can go back and share this with my staff." Prinicipal Harrington commented, "I am glad I came to learn all about this...it's neat." The other participants agreed as they shook their heads and smiled. Ms. Whitman assured the participants that each building would become a pilot school to use VoiceThread during the school year. She requested that at the end of the school year feedback would be generated by the teachers and students regarding their experiences with the tool. Applause and cheers were heard among all participants. Principal Worthy ended the session with the following remarks, "This type of modality allows students who would not normally speak in the classroom to participate even when it came to Animoto...ah ah...because a lot of kids perform and can do that rap stuff...whatever, you know, that just, that performance of standing and speaking to someone about something...I just think that's neat."

Training Module 4-Formative Survey Analysis

Participants were thanked for their participation in the training session. They were requested to give their input by completing a very brief survey to evaluate their personal experience regarding the professional development session. They were provided with a Likert designed formative survey consisting of six multiple response questions, and two open-ended questions (Table 8).

Participants were reminded all responses would remain anonymous and that this was the procedure for each training session. For reporting purposes, I combined the measuring scales of strongly disagree with disagree and strongly agree with agree. Combining this data provided me with a comprehensive look as to whether or not the participants were favorable or not favorable about their professional development experiences. They were also informed that the quantitative data collected were used to continue planning and professional development for administrators in the future. The data collected was also shared with the District Technology Committee. Members of the committee concurred that additional support would be needed on an ongoing basis in making sure that all participants have an understanding of Web 2.0 tools potential to enhance their instructional leadership capacity with their staff. It was decided among the committee members, that additional support in utilizing these tools could be provided by the instructional supervisors for all future training sessions. Table 8 represented the responses from the fourth training module.

Table 8.

Training Module 4-Web 2.0 Tools Formative Survey (N=5)

Professional Development Experiences:	Strongly Agree (n)	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1) Were the objectives of the module clearly stated?	5				
2) Did the training module meet your expectations?	5				
3) Was the instructor competent, well-prepared, organized and knowledgeable about the module content?	5				
4) Did you have the necessary resources to accomplish the tasks required of you?	5				
5) Did the content of this training module enhance your leadership capacity?	5				
6) Were the skills provided applicable to your school setting?	5				

The comments made during the training session and the notations made in the survey appeared to support the themes for increased professional development and the need to increase the participants awareness of how to utilize these Web 2.0 social networking tools to effectively enhance the instructional content in the classroom. Responses to all six multiple choice questions revealed that each participant strongly agreed to each questions. Question number seven requested: *Would you change anything in this training module? What would you change and how would you accomplish this?*

The following comments were written by the participants: No! I enjoyed every minute of this session; I learned some enjoyable technology techniques and quite a few classroom ideas; Do not change anything; Provide a part two; No! I would not change anything. The instructor was informative and very flexible for varying instructional levels. Please do not change anything. Question number eight requested any additional comments and the following were written: This is enjoyable! These type sessions are short enough and filled with information that all principals could utilize. Great Job; Great information; Excellent! I would like a part two of Techie Tuesday. I really enjoyed myself! I am looking forward to the next session.

Analysis of Change

Cycle two involved an initial focus group and four technology professional development training modules. These research activities were designed to coordinate with the change process identified in Senge's personal mastery and Schwhan and Spady's (1998) five *pillars of change.* The professional development modules were implemented to address the participant's need for technology personal mastery. This professional development training enabled the participants to develop their personal technology skill sets, as well as, their ability to recognize effective technology utilization in the classroom. The predominant elements within Schwhan and Spady's five *pillars of change* were the process of enrollment to foster participant's ownership, the process of development to foster capacity, and the process of orchestration to foster support.

The initial activities engaged the participants in the action research project were designed as an enrollment process. The initial participation survey was utilized to

ascertain the principal's demographic background and their perception of their technology development experience. This process allowed them to reflect upon their need for professional development and their perceptions of technology's utility within the educational environment. This quantitative instrument provided an initial step in gaining trust and commitment to this developmental change process. The initial focus group meeting continued the enrollment process to assure the participants' perception of *ownership* as a pillar of change. According to Schwahn and Spady (1998) "enrollment is the open, continuous, and enthusiastic recruitment, inclusion, and involvement of all the organization's employees and constituents in its productive change effort" (p. 71). This meeting allowed the participant's to voice their understanding and perceptions of technology integration and utility within their school buildings. This focus group discussion enabled the participants to reflect upon their perceptions of the technology needs and barriers for effective integration into the curriculum prior to the training sessions. The data was triangulated with the post professional development focus group meeting, interviews, and summative survey in cycle three to evaluate the changes in the participants' perceptions and practices.

The professional development modules were reflective of the development element of the change process which was necessary to build the *capacity* of the participants. It was quite evident that all participants were excited and appreciative of the training received through their comments and their enthusiastic participation in all training modules. The significant theme revealed in each of the formative surveys shared how beneficial the training was for building the principal’s confidence and knowledge of technology's capabilities for their personal growth and utility within their educational

settings. Each participant expressed the need for ongoing professional development (Anderson & Dexter, 2000; Spuck & Bozeman, 1988; Dawson and Rakes, 2003). Personal mastery must be an essential element of the change process to encourage a commitment to understand the purpose, explore the vision, and foster ownership of the change process by understanding the development needed to build personal capacity (Senge, 1990; Schwahn & Spady, 1998).

The *support* pillar of change was orchestrated through assessing and identifying the technology development needs of the participant's to foster the change process. The activities inherent within the initial survey and focus group provided the necessary data to uncover these needs. The focus group meeting enabled the participants to give voice to their perceptions and concerns regarding technology utilization and infusion within their educational settings. The focus group activity helped to cultivate their willingness to increase their capacity. The collaborative interaction between the District Technology Committee, central administration, and myself assured that the participants were allowed to attend training during the school day which alleviated a time barrier (Schwahn & Spady, 1998).

Leadership Application

I believed that by developing a strong relationship with these principals, and fostering innovative thinking and risk taking, practicing the *authentic leadership* aspect of the five pillars of change had the ability to increase the principals' commitment to the goals of technology integration. I believed as an authentic leader, I challenged these participants to perform better at utilizing technology at a personal level and acquiring methods of implementing technology in the classroom. I believed this task allowed me to

exhibit the *quality leadership* aspect of the five pillars of change by creating a positive environment of enthusiasm, optimism, and risk taking as they attended these training sessions. As a result of these sessions, these principals began to consider how to initiate change within their buildings and help teachers raise their levels of performance in the implementation of technology in their school buildings. The *servant leadership* aspect of the five pillars of change was expressed by my involvement in the planning, implementation, and organizing the focus group and training modules to support the participants' and trainers' needs. This support was actualized through communication, facilitation, and follow-up with participants and trainers. I continued the momentum gained through the focus group dialogue and professional development modules. Ongoing support was actualized in Cycle 3 utilizing principal interviews, summative survey, and a final focus group meeting.

Chapter 7

Cycle III Evaluating the Change Project

Introduction

Cycle three of the action research study commenced in the month of September, 2009 and ended in December, 2009. The purpose of this cycle included discussion about my new role as the school district's new technology director, the impact of my promotion on my action research project, interviews with each participant as a follow-up to their professional development trainings. I conducted post professional development modules focus group meeting, collected and analyzed the participants' responses to the summative survey. This cycle represented the culminating activities with the study participants, and yielded a number of themes relating to leadership implications and the change process.

Professional Role Change

During cycle two, I was advised by several administrative staff to apply for three director's position posted during the summer of 2009. I was convinced that I had the required skills for each of the positions, but I favored the Director of Technology. I believed that by securing this position, I was able to make a greater impact by facilitating in changing the district's perception of how technology was utilized in the classroom by the teacher and instructional leader. I found myself interviewing as a finalist for this position during the month of August, 2009. I noted in my journal, during the interview, the leadership team expressed that they had faith and trust in my ability to lead others in the right path of success as a result of my leadership education. The Superintendent

stated, "It is hoped that you will not make some of the mistakes that other leaders make as a result of your education leadership classes" (Leadership Journal, August 25, 2009).

I accepted the Director of Technology position for our school district with an effective start date of September 1, 2009. The acceptance of a new position came with mixed emotions. I was filled with sadness as I prepared to turn over the reign of leadership of my school to a new principal who walked into an environment that was organized and prepared for the new school year. Making this change in leadership was exciting but proved very difficult for me as I prepared to face many challenges in my new position. I experienced the difficulty inherent in major changes in leadership and context as I entered a new career path and political arena. I trusted that I would be able to garner support from my new department. (Leadership Journal, September 2, 2009).

As the new Director of Technology, my role and impact upon the District Technology Committee changed significantly. During cycles one and two, I was an active participant within the committee without managerial authority. I utilized my transformational skills to elicit the support and commitment of the committee towards my vision of fostering effective technology instructional leadership for principals. My role changed during cycle three as I then became the managerial leader of the district's technology department, as well as, the District's Technology Committee. The implications for this change in leadership involved my application of transformational and transactional leadership tenets. I utilized transforming aspects of my leadership to encourage the members of my technology team to maintain their momentum towards our shared vision of building principals' instructional leadership capacity. Transformational leadership occurs “when one or more persons engage with others in such a way that the

leaders and followers raise one another to a higher level of motivation and morality" (Geijsel, Sleeker, & VanDenBerg, 1999, p. 310). The transactional elements of my leadership were realized as I began to dictate the timing of my project activities as the need for prioritization of the technology department's responsibilities became evident. I focused upon the managerial aspects of my leadership for the achievement of the required daily tasks of my department such as planning, budgeting, staffing, and problem-solving (Bass and Avolio, 1994). However, I discovered when I completed the principal interviews, I was provided with insight into the principals' need to balance managerial and leadership competencies within their learning environment.

Principals Interview Results

Informal interviews were conducted during the month of September, 2009. I felt a sense of urgency in completing these interviews because I did not know the level of responsibilities I would incur during my first trimester on the job. All of the study participants agreed to be interviewed in their respective school buildings and these interviews were conducted within an hour. Principals were interviewed using a semi-structured questionnaire and their responses were audiotaped to capture the rich content of the discussions. The taped conversations were transcribed and coded to uncover emerging themes and analyzed for other reflective data shared by the principal participants (Bogdan & Biklen, 1994; Glesne, 1999). The following predominant themes emerged after interpreting the data and corroborated with the literature review and initial focus group meeting: the impact of instructional leadership, technology usage on the part of leader, staff, and students, assessing professional development needs, and identifying technology barriers.

The initial interview topic investigated very crucial step in understanding how the instructional leader fostered the technology change process within their setting. Four of the five participants expressed the need to have all stakeholders collaboratively involved in the process of developing, implementing and assessing the technology needs for their schools which confirms the prevalence of instructional leadership as an essential element for facilitating technology integration. Principal Farber utilized a school committee approach to align their school vision with the district's vision,

> A technology committee at our school was formed and represented administrators, teachers, and parents. This committee planned the school technology plan and also created the technology vision for our school. The committee's greatest concern was to be able to address the needs of teachers, student learning, and to accompany the districts technology vision. (Field Notes, September 4, 2010)

Principal Worthy stressed the collaborative approach and the importance of assessing needs of the building,

> The process began with a meeting of the Technology Coordinator, Administrators, and a few staff members to look at the needs of our school and to look at our school, the type of school that it is, and then began to decide how to go about developing our vision for our school, being that we're a brand new school, we're a smart school, we needed to make sure that our vision for our staff and students matched the capabilities of our school and the resources that had. So, with regards to the process initially beginning with a meeting of mind and getting together to assess where our needs are. (Field Notes, September 11, 2010)

Principal Kincade utilized a team approach when determining the budgetary needs of the vision,

> First of all I utilized the staff members in the school. Our department chairpersons and particularly Language Arts Literacy and Math since those are two tested areas under which we are highly physical with the State and Federal government. Those department chairpersons as well as our school leadership team going way back to when we were in school reform we developed a technology plan outside of one that the district had developed because we looked at each department and decided how we were going to budget our monies. So, at that time the initial Abbott legal decision had been declared and a minimum of five computers per classroom was our target goal. Through our budgeting processes along with the Title I funds which was our initial process. (Field Notes, September 18, 2010)

When these instructional leaders utilized a transformational leadership style and communicated a meaningful and purposeful rationale, this process resulted in establishing a clear and coherent shared vision as required of effective instructional leadership. The fifth participant exhibited transactional tendencies as she responded to the first question. She did not utilize a collaborative approach in creating the school's vision which could potentially limit the change process regarding the effective infusion of technology in her building.

Principal Harrington noted,

> The process that I used to develop my technology vision basically was researched based in the sense that I interacted with colleagues and I went on line and did some research of what other schools were doing around the country as far as

> implementing technology into their daily instruction and I more or less processed what I found or heard during my interaction with colleagues or reading through research and viewing online certain activities and came up with certain ideas that I thought would be practical or beneficial for the students staff and parents at our school. I also did some surveying of staff and students to get a sense of either their awareness of the use of technology as far as the teaching and learning. (Field Notes, September 25, 2010)

A transactional leader met the basic needs of followers, however, he/she focused on the transaction or exchange between leaders and the follower instead of moving toward a common organizational goal; transactional leadership focused on contingent reward and monitoring for mistakes. Transactional leadership emphasized the status quo within an organization and could make it quite difficult to achieve second order change. The principal needed to exhibit a different leadership style in order for the organization to benefit from innovative programs such as school-wide implementation of technology. Research has shown that when attempting second order change within an organization, traditional leadership was not the preferred leadership style (Bass & Avolio, 1994).

It was important to note that the leadership styles of the instructional leaders highly influenced the type of communication that is conveyed to educators. Coupling creative instruction and technology integration in the classroom was quite effective based upon the type of communication transpiring from the principal and educators. The leadership style of the principal impacted the level of communication exercised and can change the culture of the educational organization. Based upon the leadership style of the principal, he/she could determine the success of a change initiative such as increasing

technology integration in daily instruction, experience, and their levels of confidence with technological devices as it related to either teaching or learning (Katz, & Kahn, 1978). Wheatley (2006) stated, "If we are interested in effecting change, it is crucial to remember that we are working with these web of relations, not with machines" (p. 145).

The second interview topic focused on the process that principals utilized to communicate the purpose and goals of the school's technology plan and vision. The apparent themes prevalent in the participant's responses were associated with the impact of the instructional leadership in building and communicating the vision. Once the vision was created, one of the most critical tasks a leader must engage in was to communicate the vision's purpose and goals to others. How your vision was communicated to all stakeholders could have a decided impact on how technology was integrated in the schools (Kotter, 1994).

Principal Worthy felt it important to involve all stakeholders in articulating the school's vision,

> When I look at the ISLLC standards, it tells you first that after you developed a vision that you need to be able to articulate your vision. So after we had developed our vision and how we thought that we needed to proceed in order to share our vision, we met with staff members as well as some community parent members to share with them what we foresaw as our vision for our technology to be implemented here in our school. We did that by way of sitting face to face, we also sent home notices. We had the community school coordinator to make some calls. We actually contacted some parents when they came into the building to

> share with them what we were doing and how we wanted to move on for the vision of our technology. (Field Notes, September 11, 2010)

Kotter (1994) recommended that leaders should apply their vision to all aspects of daily operations from training to performance reviews. Educators needed clear understanding regarding their expected behavior in integrating technology into the daily curriculum. These daily operations needed to be in alignment to the vision. Principal Sanders stated,

> The initial actions were basically through grade level meetings, staff meetings, to basically let the staff know about the vision and goals and what the expectations are. They know that their lesson plans are due OnCourse, (Online lesson plan) they have Study Island (Online Math and Language Arts study web site) and other different technology websites that they should be able to use. All communication from the principal basically comes through email, so they have to be technologically savvy in order to do that. And also my technology coordinator, she communicates, she holds workshops; and she meets with them quite often about the vision. (Field Notes, September 28, 2010)

Kotter (1994) continued to stress the necessity of speaking frequently about the change vision and listen to peoples' concerns and frustrations with an open mind. Principal Farber commented,

> As administrator of my building I try to support the classrooms, labs, media center, etc. with hardware, software, and peripherals needed. During grade level meetings we collaborate on technology infusion, what's needed to complete the infusion or reasons why technology can't be infused into lessons. The technology coordinator and I collaborate often on concerns with the building,

> sharing information gained during her technology meetings, and addressing teacher's concerns. (Field Notes, September 4, 2010)

Principal Kincade noted the importance of making provisions to have the staff voice their concerns and assessed the building's level of technology proficiency and how it related to the school's vision for increased school integration,

> First of all, I think that the initial actions have to deal with the level of technology that's integrated into the instruction. So, our Tech Coordinator took an inventory of all staff where they felt comfortable and what they felt comfortable with regarding technology and from there we meaning the school leadership team began to draw a big plan for how we wanted to increase the amount of technology infusion into instruction. We devised a yearly plan whereby departments looked at specific projects in which children could work on research skills, and basically project integration team teaching between the Math and Science Departments, Social Studies and Language Arts Departments became the focus of our projects. We also communicated with parents. We began to have parents come in to a computer class in which we were teaching them the basic skills. We also extended technology integration into our summer program. We had an Enrichment Program. Language Arts Literacy, Writing, Reading, and Processing became part of the larger picture of the project that all of the children did. We did public service agreements on time. The second part of that, another year, we also did research the history of the Benjamin Franklin Bridge and coordinated with City resources. Then the kids wrote, they took pictures, we went on a field trip on the bridge, we interviewed people in City Hall and they then tape recorded all of that

> information and then translated it into computerized Power Points. It was really good. The children were truly involved in that. That was a big part of us being able to sell the whole issue of using projects to other staff members. (Field Notes, September 18, 2010)

Kotter (1994) further added there was a great need to communicate the vision frequently, powerfully, and embed it within all tasks. Leaders should make sure that this technology vision was discussed at every available opportunity and it was used to help make decisions and solve daily problems. Principal Harrington commented about the frequently held collaborative communication sessions,

> ... I ask the staff and students upon occasion what they have observed not only here but in other places as far as the use of technology and how it can better the instructional delivery that occurs in classrooms each day. To communicate the purpose and goals of the technology vision, basically I talk with my department chairs and talk with the staff members in small groups and sometimes in full staff meetings about how we can enhance the implementation of computers and other technological devices in our daily instructional delivery. Out of those collaborative sessions come ideas that have been verbalized or written for me to go back and review with the administration and/or my teacher leadership team to see how we can move technology forward at our school. (Field Notes, September 25, 2010)

Communication with staff, students, parents, and community members were expected from technology savvy stakeholders. Principals had to take the lead in using technology for communication (Holland, 2000).

The third interview topic of discussion posed the necessity for staff training and identified professional development activities implemented within the participants' schools. It was quite evident from the principals' answers that effective instructional leadership with an emphasis on collaboration, assessment of needs, and effective professional development were the predominate theme. All of the participants expressed that teachers needed more and better differentiated staff development in order to facilitate the change to integration of curriculum. It was important that adult learning theories and styles be considered when planning the staff development as well. Professional development was important in implementing technology and each of the study participants concurred. "Virtually every major study of successful technology use finds that teacher professional development is key" (Ringstaff & Kelley, 2002, p. 2). When teachers were trained, they used technology more often and in a variety of ways. Leaders and educators needed to practice the most productive ways to use technology to support learning. Time must be allocated for them to explore, reflect, collaborate with peers, and experience hands-on learning. Principal Worthy discussed varying types of professional development opportunities utilized in her building,

> Our professional development activities vary because we have some staff members who are novice to the type of technology resources that we have and we have some who have mastered some of the resources that we have. However, we know that we could always learn something new so what we do is we look at our staff, we again use surveys to see where our staff members are. We also looked at the types of professional development activities that the District had focused on for us to share with our staff as a District as the whole. But we also looked at the

> needs of the children that we have; what technological skills do they have because we don't want to repeat what they already have but we want to teach them something new. So, we had to look at the needs of our students, we had to look at the needs of the staff, we had to look at the needs of the District before we begin to identify the skills that were needed. (Field Notes, September 11, 2010)

Once the needs of the staff have been established, effective principals should foster a culture and climate for continued improvement and student achievement by providing and participating in ongoing professional development opportunities. Principals should continue to strive to ensure that vision and values were reflected in the schools. According to Shellard (2003), "By taking part in staff development with the staff, principals not only model learning, but also send a powerful message about shared responsibility for school improvement" (p. 9). Principal Farber elaborated upon her feelings concerning professional development for the other administrators in her building,

> Professional development training is needed for staff and principals that model how to integrate technology into existing curricula, align it with student learning goals, and use it for engaging students in the classrooms. We also have training for the administrators in our building and we go and meet with our technology coordinator to help us with our PD. I find that if you have all the training for the teachers, and the administrators are not trained, then they are not aware of the specific training that the teachers receive. So that it is very important also we will usually have a designated time which is usually Thursday's second period. That's the time we pretty much do technology. (Field Notes, September 4, 2010)

According to Plair (2008), providing ongoing teacher support was an area that required focused attention when attempting to build a teacher's technology capacity. Teachers that endeavored to become technologically fluent needed the same kind of support that was provided to teachers striving to increase their skills in the teaching of reading, writing, and math. The use of Coaches was a recommendation to help support the technology needs of the building staff.

Each school within the district's action research project had the advantage of having an assigned a Technology Coach and a Technology Teacher as a result of state legislation. These individuals were unusual in many districts due to a lack of funding. Technology was the new literacy, and coaches or specialists should be in place to support teachers and students in all subject areas. Principal Harrington expressed the need to rely on the collaborative efforts of the Technology Coordinator and Technology Teacher to aide in training the building staff,

> Professional development is key to enhancing the use of technology during instructional experiences and fortunately we have several technology teachers and we have the tech coordinator. Now, the tech coordinator's primary focus is to make sure that we are continuously on an upward swing as far as the use of technology. She provides professional development sessions, workshops dealing with Word and Excel and data sheets and things of this nature. She also does some trouble shooting and we have a teacher team and a student team that helps with the trouble shooting piece. So, since she's only one person with the team, we have others that could be called upon if there's a technical issue of a minor nature. (Field Notes, September 25, 2010)

The research clearly supported the need for professional development as an essential process when considering implementing technology in to the classroom on a daily basis. Training provided teachers and leaders with the tools for understanding how to successfully integrate and maintain technology used to enhance student learning. The training needed to consist of more than a single occurrence, but it should be comprehensive, and ongoing technological support should be provided to help deal with barriers, new technology, problems with the equipment, and strategies for how to use it (Plair, 2008).

Principal Kincade commented,

> I think one thing would be the continuation of when we started Professional Development, I don't think that they should be fragmented topics for any staff, whether it's a school staff or district staff. I think that we should dig deeper into the type of Professional Development. Say, we are going to focus on certification, then that becomes a year-long process whereby every school would work to have 100% completion of the certification courses. (Field Notes, September 18, 2010)

Plair (2008) suggested that developments in technology- related professional development have fostered change that can often be challenging. School leaders needed to understand and address the difficulties many veteran teachers experienced with integrating technology into their existing curriculum. Resistance to change became a costly endeavor that created avoidance rather than acceptance. The research furthered revealed that the opportunity to address the needs of students who must prepare for technology in the workplace and in higher academia was at stake. Principal Sanders

shared her concerns regarding the need for differentiated technology professional development,

> Basically the staff at our school needed help in integrating technology into their lessons. We do have a group that have been teaching for over 30 years and are not really good with technology. So, they would need a different type of training. But overall the majority would have to learn how to integrate lessons and unit training, into their everyday daily lessons and be accountable. (Field Notes, September 28, 2010)

Eib (2001) stressed that assessment and evaluation must focus on teaching and learning rather than a checklist of technology skills. Principals who used a simple checklist method of assessing technology skills could risk fragmentation of the curriculum. Instructional leaders played a supporting role in the teacher's reflective practice in evaluation of technology skills. It was suggested that the principal conduct collaborative brainstorming or personal improvement planning with their staff about his/her progress toward technology integration. This plan needed be agreed upon for effective technology integration within the classroom.

Principals needed to evaluate the current technology in the school and how it was used. The principal could utilize staff self-evaluations in addition to learning walk-throughs, and on-site performance evaluations observed periodically. "It is not necessarily how much technology is being used-but how it is being used that matters most" (Eib, 2001, p. 22). When principals conducted careful performance evaluations, they were able to better assess what was needed to get the most out of technology integration in the school. When principals and teachers worked together to plan the focus

of technology use in teaching and learning, effective usage of technology made a positive impact on teaching and learning (Cradler, 2001).

The fourth interview topic focused on identifying the relationship between the participants' personal use of technology and their instructional leadership activities. The predominant theme that emerged during these conversations was the need for principals to build their technology instructional leadership capacity by becoming good role models and motivating their building staff. All of the participants shared a united voice in expressing their need to build their personal capacity in effectively utilizing technology to perform daily tasks on the job, as well as, becoming good role models for their building staff. However, there were some who shared that their interest level was high in building their levels of technology proficiency, but that often there was not enough time (Costello, 1997).

Principal Worthy expressed,

> My personal use initially was just the basic word processing, and then I began to learn how to use it more so in class and because I wanted to be able to speak intelligently to the children about it then I learned some of the other things that I needed to do with technology that the children were more familiar with using. But then I began to look at it too – how can technology help me to work smarter and not harder. So, I began to not so much attend all professional development activities we had here at the school because I didn't have the time, but I began to try things on my own, go to other staff members, and all the colleagues and have them teach me different skills and so forth. So, my personal use at this point is not to the degree that the teachers use it because I'm still doing a whole lot of

> administrative type things with it, but in my personal time I think I'm using it more to explore and so forth. I'm not using it as much as I probably could as an administrator. There is just so many other things that consume my day. But I get more usage of it when I'm at home, when I'm just playing around with the charts and different things that you're talking about the Skyping and all that. (Field Notes, September 11, 2009)

Effective principals needed lead by example. Technology has opened a world of opportunities for changing how schools function. Leaders needed to model the use of technology to show how technology positively impacted the school environment (Costello, 1997).

Principal Sanders shared,

> That's funny, because I love technology. I believe in saving trees, so I have a different motivation probably than the staff for using technology and I think I mentioned that I basically correspond with the staff mainly through email. When they receive their forms they have to go to the Internet in order to get those forms. So, the motivation basically is to have the staff use technology more often, save more paper, but also to help them use what they learn on here to use it with the students. We often correspond with the parents often. I do have some parents that email staff members; as long as it's within the boundaries, it's okay. (Field Notes, September 28, 2009)

Principal Farber commented,

> Principal's who are technologically literate will promote technology as a tool for collaboration and stimulation for student learning in their schools. These

> principals will infuse technology throughout the building (e.g. email, asking staff to identify standards and usage in their lesson plans, identifying technology during learning walks, etc.) therefore pushing their staff to become more proficient, and causing integration to gradually happen. (Field Notes, September 4, 2009)

The principal should not expect the faculty to use technology regularly if they did not utilize technology on a consistent basis. Modeling the use of technology provided an effective method for exposing teachers to new strategies and demonstrating to the staff that it was acceptable to take risks and make mistakes, without the fear of retribution. Principal Harrington commented,

> I enjoy the use of the computer and modern technology for many reasons. One it enhances your ability to communicate from room to room, state to state, or country to country within a matter of seconds and in this business called education, time is of essence. Anytime we have a piece of equipment or a tool that can help us to cut time when we need to communicate important information to colleagues or to staff members or to parents is an absolute benefit. My personal use, I see it being expanded out into my school community because I want my teachers and my students also to use the technology at hand to get the most bang for the buck out of time, since time is key. If students can do certain work and then email it to a teacher or if the students are working in a group and maybe they don't have time to meet, they can email back and forth to each other work, then that cuts down on meeting time because when the group does come together, whether it's students or staff that they can bring the information that has been

> generated through the use of technology to the meeting. So, it cuts down on meeting time and it enhances the volume of work that can be done and also the quality of work that can be done for staff and students. (Field Notes, September 25, 2009)

Educators needed to possess the necessary skills and tools to implement and utilize the technologies made available to them. The research suggested that teachers should view technology as a tool to make their work easier and more rewarding, not a hindrance or roadblock (Hope, 1997). It appeared from their comments that the structured professional development modules had a significant impact upon the participants' personal technology mastery and their ability to model technology usage as an essential element of their instructional leadership capacity.

The fifth interview topic involved the economic and political obstacles which inhibited the integration of technology within the curriculum. The major themes revolved around economic and political barriers which were clearly evident as the major inhibitors to the implementation of the participant's school technology vision shared by four of the five respondents. Principal Kincade expressed concern over the budgetary needs by commenting,

> From year to year I think the changing school budget determines just what you're able to do because you may have some other priorities, versus the purchase of the technology equipment that you need. But I think that even if you start small and you build every year with purchasing. If you do start with your Language Arts and your Math which is what we had wanted to do, and then at that particular time I talked with the Director who then was able to purchase the smart boards from

> the Math and the Science Department. That was part of our vision plan. But it got accomplished through networking with someone else and she had the money. We didn't have to spend it out of our school budget but then we were able to purchase more of the desktops for the individual classrooms. So, from year to year you never know. But it is good to have a plan and stick to the plan because you would like at least those two departments fully up and engaged so that they can…So I do think you do have to stick to your plan, no matter how small it may be but you have to purchase some amount of technology every single year. (Field Notes, September 18, 2009)

Principal Worthy shared how political and economic constraints were minimal, but there was a significant community concern,

> ... because we are the new school and the kind of school that we are, we really don't have those kinds of constraints placed upon us because we came in having the kind of technology that some of you probably don't have. The only constraints as I said would be the parents' economic situation because many of them don't have cars to pick up their children, or we don't have the busing or have a bus to take the children home for the children to stay after school. That would be the economic issue for us. With regards to the political obstacles; there are no political obstacles for us. I think the district has done a fine job to be able to connect with other countries and schools and so forth where those websites that should be blocked because they're really not educational websites – there are numerous educational websites that are open to us. So, I don't see any political obstacles or economics other than the children being prohibited from staying after

> school. We have a Technology Club; some of those things that the parents if they had cars or we had transportation, then the children could stay. (Field Notes, September 11, 2009)

Principal Sanders discussed significant budgetary and political concerns,

> I can answer that thoroughly. To give an example, we have staff that we've trained on smart boards, but a lot of our classrooms don't have the smart board technology. We ordered it, we got our quotes, we did everything we're supposed to do and I find out in July that they were denied. Nobody ever told me during the school year that it was denied. That was $42,000 that went back to the Superintendent. So, right now, the biggest obstacle is getting things approved through downtown for our school as far as technology. It wasn't our Technology Department; it wasn't the Superintendent; it was the Budgeting Office. (Field Notes, September 28, 2009)

Principal Harrington stressed the need for technical support as an economic barrier which also has political ramifications when dealing with staffing issues,

> Economically speaking, I would say that the District's lack of technology technicians to go out to schools to refurbish or work on technology equipment that has been broken or out of use for a while is a hindrance. I find that if a piece of technology equipment gets broken in the building because of the paperwork and the red tape and the lack of technicians available to come out at that moment or within a reasonable amount of time what we find is that in many of our schools there are pieces of technology equipment just sitting inactive and no one is getting a benefit of it. So, economically it would be my hope that the District could get

> more technicians to come out and service equipment. Since we spent so much money on equipment it would be to our benefit if we could. I would say that I have in this building at least 50 pieces of laptops and desktops that aren't working and some have sat so long that they're actually outdated. But on my mobile lap cart I have some that could be fixed and the paperwork has been sitting there and has gotten torn and been replaced and it still hasn't been addressed. From a political perspective I think we're in a pretty good place politically. It appears that monies are coming into our district as in other urban areas to make sure that staff and students are getting the use of appropriate technology equipment and that equipment is being supplied for daily instructional use in many of the classrooms and that the professional development that is needed because technology is ever changing. We go to sleep at night and in those 6 or 7 or 8 hours that we are sleeping, changes are being made in the technology when we wake up in the morning. So, that continued professional development for upgrades and updates is key and politically I think we are getting monies to provide that for the district. (Field Notes, September 25, 2009)

Principal Farber also noted the need for budgetary resources, technical support and political implications as she stated,

> Of course budget cuts have a large impact. Not having funds available to replace old and broken hardware, no funding for software licensing, not having technical support, sometimes problems are not addressed for months, it becomes almost impossible to have all 5 computers in the classroom up and running at the same time ever. I wish I had a lot more extra money so that we

> could order some of the things that are needed for our building. They (Administration) may not sign off on it. It depends on what you order. I have had things ordered but they did not approve them. If the district doesn't think it's worthwhile for you to have it in your building, especially as an elementary school, certain things they will give to a high school but they will not give to an elementary or family school. (Field Notes, September 4, 2009)

The predominant concern of the interviewees was the lack of funding, hardware, software, and professional development needed to effectively implement technology integration. The political barriers noted were related to adequate support from central administration and the school board to assure needed staffing and maintenance of technology resources. The literature also indicated that many school districts lack sufficient funding for professional development, hardware, and software, and technical support due to budgetary constraints (Blasé & Blasé, 2000; Dawson & Rakes, 2003; Hoffman, 1996).

The final interview topic requested the study participants to reflect upon some of the factors that facilitated in the implementation of the technology integration within their schools. Principal Worthy suggested the following essential technology implementation factors,

> One of the factors is having access to the technology. That's a big part of it; just having the technology and having access to it. Another one of the factors that help us facilitate our technology vision is the technology coordinator being as knowledgeable as she is – so, having somebody who is knowledgeable about a lot of this technology that needs to be taught because just having the resources are

> not going to help because we don't know how to use them effectively. Another factor I have to say is having the interest of the children, that's a big part of it. So, identifying those things, having the resources, having the technology teaching, just having some staff members – not all – who are really motivated and they use the technology in the classes. Having the administrators go around, and when we go around and look to evaluate teachers or to look and see what they're doing in the classroom, that becomes a part of their evaluation; that becomes a part of their walk through. (Field Notes, September 11, 2009)

Principal Sanders stressed a team effort was essential,

> Definitely the Tech Coordinator and the Team. We've hired some new staff members who it was a requirement for them to learn certain programs in the schools that they went to. I think that's going to motivate and help the school. We are getting used computers from other schools, so I'm going to use those to help the children have access to more technology in the classrooms. So, instead of having three computers they'll have five or six. I think the parents – we also have a computer that we received through a parent grant that's used just for the parents. So, I think the parents are going to help motivate the use of technology in the school also. (Field Notes, September 28, 2009)

Principal Farber noted,

> The technology coordinator provides professional development training weekly for staff, mentoring designated staff weekly is also provided, in-class support is also provided if needed. Staff must provide technology and address standards in their lesson planning weekly. Teachers are trained and tested in the use of basic

> software applications such as Microsoft Word, Excel, Access, Power-Point, Publisher. Students in grades 3-8 are now being given a pre/post assessment in technology literacy through various websites. Basically when you meet with the teachers in grade level meetings you must constantly, constantly uum, uum motivate the teachers about the vision of the school, and the vision of a principal as the instructional leader as far as technology. Technology is here to stay and you have to use it and you have to implement it and if not your children are to be-they are going to fall by the wayside. We are in competition with children from other affluent school districts and you have to have the technology piece-it's non-negotiable. (Field Notes, September 04, 2009)

Principal Harrington also contributed the following factors:

> The factors that have influenced my desire to highly implement technology into daily instruction are the fact that our children today are born into a digital age and their learning styles are geared toward technology. Say, 20 to 25 years ago it was more textbooks and chalkboards and tape recorders and overhead projectors. Now, new age equipment is what our students expect to see because that's all they've ever seen since birth. They don't know anything. Two and 3-year old children can go to a DVD player, put in their little DVD themselves, push the button and sit down without Mom or Dad even assisting them because they've been acclimated to this process since birth. I feel if we are going to successfully teach students that we have to update our use of technology as it relates to the world they know and I really believe that if more teachers become acclimated and establish a comfort zone with the newer technological instructional devices that

> the level of engagement in the classroom would heighten to the fact that we would see the academic outcome more so than we do using the more traditional methods of the teacher's error. I have a strong belief if the student does not learn the way we teach then we as dedicated and highly qualified educators need to monitor and adjust our teaching so that we teach the way they learn. And if they learn more through technology and real world theories and project-based learning and problem-based learning using problems that come from their experience to teach them what they need to know to move forward, then I believe that's our charge. We need to monitor and adjust within bounds, but we can't say – I taught it this way 10 years ago and they learned so if I teach it the same way now they should still learn – not for all students. We have students that have different learning styles, just like we do. Visual learners, mathematical thinkers, so forth and so on. All that needs to be taken into consideration because if you have a classroom of 25 students, you may have at least 8 different learning styles, so how you teach Timmy may not reach Peggy or Kia or Keisha. So, it's our charge that they have differentiated instruction and I think technology is a key piece of differentiating instruction. We as the administrators, the educational leaders of our building, have the charge of making sure that the staff attempts at all costs to meet the needs of the student, because bottom line – that's our success or lack thereof. If our students don't achieve, I have not achieved. (Field Notes, September 25, 2009)

Principal Kincade commented,

> I think that we need to network more. We also need to look at grant writing, partnering with businesses, because I still think that we could get a lot with other

> businesses. I think that's going to prove beneficial for our district ... there is a lot that could be done with technology, just the kinds of free lesson plans and things that I've seen that are online that I don't know if our teachers take advantage of or that are included as resources for the new current curriculum guides that are being written. And then the demonstrations for the district…Technology should always be on the agenda for a Principal's meeting, for administrators, and during summer workshops… (Field Notes, September 18, 2009)

Interviews conducted with the principals showed consistency between the results discovered during the review of the literature and the initial Focus Group meeting. Each of the participants shared some of the following critical factors required in ensuring the effective implementation of technology within their buildings such as equitable accessibility to computers, technical support, technology coordinator support, meeting the academic needs of the students, and ongoing professional development for the staff.

Research has shown access to technology was a critical issue for teachers and students. Although schools had computers available, one factor that determined their use was the location of the hardware. If computers were connected to the Internet but were not in a convenient location, the accessibility to students and teachers would be limited. Principals must explore various strategies for allocating computers in order to make the best use of limited connections and equipment. A second factor was the need for immediate and continuous technical support when educators encountered difficulties in the classroom. Technology integration in the classroom could not be realized without this type of assistance from a technical team. A third factor involved relying on services of a Technology Coordinator in each building. This individual needed to be available for

troubleshooting or provide technical assistance, participate in the planning and implementation stages for technology use, be aware of classroom needs to incorporate technology into the curriculum, and develop strategies for training teachers for using technology that could meet the school's educational goals for the use of technology. A fourth factor was meeting the academic needs of at-risk students. The instructional leader needed to be accountable for promoting a learning environment that enabled educators to develop strategies for using technology to improve student achievement. Teachers needed to design class projects in which students use technology for inquiry, research, design, data synthesis, communication, and self-development. Projects also focused on student projects with authentic uses of technology for real-world application in the classroom. Instructors needed to collaborate with other teachers, and work in teams to design and implement technology-supported projects. When examining the fifth factor, the principal needed to provide teachers with a block of time and the motivation to learn technology skills in order to meet the academic needs of the students. Professional development activities needed to provide ongoing, hands-on training for teachers or practical strategies for implementing technology into lesson plans. Each educator required with on-site training in technology use to ensure that teachers had adequate time to practice new skills, explore software, and become proficient with the school's technology. Teachers needed to be involved in identifying and pursuing technology professional development that was appropriate to their needs and skills (Plair, 2008; Center for Education Statistics, 2000; MacNeil & Delafield, 1998; Hope, 1997; Gibson, 1997).

Final Focus Group Meeting

A final focus group meeting was held in one of the computer labs of the Technology department on Tuesday, December 15, 2009. This meeting occurred after the completion of the training modules and engaged all participants in a discussion of six open-ended questions which provided qualitative rich narrative data (Appendix G). Reponses to the questions were audio-recorded and immediately transcribed verbatim. The purpose of this focus group was to ask participants to respond to a few questions regarding their professional development experiences and staff needs concerning technology infusion. The final meeting with the participants was an excellent opportunity for the principals to share best practices, expound upon how they utilized their newly acquired skills to move in the direction of effectively integrating technology into the curriculum, and reflected upon the future needs for principals to implement technology utilization within their schools.

Each participant present was reminded that their responses would be anonymous and that all the data gathered was confidential. All participants were made aware that any information obtained during the focus group meeting may be used for planning future trainings and/or for other educational purposes, provided that their name was not used. Each participant understood that there were no physical or psychological risks involved with their participation in this focus group, and that they were free to withdraw their participation at any time without penalty (Glesne, 2006; Hinchey, 2008). There were several opened-ended questions discussed and provided all participants a voice to share best practices and expound upon how they utilized their newly acquired skills to move in the direction of effectively integrating technology into the curriculum.

The first topic of discussion involved how the principals coordinated their school's long-term technology planning with their technology committee. The predominant themes revealed in the participants' comments addressed the leadership components of collaboration and assessment which are elements of instructional leadership. The importance of designing, implementing and reviewing the technology plan on an ongoing basis was evident when Principal Farber responded, "the technology coordinator and I review the plan often and collaborate on concerns with the building, sharing information gained during her technology meetings, and addressing teacher's concerns." Principal Sanders concurred about ongoing reviewing the technology plan and added, "I review the technology plan on an ongoing basis with the technology coordinator who turnkeys information and gets responses from the school's technology committee. " Principal Worthy noted, "I periodically viewed the plan and extrapolated different data when it came to what they were doing. We reviewed the plan with the committee to help make decisions in order to drive instruction within our building." Principal Kincade added,

> In order to be in compliance with the state technology mandate we looked at the technology plan because of state mandate to have at least five computers in a classroom and then we tried to purchase so many computers each time based on what plan stated. We also discussed that there was a teacher certification requirement built into the plan in order to determine the type of professional development needed for staff.

Principal Harrington concurred, "It was important to have team members constantly review the plan contents needed to drive instruction, and earmark as much funding as possible for purchases for the school."

It was critical for the instructional leader to motivate the school's technology team to continue to evolve into a *purposeful community* which provided a road map for the development and maintenance of an effective leadership team. A purposeful community is defined as "one with the collective efficacy and capability to develop and use assets to accomplish goals that matter to all community members through agreed-upon processes" (Marzano,Waters & McNulty, 2005, p. 99). Substantive change was possible when the instructional leader motivated the team to function as a collaborative cohesive group.

The second topic of discussion identified the principal's perceptions regarding the type of staff development they perceived would effectively accomplish technology integration into the curriculum. The instructional leadership themes evident in their responses involved empowering, modeling, and evaluating the change process. This question also allowed the participants to have voice and reflect upon the future technology needs of teachers and administrators. Principal Harrington expressed the importance of having demonstration lessons modeled by the technology coordinator, and the supervisors of curriculum content should work in tandem to plan lessons, thematic problem-based projects that are rigorous, meaningful and engaging for our students. Principal Worthy stressed,

> There is need for the technology department to provide ongoing monitoring of the integration throughout the district in conjunction with the principal within the building. The follow-up-must be modular. We should utilize technology to

> provide training by sharing authentic teacher demonstrations; capture the demo and allow teachers to be able to revisit the demos at anytime; show practical applications and have ongoing follow-up; use teachers to demonstrate. So, we need to capture the event. We need to do Webinars of actual practical applications being used to share the professional development. These should include real-life instructional activities being conducted by staff and then the staff can review these at anytime. Then a step by step focus group meeting should be held for discussion of its success.

It became quite evident that there was need for the district technology staff leadership to provide ongoing professional development support through modeling what is expected of the principal. Costello (1997) noted, "Leaders need to model the use of technology to change and improve the environment in which educators function" (p. 58). Once this need was addressed, then the school leadership accomplished the task of securing the commitment to change and achieving high expectations by modeling the expected behavior for their staff. *"Leaders model the way"* (Kouzes & Posner, 2007, p. 15). Principal Harrington concurred about the need to follow-up and identify teacher expectations,

> Accountability is key because of the amount of the technology investment. Teachers need to be shown how they can take this knowledge and use it in the classrooms. Technology skills cannot be taught in isolation, but there must be a connection with the daily curriculum. There must be collaborative leadership exhibited with all staff in order to determine the type of effective professional development needed to make the change.

Effective leadership promoted accountability of all stakeholders involved in the change process. Each team member was responsible for the desired outcomes which generated feelings of ownership. When the team achieved a higher level of technology integration competency they became more trusting and operated more collaboratively with each other in setting higher curriculum standards (Kouzes & Posner, 2007).

Principal Worthy added that in order to see change we need to examine how teachers teach,

> The key is to change the way teachers teach and realize that technology is a tool that can be used to enhance any lesson. Teachers can no longer just stand and lecture. Principals must look at lessons plans and see how technology is being infused. If it is not satisfactory then more Professional Development is needed to show teachers how to more effectively integrate technology and must evaluate. We must retrain the teacher by having the school's technology team assess the teacher's needs and discuss the problem areas with the leadership in the school. Professional development of the instructional leaders is critical and administrators need to have a good handle on all of the curriculum initiatives that district offers. From the top down, administrators should know about each one (district curriculum initiatives) and can go into the classrooms to determine whether integration is occurring.

Principal Farber stressed the importance of providing educators and administrators with additional training, “Professional development training is needed for staff and principals that model how to integrate technology into existing curricula, align it with

student learning goals, and use it for engaging students in the classrooms." However, Principal Kicade expressed her concerns that

> There is very little in the curriculum guides that say you must integrate. We must have more professional development in how to do it. This must come from the top-down (central administration). Students should be doing monthly project based activities that will equip them with the needed 21st century skills.

Responses made by Principals Worthy and Farber helped to solidify the need for ongoing professional development to take place at the district and school levels in order to enable all stakeholders to effectively integrate technology within the curriculum. However, in order for this to become a reality, it was incumbent upon the leadership to establish a learning environment designed to increase the knowledge base about the existing curricula and enable others to perform with a high level of competency (Kouzes & Posner, 2007). The authors stressed,

> A leader's ability to enable others to act is essential. Constituents neither perform at their best nor stick around for very long if their leader makes them feel weak, dependent, or alienated. But when a leader makes people feel strong and capable-as if they can do more than they thought possible-they'll give it their all and exceed their own expectations. (Kouzes & Posner, 2007, p. 21)

The third topic of discussion involved the principals reflecting upon how often technology professional development was provided in their building. The predominant theme revealed that the professional development provided for the principals enabled them to understand the importance of having adequate and consistent training for teachers and administrators. Principal Worthy expressed,

> It is the responsibility of the principal in conjunction with the technology coordinator to provide the staff with ongoing professional development mini-sessions. These sessions take place in my building each week. During Techie Tuesday professional development, I learned how to use the SmartBoard projector equipment and modeled it during my faculty meetings. My staff would question how to do it and then I would model and show them how to do it. I believe once the needs of the building have been established, then ongoing professional development is crucial in equipping the teachers with the necessary tool to effectively integrate technology into the classroom.

Principal Farber shared the need to incorporate the time in the schedule for staff training and noted,

> On Wednesdays uum uuum the technology coordinator has professional development for all grade level during common planning time. So that's basically when all professional development for technology is given. More training is needed and I feel would be good if we could have training after school. This will allow everyone to get some sort of professional development for 45 minutes, however it is still limited, but if we had it after school and we could pay them that it would be much, much better and especially during the summer.

Based upon these responses, it was quite obvious that allotting time for staff development is crucial for effective technology implementation. There appeared to be an understanding that principals who facilitated in providing consistent and meaningful staff

development enabled the teaching staff to become proficient and creative in using the latest technologies in the classroom. Ringstaff and Kelley (2002) stressed,

> Virtually every major study of successful technology use finds that teacher professional development is key…They need time to explore, reflect, collaborate with peers, and engage in hands-on learning. Experts suggest the 30/70 rule: Spend 30% of the technology budget on equipment and 70% on the support of 'human infrastructure'. By contrast, most school districts spend less than 10% on training. (Ringstaff & Kelley, 2002, p. 2)

The fourth topic of discussion examined the amount of *time principals were able to work with their staff on infusing technology into the curriculum*. The relevant theme revealed by the participant's comments involved time constraints and a lack of funding as major barriers to effective technology integration. However, one participant expressed that effective planning and leadership could help principals overcome these barriers. Principal Harrington admitted that time was a critical barrier in working with her staff and shared, "I am very sad to say I did not have a lot of time-too many other things that had to be balanced during the school day. I counted on my TC and technology teacher leaders to do the modeling and conduct the trainings." Principal Sanders concurred, "I personally have spent very little time with the staff regarding technology infusion. I delegate most of the technology issues to the technology coordinator and coaches due to time constraints."

However Principal Kincade had a different response and she noted,

> Organizationally, I was able to guide the technology and grade level teams in completing curriculum mapping with ongoing professional development which

> included a culminating mandatory project that was content related. The students and staff were required to have an expo to display their talents. I was able to facilitate in the training of staff to develop unit plans and provided support to my staff to develop effective lessons plans. I was an encourager however, I could not hold people accountable unless they were professionally developed.

The research stressed that the instructional leader played a pivotal role in facilitating and participating in school wide professional development to integrate technology into the curriculum. It was evident that due to the time constraints that principals incurred they appeared to rely on the teacher leaders and technology coordinators in the building to provide the necessary training. However, it was crucial that the instructional leader helped to promote shared leadership in achieving sustained change "By taking part in staff development with the staff, principals not only model learning, but also send a powerful message about shared responsibility for school improvement" (Shellard, 2003, p. 9).

The fifth topic of discussion identified methods principals used to evaluate whether teachers were effectively implementing technology into the curriculum. The theme of the discussion centered on the instructional leadership elements of assessment and follow-up. Principal Kincade shared,

> Those quarterly projects had to be evaluated. The teacher's individual Personal Improvement Plan (PIP) had to be evaluated as to whether they met their personal goals. They must be able to provide examples of technology integration. One to one discussion was had regarding how it was infused based on specific timelines. Another way to evaluate is to survey our students let them have a voice. We need

> to capture our student and talk to them, they will tell you whether they are integrating technology in the classroom.

Principal Harrington agreed hearing student talk was key way of assessing technology integration and stated, you can listen to the student's conversation throughout the building such as ... I must get to a computer to print out my project... I must get to the lab to do some research. As you walk the halls this is a good way to gauge the level of technology engagement. Principal Worthy concurred stating that student talk, work, observations, teacher talk, learning-walks, observing classroom environment and, lesson plans... but make sure what is written is being done. Principal Sanders shared many of the same evaluation techniques when she noted, "technology implementation is checked during formal observations, through lesson plans, and during quick classroom visits."

Each of the principals concurred that ongoing assessing and monitoring was critical when ascertaining the teachers' level of competency when integrating technology in the classroom. The instructional leader required a clear understanding of what to expect when observing effective technology integration strategies. When effective technology integration was not evident during teaching and learning, then principals strived to build the teacher's technology integration capacity with ongoing professional development and by expecting them to be accountable for more than just learning how to operate the computer.

According to Holland (2000),

> Knowledge of how to integrate technology into meaningful classroom activities, how to align it with the curriculum standards and how to assure that students are

> challenged with high order thinking problems are the key to increasing student achievement…Technology is the tool, but student learning is the ultimate goal. (Holland, 2000, p. 10)

Principals should focus primarily on the effectiveness of technology integration when observing teaching and learning in the classroom setting. When evaluating and assessing teachers, the emphasis was centered around students learning how to access, analyze, and synthesize data in alignment with the curriculum. “It is not necessarily how much technology is being used-but how it is being used that matters most” (Eib, 2001, p. 22). Principals who strived to make sustained change within their schools continuously evaluated how technology integration was effectively used in their schools.

The final topic of discussion investigated methods that principals use to motivate their faculty towards change. Instructional leadership was the evident theme with an emphasis on cultural change as a mechanism for creating an environment conducive for enhancing the integration of technology within the curriculum. A few of the principals called out transactional comments such as, ""Grow or go," and "Show what you know," which were indicative of a culture based upon a predominately transactional leadership in use. Whereas another principal commented, "When you model you motivate" which appears to be transformational in nature. Principal Sanders also shared transformational strategies by expressing, "I try to motivate my faculty through encouragement and modeling. Also, the district initiatives mandate that teachers change in order to keep up with technology demands." Principal Harrington discussed the importance of understanding the culture that requires change by noting,

> In order to facilitate change we had to establish a culture that believed that we had the student's needs at heart. Meetings, professional development and, bonding activities were needed to make the connection and break down the walls of resistance. We had to do something special to get the buy-in of those very resistant teachers that have been teaching for more than 25 years. This was a well established culture who feared changed and they were constantly calling the union with every little change. Our technology committee needed a plan with support, which would breakdown those barriers to change by engaging in teambuilding activities, building trust and lots of professional development as they grew in their learning communities. It was important to establish trust, consistency, and fairness. If they do not think you are fair, then they will break down any new program and prevent you for achieving success for our students.

The responses regarding how to affect change within the organization clearly confirmed the critical role of the leader in understanding the change process and its impact on all involved stakeholders. Schein (1992) noted, "the only thing of real importance that leaders do is create and manage culture and that the unique talent of leaders is their ability to work with culture" (p. 2). According to Reeves (2009), principals needed to be cognizant of the following four imperatives of cultural change to achieve successful implementation of technology within their schools: a) the leader must clearly *define what will not change* by specifying those standards, customs, and practices which were to be maintained. This created the pathway for the leader to begin to address any cultural impediments to the change process, b) *organizational culture will change with leadership actions.* When the staff observed the principal modeling effective technology usage while

communicating the need for change, the staff was more likely to heed the transformative call as opposed to being a resistor, c) *use the right change tools for your system* involved the principals utilization of appropriate change tools such as professional development, transactional leadership practices, and transformational leadership practices. "To change the collective behaviors and beliefs of the complex organizations we call schools, leaders must apply the right combination of change tools, varying their strategies to meet the changing needs of the system," d) *change in culture requires relentless personal attention and "scut work" by the leader.* Ideally, this cultural change involved the leadership frequently interacting, modeling, and communicating with all stakeholders in their work setting (p. 38-40).

The focus group meeting concluded after approximately two hours of discussion. Each participant was acknowledged and thanked for participating and sharing their valuable ideas. They were very appreciative of the holiday luncheon that was provided for them. I believed that the excess length of the meeting was due in part to the level of technology achievement that was expressed by each of the study participants. I informed the participants that all of their comments would certainly be taken into consideration as I accepted the task of becoming the technology change agent for the school district. They were assured that this was not the end but the beginning of great things to come in the infusion of technology throughout the school district.

Professional Development Module Summative Evaluation
Survey Data Analysis

Participants were acknowledged for their participation in the series of training sessions. It was shared that they would be requested to give their input by completing a

very brief summative survey (see Appendix F) designed the same as the previous formative surveys to evaluate their overall personal experience regarding the professional development sessions. They were provided with a Likert designed summative survey consisting of the same six multiple response questions, and three open-ended questions designed for the participants to reflect upon their leadership and a comments area.

Participants were reminded all responses would remain anonymous. I combined the measuring scales of strongly disagree with disagree and strongly agree with agree. Combining this data provided me with a comprehensive look at whether or not the participants were favorable or not favorable about their professional development experiences. They were also informed that the quantitative data collected would be shared with the District Technology Committee for the purposes of how to improve planning and implementing professional development for administrators in the future.

The responses to all six multiple choice questions in Table 9 revealed that each participant strongly agreed to each question. This pattern of agreement was consistent with the responses noted on each of the formative surveys which were completed by the participants at the conclusion of each training module. This strong support of the need for ongoing professional development, as well as, the participants indicating that their technology capacity was significantly enhanced validated personal mastery as an essential element for instructional leadership growth. The results appeared to support the theme for increased professional development and the need to enhance the participants' awareness of how to better infuse technology across the curriculum.

I reflected in my journal, I believed that the principals better understood that technology was a tool that could be utilized to enhance the instructional content of any

lesson. This technology change project provided them with the skills necessary to encourage teachers to create a more meaningful and engaging learning environment for all students These participants have been exposed to a wealth of technical knowledge and I was encouraged that by building their personal capacity, they would be equipped to return to their respective schools and lead the charge for sustained change (Leadership Journal, December 2, 2009)

Table 9.

Summative Training Evaluation Survey (N=5)

Professional Development Experiences**:**	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1) Were the objectives of these training modules clearly stated?	5				
2) Did the training modules meet your expectations?	5				
3) Were the instructors competent,well-prepared, organized and knowledgeable about the content of the training modules?	5				
4) Did you have the necessary resources to accomplish the tasks required of you for these training modules?	5				
5) Did the content of these training module enhance your leadership capacity?	5				
6) Will you apply the instructional leadership skills presented in these modules within your school setting?	5				

The initial open-ended question requested the participants to reflect upon the learning modules impact on their instructional leadership practices. The following responses were written by the participants:

- Collaboration is key with my staff in order to make any changes with technology in my building
- Our training sessions increased my views on the value of informal discussions and follow-up
- I have exposed this learning with the staff in my building
- The learning modules have built my confidence in the use of various technology devices.
- These sessions have helped me become a more knowledgeable learner.

Based upon the participant's responses to this question, collaborative leadership practices and building personal capacity appear to be predominant themes. The next open-ended question asked the participants to determine which was the most beneficial training module and the rationale. The following responses were written by the participants:

- Using Microsoft Outlook was enjoyable! This session enabled me to keep a schedule of various student and staff events.
- I enjoyed learning how to do *video streaming* and integrating other digital media resources into the classroom. My teachers are going to find this very useful in the classroom.
- I really enjoyed all of the sessions but the laptop refresher help to build my confidence level in learning how to use the computer better. Now I can be a better role model.

- Using Microsoft Outlook was a helpful tool. I learned how to communicate better with my staff and students and use less paper.
- Visiting the Discovery website was very interesting and helpful for our teachers. There is a wealth of information and creative things to expose our students to in class. Great site!

Each of the participants shared how the professional development modules increased their personal technology capacity and provided insight into potential instructional enrichment for their staff. An essential element for instructional leadership is to be an effective role model. The participants' research support the training as enhancing their ability to become better role models and more cognizant of technology integration in all aspects of their educational capacity.

The final open-ended question requested *would you change anything in these training modules? Explain*. Three out of the five participants shared that they would not change anything about the professional development sessions. Two of the five respondents wrote that the content of the training was excellent, however, they expressed the need for more time in their schedules to attend continued technology professional development in the future.

I noted in my journal, that finding the time in the principals' daily schedule to participate in professional development was an ongoing challenge. The research showed that a lack of quality time for training created a hindrance in promoting effective technology integration within their schools. The principal was the leader through which everything flowed at the building level. The instructional leader was responsible for everything that occurred in the building instructionally and otherwise. Principals were the

individuals to lead any initiative and implementation. I believed that with any new initiative, it was critical that central administration made it mandatory for all leaders to be provided with ample time to participate in the needed professional development training. Overcoming time and resource constraints was paramount for the instructional leader to affect change (Leadership Journal, December 4, 2009).

The final question allowed the participants to express any additional comments and reflections. The following response was representative of many of the respondents: "Techie Tuesday was an enriching and skill building experience. The instructors were extremely professional and well prepared. It was a rewarding experience." It was quite evident that the participants felt their personal mastery of technology was significantly enhanced by the professional development.

Analysis of Change

The analysis of change revealed during this cycle was reflective of the changes noted in the participants' instructional leadership practices and technology personal mastery as voiced in the focus group meeting, interviews, and summative surveys. The principals' comments were inclusive of essential elements of leadership in use, personal mastery, and the cultural dynamics of their educational settings. There was a collective acknowledgement that their technology training enhanced their ability to recognize and evaluate effective technology integration in the classroom.

The participants' comments during the initial focus group meeting highlighted how they attempted to comply with the District's technology plan imperatives. There were few comments concerning their individual technology capacity or their need to

influence the cultural dynamics within their building for change. Most of the participants verbalized their reliance on the Technology Coordinator to spearhead all technology integration efforts. There was limited discussion about their personal need to model or evaluate technology usage. The final focus group meeting revealed a significant change among most of the participants concerning the growth in their technology capacity, the need for instructional leadership practices, and understanding of the change process. Many of the participants expressed how enthusiastic they were when they used their technology skills to communicate with all stakeholders as a method of modeling technology to influence the culture of change. All of the participants voiced an enhanced awareness of their ability to effectively evaluate technology usage within the classroom. The participants did not discuss the need to change the cultural dynamics of their schools to facilitate technology integration during the first focus group meeting. However, the final focus group discussion revealed that some of the participants gleaned from their training that to affect change they needed to be aware of the cultural dynamics of change within their school setting.

The interview results correlated with the many of the themes identified within the focus group discussion. Personal mastery was a significant theme within the interview responses. They all recognized the importance of professional development and the need for consistent technology training updates on a continuing basis. The participants indicated that the time barriers to training must be overcome to ensure adequate professional development for all stakeholders. Some of the interviewees during the initial focus group and initial survey indicated that funding or lack of resources was not a barrier. However, after the completion of the professional development modules, the

perception of technology resources changed for many of the participants. The enhancement of the participants' technology capacity influenced their ability to understand the need for more computers per student, SmartBoards, internet accessibility, and more technical support.

The responses from the summative survey triangulated with the themes identified within the focus group meeting and interviews. The participants shared a message expressing collaboration and transformational leadership practices were the predominant means of leading change within their buildings. Most of the written responses acknowledged how beneficial the technology trainings were in enhancing their personal mastery, self-concept, and ability to become change agents in their buildings. According to Fullan (2007) "capacity building first, and judgment second-because this is what will motivate more people. Learning in context and learning every day are the keys. Capacity-building experiences develop skills, clarity...and motivation" (p. 59).

Leadership Reflection and Application

As I reflected upon this final focus group meeting and summative evaluation surveys, I was encouraged by the responses from each of the five participants who were in attendance. Each participant readily provided rich qualitative data during the discussion group and useful quantitative data from the completion of the summative survey which became a roadmap to include others in the change process in the future. The implementation of these activities was reflective of my authentic transformational leadership in use. According to Kouzes and Posner (2007),

> You have to make sure that no one is outside the loop or uninvolved in all the changes that occur...each person has a sense of ownership for his or her projects...seeks out the opinions of others and uses the ensuing discussion not only to build up their capabilities but also educate and update...information and perspective. (p. 21)

Allowing these principals to give voice during my research project, affirmed my need to listen and understand where they were within the continuum of technology change. Realizing that change would not happen overnight, I believed when I utilized my collaborative leadership approach with the technology committee and the research participants I built a level of trust. This leadership awareness created a learning environment and change process to address the instructional leadership capacity of the study participants which could potentially establish technology integration inroads within their schools (Kouze & Posner, 2007). Therefore, chapter 8 focused on my role change as the new director of technology, and evaluated my leadership's impact upon this action research project.

Chapter 8

Professional Role Change

Introduction

My leadership role within the organization changed significantly during cycle three of my action research project effective September, 2009. The professional development activities to increase the principals' technology capacity were completed prior to my new role assignment. Therefore, cycle four provided me with the opportunity to reflect upon my new position as Director of Technology and its relationship to the school district's organizational structure, technology vision, and activities needed to foster the continuation of the district's technology change process.

The change in my leadership role from principal to the Director of Technology was rewarding and challenging. I was encouraged and recruited to apply for this position by upper administration and other colleagues. Initially, I did not anticipate that I would have a significant change in my leadership practices or focus. However, upon accepting the position of Director, I realized that my leadership capacity served two distinct cultures comprised of my technology department and the District as a whole.

My leadership style within the technology department allowed me to follow the *Authentic* transformational and servant leadership practices that I nurtured throughout my administrative experience. I began my position as Director by assessing the existing culture within the department and analyzed the potential changes that were necessary to maintain and improve staff performance. I utilized the transformational aspects of my leadership to gain my staff's trust, support and commitment. Initially, I met with each member of my department to ascertain their perception of the department culture and

their individual goals for personal development. I began to build a collaborative culture by holding team meetings on a weekly basis to give all staff members a voice in establishing a compelling vision for the department, identifying department challenges and potential solutions, and providing motivation for accomplishing district goals. I reflected upon my staff's needs as a result of our individual and group meetings to establish a professional growth process through professional development training, individual and team projects, and delegating administrative responsibilities (Leadership Journal, December 1, 2010).

I believed by reflecting upon my new position, it was incumbent upon me to focus on the culture of the organization by analyzing the following four frames, consisting of structural, political, human resources, and symbolic identified by Bolman and Deal (1997). The authors suggested that in order to complete a thorough analysis of an organization, these four frames must be critically reviewed and reflected upon to understand the organizational dynamics. The structural frame provided the backbone of the organization and identified the interrelatedness of the various positions within the organization. The political frame examined where the movement or political power lies within the organization. The human resource frame helped me to examine how the needs of the employees were being met. Lastly, the symbolic frame focused on the meaning of actions and objects, and how they reflected the organization's mission and goals.

Structural Frame

The structural design of my school district resembled Mintzberg's five sector configuration inclusive of an operating core, administrative component, a strategic apex with techno-structure support for administration, and support staff for the school

administrators. My position as Director of Technology was placed within the techno-structure inclusive of specialists and analysts. I reported directly to the Deputy Superintendent regarding any technology issues for the school district (Bolman & Deal, 2003).

My responsibilities were inclusive of implementing and maintaining a technology support system for Pre-K -12 instruction. It was the district's goal for all students and staff to have appropriate access to technology resources. My daily routine tasks focused on participating in meetings with district level administrators and principals meeting to address the technical needs of the school district. My department provided hardware and software support, monitored the management of the network and webpage management. I was responsible for a department budget in excess of five million dollars for the procurement of technology resources and developing the district's technology plan. I discovered as a new director, that all facets of the school district depended upon my technology department for all technology services.

My technology department monitored the development and implementation of the District Technology Plan, and maintained an evolving district support system in order to remain current with changing technologies. The entire technology department in conjunction with members of the district planning team, played a major role in developing the stated goals for the district. At the start of the school year, we revisited our goals and determined if any revisions were necessary. These goals were considered a living document and open to change dependent upon what was occurring in the organization

The following were four major areas of the Technology Department's hierarchical structure: a) the instructional services provided by the department include curriculum integration, developing new and revised curricula, hardware/software coordination, specifications and recommendations, technology purchase verification, providing technology assistance relating to any of the district-wide curriculum initiatives, instructional computer curriculum support, distance learning opportunities, and supervision and support for each school's Technology Coordinator. The instructional department was a direct report to the director and consisted of an instructional elementary supervisor, an instructional middle and high school supervisor, and an educational program supervisor specialist, b) technical services included support for computer systems and peripherals, installation, maintaining, upgrading and repairing all computers and associated equipment. The Technical Manager was responsible for a team of four technicians, and two computer service specialists. He established work priorities, prepared staff assignments, evaluated the technical team's performance as they provided service the district on a daily basis. The Technical Manager reported to the Director of Technology, c) the Network Engineer and his team of network three specialists provided primary engineering services, troubleshoots, managed and maintained operations of the districts' network. The Network Engineer managed and evaluated the daily activities of his team and reported to the Director of Technology, d) the district's database management information system was managed by a manager who supervised a team of five individuals. This individual managed and evaluated their staff and directly reported to the Director of Technology.

Political Frame

I have developed a close interface with administrators at the central and school levels. My goal was to develop, modify, and implement staff development programs, and provided materials to meet specific district needs related to the use of instructional technology. I also provided a liaison with the community, state and local agencies when requested by upper administration. I provided assistance to all schools and departments with long-range technology planning.

I exercised the following communication strategies and utilized my authentic leadership in establishing important district and departmental relationships that were key to the collaborative functioning of my department. I needed to maintain open lines of communication, create a positive working environment and support the members of my department. My staff and I communicated very frequently via e-mail or in person, and I found that when I used my transformational leadership, this allowed my staff to give voice and help in the decision making process for department activities and needs. It was essential for me to develop positive and open relationships with the central administrative staff and the school administrators in order to meet the technology needs of the district. This process required me to keep the lines of communication and effective dialogue open to central administration and key school board members. Without effective communication obtaining needed resources was impeded.

My leadership role afforded me the opportunity to communicate with all stakeholders within the school community. My department's responsibilities enabled me to gather information regarding technology utilization and needs within each school,

central administration office, and the school board. Therefore, I acted as a hub for the technology needs, vision, and development for the entire school district.

Human Resource Frame

As the instructional leader in my department, I was responsible for hiring and providing professional development for my staff. Dealing with staff issues in an equitable manner was paramount since I needed to develop a working knowledge of their capabilities and team dynamics. A large percentage of my day was focused on the management of the constant flow of emails, phone calls, or communications from the principals, and other administrative staff. It was essential that I exercised the tenets of my authentic leadership as I began to develop collegial interrelationships with central administration, principals, and my immediate staff.

I recognize and realizes the necessity of acknowledging the human frame as I facilitated in continuing to build the district administrators' personal technology capacity and equipping them with the necessary tools to effect change in meeting the district's technology vision. The district administrators' knowledge of change was also essential for them to lead the charge for technology implementation across the curriculum. The process of change was challenging and it required each administrator to reflect upon their personal lack of capacity in order for them to seek necessary training. Change was not neat. Building leadership capacity was a key factor in achieving the desired changes and moving our school district forward. In order to close the achievement gap, professional development was provided for leaders to become proficient in their abilities to develop a clear and concise district vision, develop action plans, provide professional development

for their staff, and secure the necessary resources in order to begin the process of first order change. As the department Director, I believed that I was a major catalyst in raising awareness of the need for ongoing professional development not just for district principals but for all districts administrators. My leadership became evident "when one or more persons engaged with others in such a way that leaders and followers raise one another to higher levels of motivation and morality. Transforming leadership ultimately becomes moral in that it raises the level of human conduct and ethical aspiration of both leader and led, and thus it has a transforming effect on both" (Burns, 1978, p. 20).

A *Techie Tuesday* session was offered to all district administrative personnel on November 21, 2009. Invitations were communicated by e-mail and fax one week prior to the training module. The administrators are reminded that they should bring their laptop to the training session. I met with my department instructional supervisors to discuss the topic of training development and it was decided that based upon feedback from many of the administrative staff, it would be beneficial to hold training using basic Microsoft Excel software version 2007. Ms. Whitman, the education program specialist supervisor volunteered to provide the training for the participants.

I commented in my journal that this was the first technical training open to all administrative staff within the school district. I envisioned that this would enable me to impact a greater cross section of instructional leaders to facilitate in implementing the technology integration vision. All technology training had the potential to facilitate in building their technology capacity which should result in sustaining change (Leadership Journal, November 21, 2009).

The focus of this training was devoted to utilizing the basics of the Microsoft Excel program. Ms. Whitman, the Educational Program Specialist was introduced and she shared that her purpose was to show administrators how to create and manipulate data by developing spreadsheets to track attendance, grading, budgeting and other administrative uses. I was able to attend the beginning of the training session, but I had to leave to attend a district meeting soon after it began. I was informed after the training that there were a total of twelve participants in attendance composed primarily of directors and supervisors. I was surprised to see that there were no principals in attendance. An anonymous survey was distributed to all attendees. It was noted in the comment section of virtually all surveys that the training was greatly appreciated and all attendees expressed the need for more training.

Symbolic Frame

The symbolic frame focused on symbols, meaning, and faith. Organizations were considered to be held together more by shared values and culture than by goals and policies. As a symbolic leader, I understood the importance of how my organization created symbols and culture that shaped human behavior and provided staff with a shared sense of mission and identity (Bolman & Deal, 1991). I believed that the importance of the clear articulation of the vision was first and foremost needed in the implementation of change.

In order to articulate the district technology vision and enhance the change necessary for meeting goals and policies, I needed to develop symbols as a means of facilitating communication and dialogue. I held a meeting with my staff to discuss the

need to develop a vehicle to identify and communicate how our department supports the school district's technology goals and vision. I informed them that this symbolic vehicle should also identify successful examples of effective technology integration used throughout the school district. It was determined that a newsletter provided the best method of communication and allowed all stakeholders to have a voice. The members of the technology department agreed that *"Techie Tidbits"* was an appropriate symbolic name for the newsletter. The newsletter spotlighted special points of interests such as how our students incorporated Web 2.0 tools in the daily curriculum by using VoiceThreads. VoiceThreads allowed students at various schools to generate digital stories, collaborate in different methods, and analyze ideas. Several schools were "*caught being techie"* as they used *Video Streaming* multimedia resources, held a *Mobi* handheld interactive *SmartBoard*, or used *Animoto* to store and present video pictures of the great things that occurred in their classrooms. Several teachers were also highlighted as "*teacher integrators"* of the first quarter. These teachers submitted to the technology department creative and innovative lessons for integrating technology into the daily curriculum. In addition, district supervisors were provided training by the Apple Corporation on how to utilize iPod Touch in the classroom. The newsletter also spotlighted the instructional, technical, and network events occurring within the department with submissions from each of the managers. Educational resource links were incorporated to provide technology integration ideas for the classroom. The means of communicating the content of the newsletter was facilitated by posting it on the school district's website. Central administration mandated that each department have an updated website that was incorporated into the district's website.

Within my school district it was necessary for me to solicit the assistance of the best and brightest, as specified by Fullan (2007). We used the knowledge that we gained for effective change as described in Fullan (2007) to promote sustained change within our organizations. This newsletter provided the symbol which allowed my department to facilitate the ongoing technology change process.

Analysis of change

I was unable to approach the change process aggressively because I did not receive a mandate from the school board requiring all principals of need to participate in the professional development training during my action research project. Instead, I attempted to demonstrate the value and utility of my action research project so that others were encouraged to participate. Therefore, as the Director, I made the decision to continue to implement a *Techie Tuesday* for all district administrators after the training modules for the study participants were completed. These training opportunities were an essential element for the continuation of building the district administrators' technology capacity.

"Collaboration requires practice, not merely instruction. Effective change does not happen with seminars and speeches, but with effective and repeated practice of the professional behaviors that you expect to change" (Reeves, 2009, p. 48). I was compelled to exhibit quality leadership in order to sustain change which was a necessary component to develop *capacity*, a pillar of change. Broadening the scope of the training and extending it to all administrators enabled me to impact others in the change process. The repeated hands-on technology training enabled the administrators to acquire the necessary skills to facilitate the successful integration of technology into the curriculum and build

their *capacity*. My servant leadership allowed me to focus on the orchestration of ongoing professional development sessions in order to provide technical *support,* another pillar of change, to all administrators who attended the training sessions (Schwahn & Spady, 1998).

My leadership enabled me to create a sense of *ownership,* a critical pillar of change. My cultural leadership facilitated enrollment of all stakeholders in the change process for improving technology capacity and curriculum integration. This was quite evident in my frequent communications, meetings, and the use of symbolic vehicles to promote commitment to the vision. According to Schwahn and Spady (1998), "enrollment is the open, continuous, and enthusiastic recruitment, inclusion, and involvement of all of the organization's employees and constituents in its productive change effort" (p. 71).

Evidence of time as a barrier surfaced when I examined the sign-in sheet for the training session and noticed that principals were not present at this professional development. I reflected upon the research that pointed to the need for principals to be allotted the necessary time to hone their technology skills to complete daily work tasks and discover effective strategies to integrate technology into their learning environment. However, without the support of central administration making it mandatory that principals attend ongoing trainings, improving their personal capacity and achieving second-order change challenged their ability to move their buildings into the 21st century digital age. Changes within the organization were based upon the actions of the leader. Heifetz and Linsky (2002) note that without "learning new ways -changing attitudes,

values, and behaviors-people cannot make the adaptive leap necessary to thrive in the new environment" (p. 13).

Leadership Reflection and Application

As the new director of technology, I believed it was most beneficial for me to reflect upon my leadership activities based upon Bolman and Deal's four major components of four organizational theories or frames. The analysis of these frames enabled me to determine the appropriate actions I should exercise to address the needs and increase the effectiveness of my department as an essential element of the school district (Bolman & Deal, 1991, 1997, 2003).

The structural frame enabled me to focus on making policies, developing plans, implementing procedures to coordinate the district's technology activities, execute strategies to enhance the district's working and learning environments, implement technology integration, and work towards adapting second order change. The district technology vision and goals had to be communicated to all stakeholders by establishing collegial relationships with central administration, other district administrative staff, and members of the School Board. It was incumbent upon me at the departmental level to direct, clarify, and initiate structure to identify the roles of my direct reports to ensure maximum efficiency and production (Bolman & Deal, 1991, 1997, 2003).

My interactions with my department, central administration, and the school board members, required me to analyze the organization by viewing it from the human resource frame. It became quite apparent to me that our organization consisted of individuals who have various points of view, core values, beliefs, biases, skills and limitations. However, I found that by exercising my authentic leadership behaviors I gained their respect,

showed concern for their human needs, and started to build a level of trust within my department, central administration, and members of the school board. It was critical for me to believe in my department and their capabilities, provide shared decision-making opportunities, always be visible and accessible, motivate and enable them to build their capacity. I believed organizational success could be achieved when the stakeholder's needs are met. Effective leaders needed to determine how to systematize their organizations to maximize the skill sets of their people (Bolman & Deal, 1991, 1997, 2003).

The political frame focused on my interaction with departmental and district interests to ensure accessibility and utilization of limited resources. Often conflict was inevitable however, my authentic leadership practices enabled me to allow all stakeholders a voice. It was important that I avail myself to the needs of the School Board members and work hard to be an advocate for communicating the district technology vision. It was critical for me to sit on various district committees that were comprised of central administration and Board members to voice the importance of integrating technology in all phases of student learning. Political leaders are required to clarify what they want and what they can get. Political aspects of leadership required me to assess the distribution of interests and powers, build linkages to other stakeholders, and use persuasion first, then negotiation, coercion and compromise (Bolman & Deal, 1991, 1997, 2003).

My authentic leadership practices were evident through the collaborative interaction with my department, schools, and members of central administration to develop a symbolic vehicle to foster a shared sense of the district's technology mission.

The development of the *"Techie Tidbits"* newsletter and the ongoing updating of the website required me to elicit the support of my department managers, central administration, and each school's technology coordinator to give voice to their technology achievements as a motivation to others. In order to inspire others and clarify the activities necessary to foster technology integration, I created an environment which promoted an unencumbered sharing of creative ideas and practices. The production of this newsletter provided a safe and timely vehicle to foster this creative and supportive environment (Bolman & Deal, 1991, 1997, 2003).

It was incumbent upon me to focus upon the managerial aspects of my leadership for the achievement of the required daily tasks of my technology department such as planning, budgeting, staffing, and problem-solving (Bass and Avolio, 1994). The transactional elements of my leadership were realized as I began to dictate the timing of my project activities as the need for prioritization of the technology department's responsibilities became evident. Therefore, the District Technology Committee became my direct reports which naturally influenced my relationship with them. My focus with the District Technology Committee required me to balance the managerial aspects of my new position, as well as, remain transformational in my activities in relation to the research project.

My role as the Director of Technology required a global focus on my leadership practices as I serviced the needs of the district. I found that the cultural climate of the district differed from the microclimate of my department. My responsibilities to my department were directorial in nature. My responsibilities to the district encompassed a myriad of transformational leadership practices. This dichotomy of leadership focus was

influenced by my need to serve as a consultant to upper administration, provide technology services for the schools, facilitate technology professional development for teachers and administrators, and provide technical support and advice to the School Board members. I noted in my journal that this new position was quite perplexing and challenging. I had to wear two leadership hats as a line manager for my department and a staff manager for the district, I realized I could not exhibit transactional leadership tendencies toward the district administrators because I had no line authority. Therefore, collaboration became the focus of my leadership actions (Leadership Journal, December, 10, 2009). An in-depth analysis of my leadership theory in use became the focus of chapter 9 as related to the changes impacted by my action research.

Chapter 9

Personal Leadership Journey Reconnaissance

Introduction

Chapter eight detailed my leadership journey as it related to my personal development as the new technology director for the school district and my leadership's impact upon the action research project. The purpose of this chapter was predicated upon a reflective analysis of my leadership from a historical perspective and evaluating my leadership theory in use as it related to my espoused leadership practices. I incorporated a quantitative leadership assessment tool which enabled me to evaluate myself and gather data concerning the perceptions of the study participants and my direct reports concerning my leadership. This assessment tool in conjunction with my leadership journal entries from the inception of this action research project allowed me to triangulate and discuss the impact of my leadership upon this change process.

Espoused Leadership Perspective

My journey as a doctoral student at Rowan University in the Educational Leadership program began in the spring of 2007, while serving as an acting principal. My school environment experienced a major change in leadership due to the retirement of a principal who led the staff for over thirty years. The staff and students experienced a hierarchical managed environment under the previous administration. It was a failing school under the No Child Left Behind (NCLB) guidelines, and had to undergo a Collaborative Assessment and Planning for Achievement (CAPA), as well as, the

(QSAC) New Jersey Quality Single Accountability Continuum review. These circumstances set in motion the need for me to develop a consistent and relevant leadership platform. I believed the art of leadership must be congruent with the values and beliefs I espoused and demonstrated through my actions. The development of my personal leadership theory, curare, and educational leadership platform in this program provided me with the necessary framework which enabled me to clarify and evaluate my espoused leadership theories and my leadership theories in use.

The development of my leadership theory enabled me to critically reflect upon the aspects of my leadership style which can have a positive or negative impact upon all stakeholders. My educational leadership platform was defined as a tool to assist me in gaining greater self understanding. My personal leadership platform development was derived from the process of reconstructing, refining, and verifying my values throughout this learning experience. Personal values, beliefs and visions must be clarified before they can become effective influences in shaping a personal leadership platform (Norris, Basom, Barnett, &Yerkes, 1996).

The design of my leadership platform shared examples of real-world experiences, how I recognized my social responsibility within my organization, promoted shared learning, valued personal development, and initiated change and creativity. Leadership was executed through influence, and influence was dependent upon credibility**.** What leaders encouraged must be congruent with the values they may demonstrate through actions (Norris et al., 1996; Hewlin, 2003). My coursework and action research project offered me many opportunities to review and reflect upon various leadership theories, and has led to my realization that my leadership platform was congruent with the theoretical framework of authentic leadership. Authentic

leadership was fueled by the tenets of transformational, transactional, servant, moral and ethical leadership as noted in Figure 2 (Avolio & Gardner, 2005; Endrissat & Mueller, 2006).

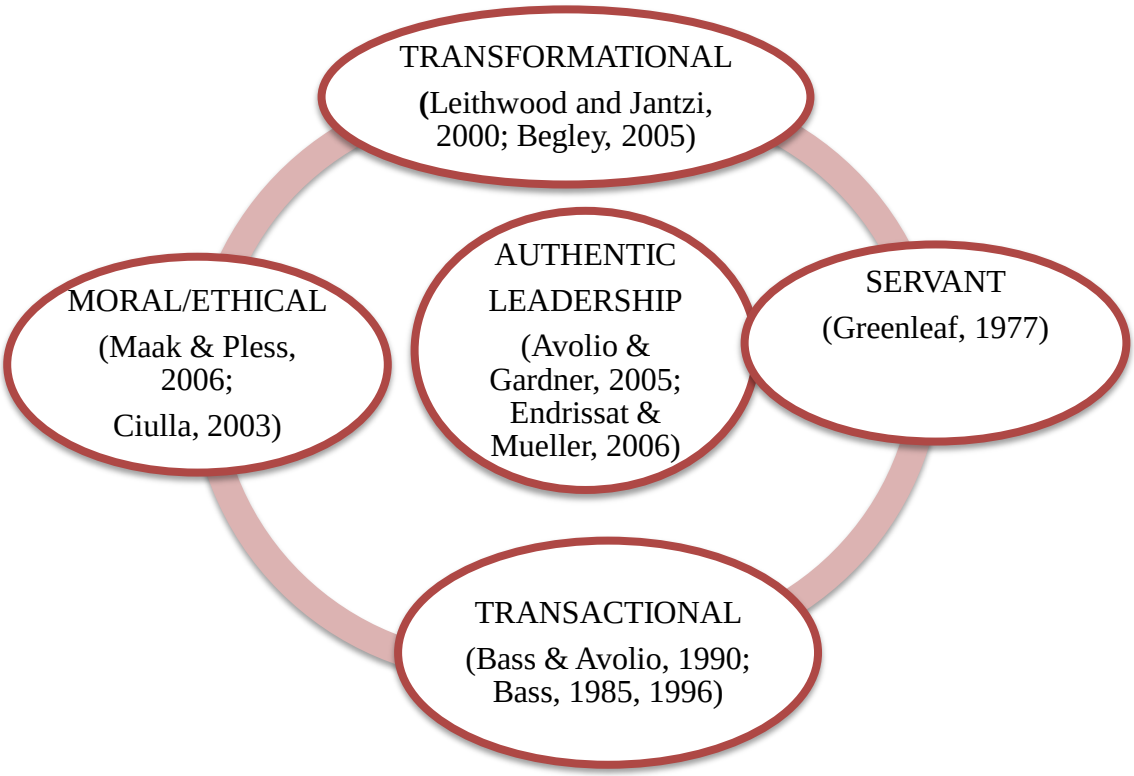

Figure 2. Authentic Leadership Model

A leader cannot label herself as an authentic leader. The people within the organization who experienced the leader can attribute authenticity to a leader. Authenticity is only perceived by others. I believed my authentic leadership was exercised, when working collaboratively with the District Technology Committee for the development and implementation of the research project, serving the needs of the research participants by providing a means for increasing their technology capacity and allowing them to have voice throughout the change process. I was committed to the process of understanding my own uniqueness, talents, strengths, weaknesses,

sense of purpose, core values, beliefs and desires (Goffee & Jones, 2005; Endrissat & Mueller, 2006).

I found it challenging to engage in authentic leadership when I was constantly being subjected to a lack effective district leadership, besieged by constant negative publicity regarding our school district in the media, the lack of ethical behavior on the part of some Board members, and other administrators. (Leadership Journal, December, 21, 2009). The No Child Left Behind federal legislation, as well as, state and local mandates made it increasingly difficult not to suppress my own values in favor of the organization's values. My preferred collegial style of leading was often hampered by the bureaucratic mandates imposed by federal, state, and district authorities, which sometimes forced me speak in a voice that goes against my norms and personal belief system. I was required to be transactional in my leadership behavior allowing limited time or opportunities for others to have voice. I was constantly challenged by time limitations to reflect upon my actions towards others because of the ever increasing demands of the daily job responsibilities. It was challenging for me to always be available for everyone at all times (Ciulla, 2003; Shapiro & Stefkovich, 2006).

Every minute during the course of the day appeared to be focused on addressing the needs, demands and attitudes of others. Changing an ineffective cultural dynamic was an ongoing challenge. However, I implemented daily positive affirmations concerning values and beliefs to eradicate the negative attitudes and actions, and build upon our positive vision (Deal & Peterson, 1999). My goal was to effect change within the learning environment. I became cognizant about working with webs of relations, not with

machines. The imaginary organization must be placed behind us and the leader must work with the real organization in order to become effective at change (Wheatley, 2006).

My coursework with a focus on the change theory provided me with many opportunities to cogitate about the many facets of organizational change and the affect it has on those within my working environment. Applying the ISSLIC/ELCC standards to the many facets of conducting change provided me with an understanding of the importance of having a clear and focused vision, establishing a positive school climate, determining first order and second order change, managing resistors to change, utilizing various change models and engaging in meaningful presentations and group projects with my colleagues. When dealing with my organization, it was critical that a clear, focused, and coherent vision be established. Members of my organization collaborated in creating, implementing, and articulating this vision in order to achieve a positive change within the organization (Bolman & Deal, 2003; Deal & Peterson, 1999; Evans, 1996; Fullan, 1993; Kotter, 1996; Schein, 2004; Schwahn & Spady, 1998).

I continued to reflect upon my past and present experiences to anticipate and enhance my future leadership capacity with the understanding that the needs and interrelationships with my stakeholders required an eclectic approach to leadership. It was often very difficult to carve away time to be self reflective about my core values, self-awareness, beliefs and desires. This self analysis was a crucial component for effective authentic leadership. I noted in my journal that time constraints presented an ongoing challenge for me. There were times when the communication and required relationships with my staff may not have coincided with my core values and beliefs (Leadership Journal, December 15, 2009).

According Endrissat and Mueller (2006) the deepest sense of a true self is continuously formed in connection with others and was inextricably tied to growth within the relationship. In other words: relationships brought clarity and authenticity to the self. However, my belief in the tenets of authentic leadership continued to be the core of my instructional and managerial style. My personal leadership focus continued to progress through a process of change.

My action research project enabled me to broaden my educational context from a singular focus to a broader population involving the principals in the school district. The dynamics of this change allowed me to reflect upon elements of change theory such as systemic reform, comprehensive reform, and educational change as it related to my leadership platform. Changing individuals' beliefs, knowledge, or attitudes requires careful planning by the leaders responsible for the change process (Bolman & Deal, 2003; Deal & Peterson, 1999; Evans, 1996; Fullan, 1993; Kotter, 1996; Schein, 2004; Schwahn & Spady, 1998).

My action research project employed various facets of my leadership theory in use. Based upon the theoretical framework of authentic leadership, my research shared examples of real-world experiences, how I recognized my social responsibility within the school district, promoted shared learning, valued personal development, and initiated change and creativity while examining the tenets of servant, transformational, transactional, moral and ethical leadership. Each of these leadership approaches and some of their related behavioral attributes were closely examined as they related to my research project and personal experiences (Avolio & Gardner, 2005; Endrissat and Mueller, 2006).

Servant Leadership

I believed there was no greater gift than to give of myself and for me to show genuine concern toward my colleagues. Serving others in my school district was another aspect of my leadership theory in use. When executing my action research project, I utilized servant leadership as I planned, developed, and implemented professional development training modules for principals who were in need of building their instructional leadership capacity in the usage of technology. I utilized my servant leadership qualities which enabled me to address the needs of those principals who achieved less than proficient on the LoTi technology assessment test. The process of change was challenging and it involved each participant to deal with their personal lack of capacity in order to achieve the desired change. Building leadership capacity in the area of technology was a key factor in achieving the desired changes and moving a school District forward.

My present role as a leader continued to be focused on being sensitive and caring about the academic, social and behavioral needs of the district's staff and students. My behavior consisted of modeling a high level of commitment and positively attempting to influence others based upon what I believed. This recurring theme of serving and caring for others permeates throughout my life as I have engaged in various personal and professional activities. Knowledge about one’s craft was crucial. I continued to reflect upon my past, present and future leadership experiences in order to develop an understanding of my servant leadership capacity (Leadership Journal, January 20, 2010). Professional development was provided for leaders to become proficient in their abilities to develop a clear and concise technology vision, action plan, provide professional

development for teachers, and secure the necessary technology resources in order to incorporate technology in the daily classroom activities in order to close the achievement gap in technology. My servant leadership allowed me to be "in service" to the organization's developed vision and purpose. As a change agent, my servant leadership also permitted me to" create the conditions, procedures, incentives, and structures" that would encourage change to occur as a result of the professional development (Schwahn & Spady, 1998, p. 104).

Transformational Leadership

I noted in my journal that it was necessary to gravitate toward the usage of transformational strategies/techniques during my project because I believed that these leadership practices enabled me to motivate, inspire, and encourage the participants in the study. The study participants were faced with the challenge of acquiring the required technology personal mastery vital for them to facilitate the integration of technology across the curriculum. I was confident practicing aspects of authentic leadership provided a sense of purpose and meaning that unites the principal, students and staff in a common cause for technology integration and academic excellence (Leadership Journal, January 25, 2010). Utilizing the transformational aspects of authentic leadership inclusive of individual consideration, intellectual stimulation, and inspirational motivation had a sizable influence on the participants in the study (Avolio & Gardner, 2005; Endrissat & Mueller, 2006). My cycle activities afforded me the opportunity to record and reflect upon various experiences while documenting field notes, interviews, and journals during the research process (Glesne, 2006).

The individualized consideration aspect of my transformational leadership practices became evident when I reviewed *the Levels of Technology Innovation Digital-Age Survey* (LoTi) to ascertain the level of technology proficiency for each participant. I facilitated in analyzing the results of the LoTi with the District Technology Committee to determine and plan for participants' needs. I provided each participant with an initial survey and an initial focus group activity which allowed them to give voice to their perceptions and needs for professional development.

The intellectual stimulation aspect of my transformation leadership practices was realized when I planned and provided professional development activities to increase the participant's technology capacity. My study allowed me to develop a collaborative spirit while working with the Technology Committee in development of the training modules. The participants consistently expressed within the surveys, focus groups, and interviews that their technology skill sets were greatly enhanced through their training, and allowed them to recognize effective technology integration usage in the classroom.

The inspirational motivation aspect of my transformational leadership practices was realized when I interacted collaboratively with the District Technology Department to create a vision and mission to increase the technology instructional leadership capacity of the principals to meet the technology goals for effective technology integration into the curriculum. The design and implementation of the training modules provided ongoing motivation for the participants as expressed in the comments from the surveys and focus groups. My creation of the district technology newsletter, "Techie Tidbits" provided ongoing celebration of technology achievements, recognition of effective instructional

leadership practices, and best practices of technology integration into the curriculum as identified by the instructional leaders.

My authentic style of leadership required me to exhibit both ethical and relational qualities when conducting research. I encouraged the District Technology Committee to utilize research and data analysis to guide strategy development needed to achieve technology organizational change while I exercised authentic leadership. I had a clear and focused understanding of the appropriate manner of how to handle the various forms of data collection for the research project. Utilizing triangulation of data, the immediate transcribing of the field notes, member checking, color-coding, and ensuring confidentiality of all participants involved enabled me to maintain the integrity of the data. The need for triangulation of data surfaced from the ethical need to confirm the validity of the processes. My goal was to build strong interpersonal connections among all study participants by respecting and honoring their diverse perspectives through ongoing dialogue during our focus group and interview meetings. Treatment of all study participants was based upon fair and equitable practices (Creswell, 2003; Glesne, 2006)

Transactional Leadership

I discovered, while reflecting upon my leadership, that a significant aspect of my leadership practices were transactional. Historically, I considered myself to exhibit eclectic leadership practices inclusive of servant, transformational, and moral/ethical. However, when reviewing leadership and change within the literature and my reflections, I realized that transactional practices became evident in my leadership practices (Leadership Journal, February 5, 2010). Burns (1978) noted transactional leadership

involved exchanges in which both the leader and followers were bound by a reciprocal exchange. Transactional leaders work with subordinates (followers) toward the desired outcomes by identifying the roles and tasks for the followers. These leaders clarified the requirements and performance outcomes providing the followers with the confidence needed to provide the effort for the task. These first order exchanges provide the motivation and energy for the followers to complete the task as directed by the leader, but are insufficient for sustaining performance that satisfies the needs of the followers (Bass, 1985, 1996).

Transactional leadership as the act of an exchange of reward by the leader to the follower was an essential component of effective leadership, but was not totally sufficient. Transactional leadership behaviors were composed of three elements: (a) Contingent Reward: provided clarification on what needs accomplishing and exchanges rewards for services; (b) Management-by-exception Active: keeps an eye on follower's performance and implemented correction when standards were not upheld; (c) Management-by-exception Passive: occurred only when standards are not upheld (Bass & Avolio, 1990). These transactional behaviors were discussed in detail within the section of my leading as a principal.

Transactional leadership was incorporated in many of my professional and personal interactions with my school staff and the District Technology Committee. This transactional leadership approach became quite evident within my action research project when my role changed from principal to director of technology. It was crucial for me to learn how to balance my eclectic leadership practices. The most effective leaders

incorporated both transactional and transformational behaviors at appropriate times and in appropriate ways to followers (Bass, 1996).

Moral/Ethical Leadership

I believed I was obligated to attain a working knowledge of my theoretical, personal and professional ethics during the research process. I strived to develop a course of action which facilitated in establishing a trusting and collaborative work environment regardless of personal differences. Having a solid understanding of my ethical perspectives enabled me to understand why I enacted certain decisions and how I can potentially affect all individuals involved (Ciulla, 2003; Shapiro & Stefkovich, 2006).

According to Branson (2006), "caring for their Self is not so much about self-preservation as it is about self-knowledge; a leader needs to care about how they are leading" (p. 2). Leaders must be able to understand, analyze and determine what are their values and morals as they relate to their espoused beliefs and behaviors. The attainment of this self-knowledge enabled a leader to keep abreast of the relationship between personal and organizational dynamics. "Through acknowledging and accepting their own personal reality, a self-knowledgeable leader is able to make sense of and act appropriately in their changing environment" (p. 2).

My professional ethical perspective was deeply rooted in the tenets of my authentic leadership theory that attests to the eclectic utilization of theoretical ethical approaches. Based upon this awareness, I was guided by the usage of an eclectic approach of ethical theories when faced with difficult choices. Elements of several ethical approaches to my leadership were inclusive of servant and utilitarian which articulated

the foundation of my ethical leadership perspective. I believed a servant leader was one who initially served others. The impetus in practicing this type of leadership provided the participants with the opportunity to grow and become more knowledgeable by increasing the principals' technology capacity. The essence of my utilitarian approach was that I must consider a course of action which can generate the greatest reward for the principals while minimizing the any effects within the action research that would be detrimental to the change process. I must always consider the moral validity of what is done or not done.

Ethical dimensions were always present when examining the acts of people. (Ciulla, 2003; Thomas & Bainbridge, 2001). I was a catalyst for ongoing reflective practice and facilitated in the observation of the participant's experiences which are always in the flux of change (Ciulla, 2003; Avolio & Gardner, 2005; Endrissat & Mueller, 2006). My research setting provided the participants the opportunity to have a collective voice using the narrative inquiry approach in determining what was needed to improve the principal's instructional leadership capacity involving technology integration. I valued the usage of qualitative and quantitative inquiry as an effective means of acquiring many types of data to address this problem. Each principal was a valued stakeholder in the action research process and each participant was given an opportunity to tell their story as it pertained to the project. The participants shared their experiences regarding their background and present technology usage in the classroom setting (Clandinin & Connelly, 2000). This method of inquiry provided me with the opportunity to establish deeper relationships, connections within the educational setting, and allowed me to reflect upon my leadership practices to aide in making the research a more meaningful

experience. I understood the process of identifying the needs of others, the importance of building trust, and establishing strong interrelationships with all stakeholders during my project.

Leading as a Principal

According to Barth (2002) the most important and most difficult job of the school-based reformer was to change the prevailing culture of a school. The school culture was the complex pattern of norms, attitudes, beliefs, behaviors, values, ceremonies, traditions, and myths that are deeply ingrained in the very core of the organization (p.6). My former position as an administrator of a school building, required me to assume leadership of a school culture that was led by a principal with thirty years of tenure. The staff exhibited significant behavior patterns of mourning due to her retirement. This challenge to my leadership represented the often difficult challenge needed to achieve second order change within this organization (Leadership Journal, February 17, 2010). It was very encouraging to learn about first and second order change (Evans, 1996). This concept helped me to recognize why my staff exhibited resistance toward me when faced with accepting a change in leadership. I understood building a level of trust with all stakeholders was crucial for establishing a collegial and collaborative environment necessary for cultural change and productivity (Lencioni, 2002). I discovered changing the basic beliefs, assumptions and culture within my organization was not achieved immediately but starts with incremental change and grows over a period of time in order to result in sustained second order change (Fullan, 1993; Schein, 2004).

My doctoral studies helped to define and fuel my role as a change agent within my former school. According to Wheatley (2006) to become effective at change, we must leave behind the imaginary organization we design and learn to work with the real organization, which will always be a dense network of interdependent relationships (p.144). Change was an ever present phenomenon inevitable to organizations within communities, business, and institutions. I needed to understand, plan, and implement the level of change appropriate to address the related behaviors and issues required for my educational environment. My staff, students, and community were composed of various cultural identities which often required me to engage different modes of communication. My constant reflection upon my modes of communication permitted me to remain true to the tenet of authentic leadership, which requires the leader to be true to thyself.

According to Endrissat and Mueller (2006) the true authentic self must be continually engaged in the development of nurturing and sustaining relationships with all stakeholders. Therefore, "relationships bring clarity and authenticity to the self. Authentic behavior is therefore possible, even though different roles are acted out" (p. 19). I noted in my journal that I continued to reflect upon my past and present experiences to anticipate and enhance my future leadership capacity with the understanding that the needs and interrelationships with my stakeholders may require an eclectic approach to leadership (Leadership Journal, February 18, 2010). Cultural change was defined as planning more encompassing, and more substantial kinds of changes than those which arose spontaneously within cultures or as part of conscious efforts to keep an existing culture vital (Evans, 1996; Shafritz, Ott, & Jang, 2005).

It was important for me to reflect upon the culture within my organization, listen to concerns, collaboratively problem-solve, plan and implement ideas for the good of the children. I realized that my authentic leadership required a balance between transactional and transformational practices. My transactional leadership behaviors consisted of the following three facets:

1) Contingent Reward: identified in a clear and concise manner tasks that needed to be completed and a specified reward system. This element of transactional leadership was evident when staff received recognition at staff meetings, a personal thank you, and certificates of recognition would be administered for those staff members who completed assigned tasks. Staff who came to work on time and were never absent had their names placed on a plaque. Increases in salary were provided for those individuals who acquired additional educational credits.
2) Management-by-exception Active: the leader monitored the employee performance, and instituted a corrective action plan when work related principles were not met. This element of transactional leadership was evident when annual formal observations were required in order to evaluate the staff's teaching and working performance. Daily five minute classroom visits were completed to provide ongoing formative evaluation of a teacher's progress. When corrective measures were needed immediate written feedback was provided to the teacher. Weekly lesson plans were required to be completed that needed to be in alignment with the state mandated New Jersey Core Curriculum Standards.

Ongoing review of formative student assessments was imperative in order to track student achievement. Staff attendance at required weekly professional development trainings given by the coaches was constantly monitored to ensure teacher effectiveness. My staff was required to complete one hundred hours of professional development training and had to complete an annual (PDP) Professional Development Plan in order to maintain their teaching certification.

3) Management-by-exception Passive: surfaced when work related principles were not met. There was minimal or no interaction exhibited by the leader regarding communicating an employee's progress unless there was total avoidance of the task requirements. This form of leadership was rarely practiced by me due to my need to always communicate my vision for the school. (Bass & Avolio, 1990)

My collaborative and transformational practices enabled the staff to become more trusting of myself and I understood how a collaborative educational environment could be more rewarding than a strict hierarchical one. Deal and Peterson (1999) noted the following recommendations to achieve the desired culture which could aid in sustained change and promote transformational leadership behaviors: a) all stakeholders must be engaged in the development of the vision and mission with a focus on the students; b) the foundation of the culture in place needed be reflective of and supported by a defined value system; c) new methods of accomplishing tasks needed to be implemented while maintaining an existing positive and effective values system, d) there should be a concerted effort to maintain and inform all stakeholders who espoused to the same

cultural values system within the organization, and e) maintaining the learning context's beliefs, ethics and norms were also a critical consideration.

The coursework about changing organizations enabled me to think differently about change when it occurs in an organization. I believed that state mandated visits to my school initiated the need for change and identified the deficiencies within my organization. Realizing that second order change was the ultimate goal for any organization, I believed I had a better perspective about the many challenges leaders must face when attempting to achieve this goal. In my opinion, utilizing the strategic systemic model was more in line with my authentic leadership theory in use and was a catalyst for me in seeking sustained change (Evans, 1996). Researching various change models and applying them to real-life working situations helped me to broaden my horizons regarding the theory to support the change process. I worked collaboratively together with the District Technology Committee team to analyze a problem, apply a change model, and develop a plan of action was very beneficial for the action research project. This action research project gave me the necessary foundation to address a major change within my organization with the development of my action research project.

The most significant aspect of this changing organizations learning experience involved my building the collegial spirit of support and trust with the District Technology Committee to act as a team dedicated to fulfilling all of the project requirements. I especially enjoyed the opportunity to analyze an authentic change project within our organization which allowed me to “step back and look from the balcony” regarding how change impacted the participants and the District Technology Committee in my action research project (Heifetz & Linsky, 2002). I reflected upon the impact upon my

relationship and leadership practices with the District Technology Committee and participants to validate if my transformational practices enabled others to grow, provided an environment for facilitating an increase in technology capacity while allowing an for addressing concerns and new ideas. This was evident in my focus group activities, training sessions, and interviews. My transformational and servant authentic leadership practices empowered the District Technology Committee to understand the purpose of my project and accept ownership of the vision. My ongoing support of the professional development training activities as related to the participant's and the District Technology Committee trainers was reflective of my servant leadership. These leadership practices were attributed to Schwahn and Spady's (1998) five pillars of change and Senge's (1990) personal mastery change models which enabled me to recognize and anticipate the litany of events that often occur during the change process. However, I did not anticipate the change in my leadership role from a principal to a director.

Leading as a Director

The change in my leadership role from principal to the Director of Technology was rewarding and challenging. I was encouraged and recruited to apply for this position by central administration and other colleagues. Initially, I did not anticipate that I would have a significant change in my leadership practices or focus. I realized upon accepting the position of Director of Technology, I discovered my leadership capacity served two distinct cultures comprised of my technology department and the District as a whole.

My leadership style within the technology department continued to follow the authentic leadership practices that I nurtured throughout my administrative experience. I

began my position as Director by assessing the existing culture within the department and analyzed the potential changes that were necessary to maintain and improve staff performance. I utilized the transformational aspects of my leadership to gain my staff's trust, support and commitment. Initially, I met with each member of my department to ascertain their perception of the department culture and their individual goals for personal development. I began to build a collaborative culture by holding team meetings on a weekly basis to give all staff members a voice in establishing a compelling vision for the department, identifying department challenges and potential solutions, and providing motivation for accomplishing district goals. I reflected upon my staff's needs as a result of our individual and group meetings to establish a professional growth process through professional development training, individual and team projects, and delegating administrative responsibilities (Leadership Journal, February 20, 2010).

It was incumbent upon me to focus upon the managerial aspects of my leadership for the achievement of the required daily tasks of my technology department such as planning, budgeting, staffing, and problem-solving (Bass & Avolio, 1994). The transactional elements of my leadership were also realized as I began to dictate the timing of my project activities as the need for prioritization of the technology department's responsibilities became evident. The District Technology Committee became my direct reports, which naturally influenced my relationship with them. My focus with the District Technology Committee required me to balance the managerial aspects of my new position, as well as, remain transformational in my activities in relation to the research project.

My role as the Director of Technology required a global focus on my leadership practices as I serviced the needs of the district. I found that the cultural climate of the district differed from the microclimate of my department. My responsibilities to my department were administrative in nature. My responsibilities to the district encompassed a myriad of transformational leadership practices. This dichotomy of leadership focus was influenced by my need to serve as a consultant to upper administration, provide technology services for the schools, facilitate technology professional development for teachers and administrators, and provide technical support and advice to the School Board members. I noted in my journal that this new position was quite perplexing and challenging. I had to wear two leadership hats as a line manager for my department and a staff manager for the district, I realized I could not exhibit transactional leadership tendencies toward the district administrators because I had no line authority (Leadership Journal, February 23, 2010).

Leadership Evaluation

My evaluation of self and how others perceived my leadership during this action research project was measured by utilizing the Leadership Practices Inventory (LPI) designed by Kouzes and Posner (2003). The Leadership Practices Inventory was a copyrighted document. I emailed Kouzes and Posner to seek permission to utilize this tool for my action research project. The authors granted me permission free of charge to use and replicate the inventory with the proviso that this instrument was used for research purposes only. In addition, the document could not be sold or used in conjunction with any compensated management development activities. The copyright of the Leadership

Practices Inventory would be retained by Kouzes Posner International, and that the copyright statement ―Copyright © 2005 James M. Kouzes and Barry Z. Posner. All rights reserved. Used with permission‖ would be included on all copies of the instrument; that one electronic copy of the dissertation, and one copy of all papers, reports, articles, and the like which make use of the Leadership Practices Inventory data would be sent promptly to the authors' attention; and I agreed to allow an abstract of the study, and any other published papers utilizing the LPI, be included on various Kouzes and Posner International websites (see Appendix J).

This tool was designed to provide me with data regarding my leadership behavior and how others perceive my leadership behaviors. The Leadership Practices Inventory measured my usage level of transformational leadership practices. My authentic leadership theory in use was inclusive of the transformational leadership practices of individualized consideration, intellectual stimulation, and inspirational motivation. These transformational practices are related to Kouzes and Posner' five transformational leadership behaviors such as: *Challenge the Process, Inspire a Shared Vision, Enable Others to Act, Model the Way, and Encourage the Heart).* Individualized consideration fundamentally correlated with the LPI leadership behavior of *Enabling Others to Act*. My transformational leadership behavior required me to understand the individual differences of the study participants' levels of technology capacity, enhance their instructional leadership skill sets, and modify the training modules to meet the needs of the individual participants. My transformational leadership practice of intellectual stimulation correlated with the LPI leadership behaviors of *Model the Way and Encourage the Heart.* This leadership practice was reflective of my encouraging the participants to give voice to

their perceptions and needs for technology growth and effective integration into the curriculum. I created an environment for reflection and collaborative cooperation with the participants and the District Technology Committee to develop, implement and assess the professional development modules and their impact upon the participants. It was evident that my transformational leadership impacted the participants' technology capacity by improving their confidence and competence in recognizing effective technology integration. This was revealed when reviewing the participants and the District Technology Committee's comments during the focus groups, interviews, and committee planning meetings. Inspirational motivation correlated the LPI leadership behaviors of *Inspire Shared Vision and Challenge the Process.* This leadership practice was reflective of my creating the vision and purpose through collegial and motivational activities with the District Technology Department to gain their commitment for the development and implementation of this change process. I used the initial focus group meeting with the participants to inspire their vision to challenge the norm of minimal technology utilization and integration. My ongoing inspiration and motivation of the participants was realized through subsequent surveys, interviews, and a final group meeting that revealed comments expressing the critical need to provide continued professional development, best practices, and technology department support to ensure the continuation of the change process.

The Leadership Practices Inventory (LPI) tool allowed the participants to provide me with an analysis of my transformational leadership practices in an anonymous format as compared to my perception of my leadership theory in use. It was important for me to understand that the LPI was not measuring my management skills, my leadership style,

my IQ or personality. The LPI permitted multiple raters or observers to give feedback about my personal use of the five leadership practices: *Challenge the Process, Inspire a Shared Vision, Enable Others to Act, Model the Way, and Encourage the Heart).*

According to Kouzes and Posner (2003) an effective instrument needed sound psychometric properties—reliability and validity. Reliability was determined when the instrument measured what it was supposed to measure, and validity was determined when it accurately predicted performance. The authors conducted a number of tests during the development of the instrument to determine whether it consisted of sound psychometric properties and the following was found:

- The LPI is internally reliable. This meant that the six statements pertaining to each leadership practice was highly correlated with one another. Reliability of the LPI was tested through analysis of internal reliability. All five leadership practices had consistently strong internal reliability coefficients, for both the Self and Observers formats. Cronbach alpha coefficients greater than .70 are generally regarded as very good.
- Test-retest reliability is high**.** This meant that comparing scores from one administration of the LPI to another within a short time span (a few months) and without a significant intervening event (such as a leadership-training program) the results should be consistent and stable.
- The five scales are generally independent (statistically orthogonal). This meant that the five scales—corresponding to the five leadership practices—do not all measure the same phenomenon. Instead, they measured five *different* leadership practices, as they should.

- The LPI has both face validity and predictive validity. The "Face validity" meant that the results made sense to people. "Predictive validity" meant that the results were significantly correlated with various performance measures, and could be used to make predictions about leadership effectiveness. (p. 6)

The Leadership Practices Inventory (LPI) instrument contained 30 statements (six statements measuring each of the five leadership practices). Each statement has a 10-point Likert scale. A higher value represented a greater use of a leadership behavior (i.e., (1) almost never, (2) rarely, (3) seldom, (4) once in a while, (5) occasionally, (6) sometimes, (7) fairly often, (8) usually, (9) very frequently, and (10) almost always). There were two forms of the Leadership Practices Inventory that were used in this study. The two forms (LPI-Self and LPI-Observer) differed only in whether the respondent indicated the behavior described (LPI-Self) or a person observing the respondent indicated the behavior described (LPI-Observer). The LPI-Observer confirmed or contradicted leadership characteristics and increased the objectivity rating of LPI-Self scores. Because of this, Posner and Kouzes (1988) cautioned against interpreting LPI-Self scores independent of LPI-Observer scores. Scores can range from six to sixty and were reported by indicating an average for each observer category.

The eleven people selected as observers consisted of the five study participants identified as co-workers, members of the technology committee identified as direct reports, and one individual who was a direct report to me at my previous position as principal. I believed that these people would have the opportunity to objectively measure how often I engaged in each of the thirty behaviors which were related to the five leadership practices. The Leadership Practices Inventory was sent to the eleven

individuals electronically during the month of February, 2010 along with an e-mail requesting their feedback regarding my leadership practices during the change project. All participants were reminded that their responses to the inventory were completely anonymous and voluntary.

Leadership Practices Inventory Analysis and Discussion

A computer-generated LPI feedback report was provided for me to review and reflect upon. The data results were analyzed, and discussed based upon the use of the following five leadership practices: *Model the Way, Inspire a Shared Vision, Challenge the Process, Enable Others to Act, and Encourage the Heart (*Kouzes & Posner, 2002). I distributed eleven inventories and nine were processed, which indicated an 82% response rate. There was one co-worker and one direct report who did not complete the inventory as revealed in the feedback report.

According to Kouzes and Posner (2002) each of the five leadership practices consisted of two related commitments. The following provided an overview of the five practices, their related commitments, and the data results from the inventory:

Model the way. Evidence of authenticity needed to be evident with all stakeholders within the organization. When a leader showed and voiced a passion for their beliefs their authentic behavior was easily recognizable to others. Leaders needed to model what they preached and always lead by example. Kouzes and Posner (2002) identified modeling the way as "essentially about earning the right and the respect to lead through direct individual involvement and action" (p. 15).

***Commitment one: clarify values*.** The initial manner in modeling the way was for the leader to have a clear understanding of their personal values. Individuals who lacked clarity about their belief system often considered career changes due to a lack of organizational loyalty. Effective leaders needed to articulate their strongly held beliefs to others in order to affect sound leadership actions and decisions. Kouzes and Posner (2002) stated, "You can't believe in the messenger if you don't know what the messenger believes" (p. 48).

***Commitment two: set the example*.** When the leader's actions and decisions were coupled with a strong value system, the followers were provided with concrete evidence of a system of core values, beliefs, and norms which helped to guide and shape the organization toward achieving a high level of commitment.

The results for this leadership behavior revealed I gave myself a conservative numerical raw score of 49 (see Appendix K) that indicated I was in the moderate percentile range as shown in (see Appendix L). The observer group of direct reports gave me a score of 55.4 (see Appendix K) and the observer group of co-workers gave me a score of 55.3 (see Appendix K) which were both in the high percentile level as shown in (see Appendix L). My strengths were that I consistently fulfill promises and commitments. I promoted adherence to agreed principles and standards. I am clear about my philosophy of leadership. An identified opportunity as noted in the Leadership Behaviors Ranking (see Appendix M) was to ask for feedback concerning my actions affect on stakeholders' performance.

Inspire a Shared Vision. Promoting a shared vision was essential for effective leadership. Leaders must be cognizant of existing challenges and envision future

opportunities. Self-motivated leaders who maintain high expectations for themselves and others were most suitable to inspire their followers.

***Commitment three: envision the future*.** Organizational success was achieved when the leader introduced innovative opportunities to create a common vision. Proactive leadership enabled the organization to envision achievable opportunities. A high level of commitment and purpose could be promoted when the leader voices a shared vision.

***Commitment four: enlist others*.** Leaders needed to effectively teach and communicate their vision to others. Members of the organization needed to understand and accept the vision in order to achieve great success. Leaders accomplished this by listening to others and being sensitive to their needs. They needed to find the common bond that linked the stakeholders of the organization together to gain their trust and commitment.

My conservative numerical raw score of 45 (see Appendix K) indicated that I rated myself in the moderate percentile range as shown in (see Appendix L). The observer group of direct reports and co-workers each gave me a score of 54.9 (see Appendix K) which were both in the high percentile level as shown in (see Appendix L). My strengths were that I appealed to others to share an exciting dream of the future. I painted the big picture of what we aspire to accomplish. An identified opportunity indicated I needed to describe a compelling image of what our future could be like and I needed to show others how their long-term interests can be realized by enlisting in a common vision as noted in the Leadership Behaviors Ranking (see Appendix M).

Challenge the process. Exemplary leadership required administrators to provide opportunities for members of an organization to be creative, grow professionally, and

improve upon their current performance. Leaders needed to embrace risk-taking and accept intelligent mistakes as a means of leadership improvement, and not succumb to complacency.

***Commitment five: search for opportunities*.** Effective leaders made things happen by exhibiting pro-active strategies which encouraged others to emulate their leader. It was critical for leaders to accept critical feedback from those within or outside of the organization while creating meaningful opportunities of success for others.

Commitment six: experiment and take risks. Effective leaders needed to understand that they must learn from their mistakes and provide an environment for others to take risks. This behavior promoted a sense ownership and commitment among stakeholders when they were given an opportunity to also take risks, make mistakes, and then devise a plan of action to move forward toward success.

I gave myself a conservative numerical raw score of 44 (see Appendix K) that fell in the moderate percentile range as shown in (see Appendix L). The observer group of direct reports gave me a score of 53.6 (see Appendix K) and the observer group of co-workers gave me a score of 53.5 (see Appendix K) which were both in the high percentile level as shown in (see Appendix L). My strengths were I searched outside the formal boundaries of my department for innovative ways to improve what we do and I asked, "What can we learn when things do not go as expected?" Achievable goals are set along with concrete plans, and I established measurable milestones for projects and programs that we work on. An identified opportunity for me was to experiment and take risks, even when there is a chance of failure as noted in the Leadership Behaviors Ranking (see Appendix M).

Enable others to act. Enabling leaders encouraged and accepted various points of view as they facilitated in providing an environment where stakeholders had the freedom to complete the assigned tasks based upon their capacity level. When the leader supported the decisions made by the stakeholders, this enabled them to become empowered to grow through new experiences and opportunities.

***Commitment seven: foster collaboration*.** An effective leader who fostered collaboration must create a strong foundation of trust within the organization. When leaders built trust they provided a positive work environment for others to produce completed projects. Stakeholders were generally more creative and task oriented when the leadership cultivated an atmosphere for teamwork. These actions allowed the leader to promote an environment of shared leadership and dependency upon one another.

***Commitment eight: strengthen others*.** Encouraging others to lead needed to be at the forefront of any high performing teams. Leaders realized that the more power they gave away, the more power they acquired. Distributed leadership promoted job satisfaction and performance. Leaders who empowered others to lead fostered a sense of accountability, creativity, and an increased level of commitment and trust.

I gave myself a fairly high numerical raw score of 52.0 (see Appendix K) which again placed me in the moderate percentile range as shown in (see Appendix L). The observer group of direct reports gave me a score of 56.4 (see Appendix K) and the observer group of co-workers gave me a score of 55.8 (see Appendix K) which were both in the high percentile level as shown in (see Appendix L). My strengths were I treated others with dignity and respect and supported the decisions that individuals made on their

own. I ensured that people grew in their positions by learning new skills and developing themselves as noted in the Leadership Behaviors Ranking (see Appendix M).

Encourage the heart. Effective leaders nurtured, comforted and celebrated individuals and their contributions made toward the organization's vision and goals Leaders led with supportive actions to help others improve upon their weaknesses and build upon strengths. This behavior allowed them to stimulate individuals to satisfactorily perform various tasks whether they faced times of success or chaos.

***Commitment nine: recognize contributions*.** It was critical for the leader to recognize contributions, after establishing a clear set of standards. When the leader expressed clear and coherent standards this allowed individuals to focus on the task at hand and experience a high level of performance. Successful leaders provided feedback with the understanding that they also expected high performing results and that their individual/team contributions are appreciated toward achieving the organization goals. An effective leader consistently exhibited a level of care for all stakeholders and building trust.

My numerical raw score of 53.0 (see Appendix K) was the highest ranked behavior and which placed me in the high percentile range as shown in (see Appendix L). The observer group of direct reports gave me a score of 58.0 (see Appendix K) and the observer group of co-workers gave me a score of 57.5 (see Appendix K) which were both in the high percentile level as shown in (see Appendix L). My strengths included I praise people for a job well done, recognize people who exemplify commitment to shared values, and find ways to celebrate accomplishments. An identified opportunity was I

needed to make it a point to let people know about my confidence in their abilities as noted in the Leadership Behaviors Ranking (see Appendix M).

The results of the inventory confirmed my perceptions of self as an authentic transformational leader. This was quite evident when assessing the responses of the study participants and my direct reports. Their average rating in all leadership behavior categories were within the high percentile range. My personal scoring was lower with the majority of the ratings falling within the moderate percentile range as shown in (see Appendix L). I noted in my journal how satisfying and rewarding it was to receive validation from others that my espoused leadership was in alignment with my inventory results (Leadership Journal, February 25, 2010).

My self-reflection and analysis of my leadership throughout this action research project has enabled me to better understand the change process. My role as an agent of change, and my ability to analyze and respond to the myriad of organizational changes within my school district was directly related to the knowledge gleaned from my doctoral studies and research project. The final chapter of this research project is completed with an analysis of the research questions as related to the cycle activities, my leadership impact, project limitations, and future recommendations.

Chapter 10

Research Question Analysis and Recommendations

Analysis of Research Questions

The activities in cycle one were elemental in answering the initial research question *what major needs do urban school principals encounter while attempting to implement technology utilization within their schools.* I utilized a team approach by encouraging the District Technology Department to participate in a District Technology Committee. This approach is representative of my authentic transformational leadership practices which incorporated ongoing dialogue and evaluation of a validated assessment tool. This process was utilized to identify and plan for the needs of the principals as technology instructional leaders. According to Stowell and Mead (2007), "Whenever an individual accomplishes something spectacular, it is rarely ever done without the support, effort, and commitment of other people" (p. 27). This team approach was utilized in order to provide a professional development program to increase the principals' personal technology capacity and enhance their instructional leadership skills. Stowell and Mead (2007) expressed, "A team provides an environment that empowers people to maximize their performance" (p. 7). Five planning sessions were held with the District Technology Committee in order to identify the needs for the project development and implementation. I believed that by exhibiting my authentic transformational Leadership practices, I was able to facilitate in establishing a team of committed individuals who were exposed to a purposeful and meaningful experience of aiding in building the capacity of others.

I acquired needed data and analyzed the technology needs of the District's principals by utilizing a validated assessment tool. The analysis of the quantitative and qualitative data elicited the initial need for building the principals' instructional leadership capacity in order to affect the change process in their building towards improving technology integration across the curriculum. I facilitated in the development and implementation of a series of technology trainings for the participants to build their technology capacity which addressed the second theme of ongoing professional development. The third major need surfaced when the principals discussed the technology barriers regarding resources, the physical, and external influences. The final major theme was uncovered when the data indicated the need for increased technology usage by the principal at the instructional and managerial level on a daily basis. These needs for the instructional leaders were revisited within the research project through focus group dialogue, interviews, and surveys.

The activities in cycle two were fundamental in answering the second research question about *how will a structured technology professional development program for principals build their capacity to integrate technology within their school building.* My authentic servant leadership practices enabled me to work collaboratively with the District Technology staff to develop and implement a series of four structured professional development modules designed to increase the participants' technology capacity and integrate technology within their school building. I collected rich qualitative and quantitative data utilizing an initial focus group meeting, observing participants during training, and formative surveys which enabled me to analyze the participants' perceptions regarding their professional development experiences concerning technology

infusion. The data revealed the need to have ongoing consistent professional development with a focus of increasing the principals' technology instructional leadership capacity to encourage sustained change in their buildings. The participant's comments within the context of the focus group dialogue and interviews revealed that the professional development enabled them to develop confidence in the utilization of technology, awareness of technology integration in classroom settings, and the enhancement of their ability to motivate their staff.

The third research question focused on *how do my authentic instructional leadership behaviors facilitated and encouraged school administrators in utilizing technology skills acquired from professional development training* during the action research project. My authentic leadership allowed me to consider how my leadership behaviors at the district and school levels necessitated my working collaboratively to create a *vision* for the future and a process for change by facilitating in creating a learning environment that was purposeful and meaningful for all stakeholders. The focus on the purpose and direction of the organization (as a strategy for change work) is to ensure the long-term stability and quality of the educational program As an agent of change, my role as an authentic leader provided the consideration needed to work collaboratively with the Technology Team to develop the project *purpose* for fostering instructional leadership to meet the needs for technology integration into the curriculum. The professional development provided during the applied research was evident of my quality leadership for developing the *capacity* of the principals to equip them with the necessary skills to return to their schools and demonstrate instructional leadership in the usage of technology

across the curriculum. The principals needed to become the motivating role model for expediting technology changes (Fullan, 2007; Schwahn & Spady, 1998; Senge, 1990).

Fullan (2007) indicated that planning for change often fails when one does not take into consideration the local context and culture. When I prepared for the implementation of my project, I was cautious not to assume that the selected participants were going to have the same capacity to successfully navigate through the steps of the change process. I did not assume that all of the participants could achieve the same level of personal success and were able to turnkey the learned skills within their learning community. However, my service leadership practices for the orchestration of sustained change provided a pillar of *support f*or the participants to provide an environment which allowed each principal to give voice to the realities of their school culture and educational imperatives for technology integration. I believed that my cultural leadership in use fostered the enrollment of the participants in the change process for them to accept the pillar of *ownership* through their participation in focus group activities and interviews. These activities enabled the participants to share implementation issues and helped to motivate them to utilize their technology training to foster change in their schools (Fullan, 2007; Schwahn & Spady, 1998; Senge, 1990).

Achieving this goal required the utilization of socially based and action oriented activities. Building a collaborative relationship between the technology department, and the participating principals was key to the success of this project. Ongoing dialogue took place in the form of focus group interviews, surveys and professional development sessions. I had the opportunity to work very closely with the technology department, which enabled my colleagues and I to collegially develop and execute training modules

to meet the individual needs of the selected administrators. It was my intent to engage all participants in the building of trust and provide clear communication as they worked together to build their technology capacity and strengthen internal/external accountability (Fullan, 2007; Schwahn & Spady, 1998; Senge, 1990).

The final research question identified *what are the best practices for fostering instructional technology leadership in urban schools?* Analyzing the best practices that were revealed in my action research project allowed me to recognize that they were in alignment with the ISTE 2009 Standards for Administrators (see Appendix N). The initial process for principals to foster technology integration in their schools was to facilitate in the development of a shared vision. This process involved authentic leadership practices focused on transformational aspects of intellectual stimulation, inspire others to act, and foster a collegial environment of trust. The evidence of this within the action research project was reflected in the partnership developed with the District Technology department to explore and implement a change process based upon the vision of increasing the technology capacity and instructional leadership of the district's principals.

Effective planning of activities and dynamics of the change process was also an essential element of instructional leadership. The principal must engage in leadership practices that allowed all stakeholders to be involved in the development, implementation and the assessment of the technology plan that is in alignment with their technology vision. The participant's reflections and responses within the final focus group meeting and the interviews revealed that their technology training provided them with the competencies and focus to implement technology integration plans within their schools

involving all stakeholders through committee efforts (Fullan, 2007; Kotter 1997; Schwahn & Spady, 1998; Senge, 1990).

Empowering leaders and all stakeholders to be accountable and accept ownership of the technology change process was a noted best practice revealed in the ISTE standards and other research. The implementation of my initial focus group meeting and the initial participation survey enabled the participants to become enrolled in the process, gave voice to their concerns, and encouraged dialogue which enhanced their commitment. The final focus group dialogue revealed that the participants' had indeed taken ownership of the change process and had encouraged their stakeholders to become involved in technology change (Fullan, 2007; Kotter, 1997; Schwahn & Spady, 1998; Senge, 1990).

Principals must be provided with ongoing professional development to build their technology capacity and develop effective instructional leadership strategies. It was crucial that the instructional leaders have technology proficiency to enable them to recognize, communicate, model, and evaluate effective technology strategies in the classroom. Time barriers for this training process must be addressed through policy and negotiation to prevent a significant hindrance to the training needed for the success of the change process. Within my action research project, I was allotted the time necessary to implement the professional development modules for a select number of principals (Fullan, 2007; Senge, 1990; Kotter, 1997; Schwahn & Spady, 1998).

Limitations

The number of study participants was limited due to the small sample size of no more than six principals. The small sample size of this study did not allow for the results to be generalized. The criteria for selecting the participants were based upon the need for technology professional development as evidenced by the results of the *Level of Technology Innovation Digital-Age Survey* (LoTi) and their willingness to participate. Central administration did not mandate that all principals needed to complete the LoTi survey. This also limited the pool of potential study participants. The study also excluded other district administrators such as supervisors, vice principals, and directors. The gender, age, and ethnicity of the study participants was limited due to those who qualified to participate in the study after taking the LoTi survey were female and African-American respectively.

Future Recommendations

Future recommendations needed to sustain and facilitate the continuation of the technology change process encompassed a number of essential elements. Adequate professional development of administrators and teachers is an ongoing aspect of the change process. The instructional leaders need to reflect and evaluate their leadership styles. Provide adequate and frequent communication regarding the change vision. Encourage community involvement in sustaining the change process, and seek adequate funding for technology resources.

It would be beneficial if a cross section of the district administrators be included to continue the change process by facilitating the enrollment of a broader segment of the

district's instructional leaders. Extending this action research to all school district administrators is needed to enhance and sustain the change process. Providing principals with the necessary professional development in the area of technology can hopefully result in changing their belief system regarding their usage of technology and motivate others in their learning environment. Building leadership capacity among the instructional staff is critical to ensuring the sustainability of the desired change for the students and staff. Capacity building also results in a more motivated person who has acquired the necessary skills in order to establish change within their context. Professional development of administrators initiated the technology change process, however, the teaching staff will need ongoing professional development to affect needed changes in technology integration. The need to build leadership capacity among the administrators and the teaching staff can aid in closing the achievement gap with at risk students (Fullan, 2007; Senge, 1990; Kotter, 1997; Schwahn & Spady, 1998).

An analysis of the principals' perceptions regarding their leadership-in-use was not included in this research. Evaluating their leadership style could be beneficial in assessing their instructional leadership needs which can have a significant impact on the change process within their learning community. This plan of action may result in changing their belief system regarding their leadership theory in use and its impact on motivating others in their learning environment. Building leadership capacity among the instructional staff is critical to ensuring the sustainability of the desired change for the students and staff. Capacity building also results in a more motivated person who has acquired the necessary skills in order to establish change within their context (Fulllan, 2007). Changing individuals' beliefs, knowledge, or attitudes requires careful planning

by the leaders responsible for the change process. The change process provides an opportunity to improve the educational institution by making teaching and learning better for all parties involved (Fullan, 2007; Kotter, 1997; Schwahn & Spady, 1998; Senge, 1990).

Establishing partnerships with the community to communicate the vision and foster support for resources and gain commitment to the change process was a needed condition for sustained change. Technology applications can increase and improve the communication ties between the school and parent. The effective usage of technology can also improve student's learning at home and provide parents with a voice in the learning process of their children. The selected principals have the opportunity to engage parents and community members in technology capacity building by inviting them into the school labs for training and/or mentoring. Community members can also be a source of funding and expertise in partnering with the school's commitment to decrease the digital divide and increase student achievement. According to Fullan (2007), "Educators have to go out into their communities with, empathy, and interact meaningfully with their constituents. Being professional can no longer mean remaining isolated in the school" (p. 190).

Sustaining the change process for advocating technology integration must be supported with adequate funding. A collaborative process involving central administration, school leaders, and the community is needed to research and acquire funding resources. Future studies are needed to focus on viable processes and sources of funding to ensure that effective technology integration in the classroom is not derailed due to a lack of resources.

Conclusion

My research project was a catalyst of my action plan for change and enabled me to enhance my leadership skills while building the capacity of others. As an administrator who exercised authentic leadership practices, I acutely diagnosed the needs of the study participants and worked very closely with the District Technology Committee to optimize each individual's potential in order to affect change within the district. I believed that building principals' leadership capacity through my research project equipped them with the skills needed to grow and develop into effective change agents within their respective learning environments. This was predicated upon my ability to provide a learning environment conducive to collaboration, communication, risk-taking and innovation (Avolio & Gardner, 2005; Ciulla, 2003; Endrissat & Mueller, 2006).

The art of daily reflection about my life's experiences, positive or negative, enabled me to celebrate my successes and learn from my mistakes. As I continued my doctoral journey, I understood the value of ongoing self-reflection and gleaning the participant's and my direct reports' perceptions regarding my leadership practices. Engaging in this process continued to empower me to build a strong foundation of trust, service, and partnership with all stakeholders I served. Wheatley (2006) notes,

> Like all journeys, this one moves through both the dark and the light, the terrors of the unknown and the joys of deep recognition. Some shapes and landmarks are already clear others wait to be discovered. No one can say where the journey is leading. But the relationship promises to be fruitful. (p. 168)

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Appendix A

Levels of Technology Innovation Digital-Age Framework

Loti Framework

Level 0:Non-use

At a Level 0 (Non-Use), the instructional focus ranges anywhere from a traditional direct instruction approach to a collaborative student-centered learning environment. The use of research-based best practices may or may not be evident, but those practices do not involve the use of digital tools and resources. The use of digital tools and resources in the classroom is non-existent due to (1) competing priorities (e.g., high stakes testing, highly-structured and rigid curriculum programs), (2) lack of access, or (3) a perception that their use is inappropriate for the instructional setting or student readiness levels. The use of instructional materials is predominately text-based (e.g., student handouts, worksheets).

Level 1:Awareness

At a Level 1 (Awareness), the instructional focus emphasizes information dissemination to students (e.g., lectures, teacher-created multimedia presentations) and supports the lecture/discussion approach to teaching. Teacher questioning and/or student learning typically focuses on lower cognitive skill development (e.g., knowledge, comprehension).

Digital tools and resources are either (1) used by the classroom teacher for classroom and/or curriculum management tasks (e.g., taking attendance, using grade book programs, accessing email, retrieving lesson plans from a curriculum management system or the Internet), (2) used by the classroom teacher to embellish or enhance teacher lectures or presentations (e.g., multimedia presentations), and/or (3) used by students (usually unrelated to classroom instructional priorities) as a reward for prior work completed in class.

Level 2:Exploration

At a Level 2 (Exploration) the instructional focus emphasizes content understanding and supports mastery learning and direct instruction. Teacher questioning and/or student learning focuses on lower levels of student cognitive processing (e.g., knowledge, comprehension). Digital tools and resources are used by students for extension activities, enrichment exercises, orinformation gathering assignments that generally reinforce lower cognitive skill development relating to the content under investigation. There is a pervasive use of student multimedia products, allowing students to present their content understanding in a digital format that may or may not reach beyond the classroom.

Levels of Technology Innovation Digital Framework

Level 3:Infusion

At a Level 3 (Infusion), the instructional focus emphasizes student higher order thinking (i.e., application,analysis, synthesis, evaluation) and engaged learning. Though specific learning activities may or may not be perceived as authentic by the student, instructional emphasis is, nonetheless, placed on higher levels of cognitive processing and in-depth treatment of the content using a variety of thinking skill strategies (e.g., problem-solving, decision-making, reflective thinking, experimentation, scientific inquiry).Teacher-centered strategies including the concept attainment, inductive thinking, and scientific inquiry models of teaching are the norm and guide the types of products generated by students.Digital tools and resources are used by students to carry out teacher-directed tasks that emphasize higher levels of student cognitive processing relating to the content under investigation

Level Description

Level 4a:Integration

(Mechanical)

At a Level 4a (Integration: Mechanical) students are engaged in exploring real-world issues and solving authentic problems using digital tools and resources; however, the teacher may experience classroom management (e.g., disciplinary problems, internet delays) or school climate issues (lack of support from colleagues) that restrict full-scale integration. Heavy reliance is placed on prepackaged materials and/or outside resources (e.g., assistance from other colleagues), and/or interventions (e.g., professional development workshops) that aid the teacher in sustaining engaged student problem-solving. Emphasis is placed on applied learning and the constructivist, problem-based models of teaching that require higher levels of student cognitive processing and in-depth examination of the content.Students use of digital tools and resources is inherent and motivated by the drive to answer student-generated questions that dictate the content, process, and products embedded in the learning experience.

Loti Framework

Level 4b: Integration(Routine)

At a Level 4b (Integration: Routine) students are fully engaged in exploring real-world issues and solving authentic problems using digital tools and resources. The teacher is within his/her comfort level with promoting an inquiry-based model of teaching that involves students applying their learning to the real world. Emphasis is placed on learner-centered strategies that promote personal goal setting and self-monitoring, student action, and issues

resolution that require higher levels of student cognitive processing and in-depth examination of the content. Students use of digital tools and resources is inherent and motivated by the drive to answer student-generated questions that dictate the content,process, and products embedded in the learning experience.

Level 5:Expansion

At a Level 5 (Expansion), collaborations extending beyond the classroom are employed for authentic student problem-solving and issues resolution. Emphasis is placed on learner-centered strategies that promote personal goal setting and self-monitoring, student action, and collaborations with other diverse groups (e.g., another school, different cultures, business establishments, governmental agencies).Students use of digital tools and resources is inherent and motivated by the drive to answer student-generated questions that dictate the content, process, and products embedded in the learning experience. The complexity and sophistication of the digital resources and collaboration tools used inthe learning environment are now commensurate with (1) the diversity, inventiveness, and spontaneity of the teacher's experiential-based approach to teaching and learning and (2) the students' level of complex thinking (e.g., analysis, synthesis, evaluation) and in-depth understanding of the content experienced in the classroom.

Level 6:Refinement

At a Level 6 (Refinement), collaborations extending beyond the classroom that promote authentic student problem-solving and issues resolution are the norm. The instructional curriculum is entirely learner-based. The content emerges based on the needs of the learner according to his/her interests, needs, and/or aspirations and is supported by unlimited access to the most current digital applications and infrastructure available. At this level, there is no longer a division between instruction and digital tools and resources in the learning environment. The pervasive use of and access to advanced digital tools and resources provides a seamless medium for information queries, creative problem-solving, student reflection, and/or product development. Students have ready access to and a complete understanding of a vast array of collaboration tools and related resources to accomplish any particular task.

CIP Framework Intensity

Level 0

A CIP Intensity Level 0 indicates that the participant is not involved in a formal classroom setting (e.g., pull-out program).

CIP Intensity Level 1

At a CIP Intensity Level 1, the participant's current instructional practices align exclusively with a subject-matter based approach to teaching and learning. Teaching

strategies tend to lean toward lectures and/or teacher-led presentations. The use of curriculum materials aligned to specific content standards serves as the focus for student learning. Learning activities tend to be sequential and uniform for all students. Evaluation techniques focus on traditional measures such as essays, quizzes, short-answers, or true-false questions, but no effort is made to use the results of the assessments to guide instruction. Student projects tend to be teacher-directed in terms of identifying project outcomes as well as requirements for project completion. No effort is made to differentiate instruction. The use of research-based best practices focuses on basic classroom routines (e.g., providing homework and practice, setting objectives and providing feedback, students summarizing and note taking, providing adequate wait time).

CIP Intensity Level 2

At a CIP Intensity Level 2, the participant supports instructional practices consistent with a subject-matter based approach to teaching and learning, but not at the same level of intensity or commitment as a CIP Intensity Level 1. Teaching strategies tend to lean toward lectures and/or teacher-led presentations. The use of curriculum materials aligned to specific content standards serves as the focus for student learning. Learning activities tend to be sequential and uniform for all students. Evaluation techniques focus on traditional measures such as essays, quizzes, short-answers, or true-false questions with the resulting data used to guide instruction. Student projects tend to be teacher-directed in terms of identifying project outcomes as well as requirements for project completion. No effort is made to differentiate instruction. The use of research-based best practices focuses on basic classroom routines (e.g., providing homework and practice, setting objectives and providing feedback, students summarizing and note taking, providing adequate wait time).

CIP IntensityLevel 3

At a CIP Intensity Level 3, the participant supports instructional practices aligned somewhat with asubject-matter based approach to teaching and learning. An approach characterized by sequential and uniform learning activities for all students, teacher-directed presentations, and/or the use of traditional evaluation techniques. However, the participant may also support the use of student-directed projects that provide opportunities for students to determine the "look and feel" of a final product based on their modality strengths, learning styles, or interests. Evaluation techniques continue to focus on traditional measures with the resulting data serving as the basis for curriculum decision-making. The use of research-based best practices expands beyond basic classroom routines (e.g., providing opportunities for non-linguistic representation, offering advanced organizers).

Levels of Technology Innovation Digital Framework

CIP Intensity Level 4

At a CIP Intensity Level 4, the participant may feel comfortable supporting or implementing either a subject-matter or learning-based approach to instruction based on **Levels of Technology Innovation Digital Framework**

the content being addressed. In a subject-matter based approach, learning activities tend to be sequential, student projects tend to be uniform for all students, the use of lectures and/or teacher-directed presentations are the norm as well as traditional evaluation strategies. In a learner-based approach, learning activities are diversified and based mostly on student questions, the teacher serves more as a co-learner or facilitator in the classroom, student projects are primarily student-directed, and the use of alternative assessment strategies including performance-based assessments, peer reviews, and student reflections are the norm.

CIP Intensity Level 5

At a CIP Intensity Level 5, the participant's instructional practices tend to lean more toward a
learner-based approach. The essential content embedded in the standards emerges based onstudents “need to know” as they attempt to research and solve issues of importance to them using critical thinking and problem-solving skills. The types of learning activities and teaching strategies used in the learning environment are diversified and driven by student questions. Both students and teachers are involved in devising appropriate assessment instruments (e.g., performance-based, journals, peer reviews, self-reflections) by which student performance will be assessed. Although student-directed learning activities and evaluations are the norm, the use of teacher-directed activities (e.g., lectures, presentations, teacher-directed projects) may surface based on the nature of the content being addressed and at the desired level of student cognition. The amount of differentiation is substantial based on the readiness level, interests, and learning styles of the students. The use of research-based best practices delves deeper into complex classroom routines (e.g., students generating and testing hypotheses, implementing cooperative learning, students identifying similarities and differences).
CIP Intensity

Level 6

The participant at a CIP Intensity Level 6 supports instructional practices consistent with alearner-based approach, but not at the same level of intensity or commitment as a CIP Intensity Level 7. The essential content embedded in the standards emerges based on students “need to know” as they attempt to research and solve issues of importance to them using critical thinking and problem-solving skills. The types of learning activities and teaching strategies used in the learning environment are diversified and driven by student questions. Students, teacher/facilitators, and occasionally parents are all involved in devising appropriate assessment instruments (e.g., performance-based, journals, peer reviews, self-reflections) by which student performance will be assessed. The amount of

differentiation is substantial based on the readiness level, interests, and learning styles of the students. The use of research-based best practices delves deeper into complex classroom routines (e.g., students generating and testing hypotheses, implementing cooperative learning, students identifying similarities and differences).

CIP Intensity

Level 7

At a CIP Intensity Level 7, the participant's current instructional practices align exclusively with a learner-based approach to teaching and learning. The essential content embedded in the standards emerges based on students “need to know” as they attempt to research and solve issues of importance to them using critical thinking and problem-solving skills. The types of learning activities and teaching strategies used in the learning environment are diversified and driven by student questions. Students, teacher/facilitators, and occasionally parents are all involved in devising appropriate assessment instruments (e.g., performance-based, journals, peer reviews, self-reflections) by which student performance will be assessed. The amount of differentiation is seamless since students completely guide the pace and level of their learning. The use of research-based best practices delves deeper into complex classroom routines (e.g., students generating and testing hypotheses, implementing cooperative learning, students identifying similarities and differences).

PCU Level Description

PCU Level Intensity Level 0

A PCU Intensity Level 0 indicates that the participant does not possess the inclination or skill level to use digital tools and resources for either personal or professional use. Participants at Intensity Level 0 exhibit a general disinterest toward emerging technologies relying more on traditional devices (e.g., use of overhead projectors, chalkboards, paper/pencil activities) than using digital resources for conveying information or classroom management tasks.

PCU Intensity Level 1

A PCU Intensity Level 1 indicates that the participant demonstrates little fluency with using digital tools and resources for student learning. Participants at Intensity Level 1 may have a general awareness of various digital tools and media including word processors, spreadsheets, or the internet, but generally are not using them. Participants at this level are generally unaware of copyright issues or current research on the impact of existing and emerging digital tools and resources on student learning.

Levels of Technology Innovation Digital Framework

PCU Intensity Level 2

A PCU Intensity Level 2 indicates that the participant demonstrates little to moderate fluency with using digital tools and resources for student learning.Participants at Intensity Level 2 may occasionally browse the internet, use email, or use a word processor program; yet, may not have the confidence or feel comfortable using existing and emerging digital tools beyond classroom management tasks (e.g., grade book, attendance program). Participants at this level are somewhat aware of copyright issues and maintain a cursory understanding of the impact of existing and emerging digital tools and resources on student learning.

PCU IntensityLevel 3

A PCU Intensity Level 3 indicates that the participant demonstrates moderate fluency with using digital tools and resources for student learning. Participants at Intensity Level 3 may begin to become regular users of selected digital-age media and formats (e.g., internet, email, word processor, multimedia) to (1) communicate with students, parents, and peers and (2) model their use in the classroom in support of research and learning. Participants at this level are aware of copyright issues and maintain a moderate understanding of the impact of existing and emerging digital tools and resources on student learning.

PCU Intensity Level 4

A PCU Intensity Level 4 indicates that the participant demonstrates moderate to high fluency with using digital tools and resources for student learning. Participants at Intensity Level 4 commonly use a broader range of digital-age media and formats in support of their curriculum and instructional strategies. Participants at this level model the safe, legal, and ethical uses of digital information and technologies and participate in local discussion forums that advocate the positive impact of existing digital tools and resources on student success in the classroom.

PCU Intensity Level 5

A PCU Intensity Level 5 indicates that the participant demonstrates a high fluency level with using digital tools and resources for student learning. Participants at Intensity Level 5 are commonly able to use an expanded range of existing and emerging digital-age media and formats in support of their curriculum and instructional strategies. Participants at this level advocate the safe, legal, and ethical uses of digital information and technologies and participate in local and global learning that advocate the positive impact of existing digital tools and resources on student success in the classroom to extremely high fluency level with using digital tools and resources for student learning.

Levels of Technology Innovation Digital Framework

PCU Intensity Level 6

Participants at Intensity Level 6 are sophisticated in the use of most, if not all, existing and emerging digital-age media and formats (e.g., multimedia, productivity, desktop publishing, web-based applications). They begin to take on a leadership role as advocates for technology infusion as well as the safe, legal, and ethical uses of digital resources in the schools. Participants at this level continually reflect on the latest research discussing the impact of digital tools on student success.

PCU Intensity Level 7

A PCU Intensity Level 7 indicates that the participant possesses an extremely high fluency level with using digital tools and resources for student learning. Participants at Intensity Level 7 are sophisticated in the use of any existing and emerging digital-age media and formats (e.g., multimedia, productivity, desktop publishing, web-based applications). Participants at this level set the vision for technology infusion based on the latest research and continually seek creative uses of digital tools and resources that impact learning. They actively participate in global learning communities that seek creative uses of digital tools and resources in the classroom.

Appendix B

Action Research Letter of Participation For Principals

DATE:

TO: _____, Principal of

_____School

FROM: Joyous D. Carey, Principal

SUBJECT**:** **Action Research Project**

I have received Board approval to conduct an action research study in the Urban City School District in partial fulfillment of the requirements for my Doctoral Program at Rowan University, Glassboro, NJ. The focus of my study is to help identify the principals' level of technology proficiency and to address staff development needs required to become effective instructional leaders in implementing technology across the curriculum within your setting. The title of my research is ***"Building Instructional Leadership Capacity for Technology Integration."***

This action research project will involve your participation in professional development training modules provided by the School District's Technology Department staff. It is intended that as a result of the research study, a series of technology professional training modules will be designed and implemented. I will collect data by surveys, conducting interviews, and focus group meetings. There will be four Professional development training sessions titled ***"Techie Tuesdays for Principals"*** provided from April, 2009-August, 2009. Training modules will be held on selected Tuesday afternoons from 2:00pm-4:00pm at the Technology Center. I anticipate no more than two separate focus groups and interview sessions Each interview and focus group meeting will meet for no more than one hour to reflect upon

your needs and progress toward integrating technology into the curriculum as an instructional leader.

I trust you will decide to participate in this research study. According to ISLLIC Standard #2, administrators must acquire knowledge and understanding of the role of technology in promoting student learning and professional growth. I am confident that your participation in this study will provide you with valuable technology professional development and enhance your instructional leadership capacity.

Attached is the Participant Consent Form. Please read it thoroughly to ensure that you completely understand all the information included in the form. Your participation in this research is completely voluntary. You can end your participation at any time during the research. Included in the form is the telephone number for Dr. James Coaxum, Department Chair Person or the Educational Leadership Department at Rowan University @ (856)-256-4779. You can call him if you should have any questions. You can also call me with questions at (c) 856-986-9990 (w) or 856-966-4760.

Please be assured that your name and any other identifiers will not be published. If you decide to participate, and I trust you will consider my request, please return the *Principal's Participant Consent Form* to me with your signature and fax it to 856-963-8274 on or before _____. You will receive a follow-up phone call and/or E-mail if you have not responded by the requested date. If you should have any additional questions, feel free to call me. Thank you in advance for your consideration.

Educationally yours,

Ms. Joyous D. Carey

Appendix C

Action Research Participant Consent Form For Principal

Interviews/Focus Group Meetings

Title: **Building Instructional Leadership Capacity ForTechnology Integration**

Principal Researcher: Joyous D. Carey

Doctoral Student
Department Educational Leadership
Rowan University
(W) 856-966-4760
(C)) 856-986-9990

PROTOCOL

The purpose of this action research project is to investigate and describe the role, actions, and practices of school District principals who are engaged in the implementation of technology integration within their school programs. You are being invited to participate in this action research project with colleagues who are also involved in the implementation of technology in their schools.

DESCRIPTION OF INTERVIEW/FOCUS GROUP PROCEDURES

If you agree to participate in this action research project, your participation will require you to respond to participate in interviews and focus group meetings involving issues related to the technology program in your school. Each session will be audio-taped and should take no longer than 45 minutes. Your responses to these interview/focus group questions will be confidential and the audio tapes will be used for transcription purposes and the data will be destroyed once the project has been completed.

BENEFITS

If you decide to participate in this action research project, you will have the benefit of providing input by reflection and discussion concerning the technology program and integration in your school. It is hoped that the information gained in this action research

project will benefit educational practitioners and preparatory institutions by providing examples of effective technology implementation practices.

COSTS AND COMPENSATION

You will not have any costs from participating in this action research project. You will not be compensated for participating in this action research project.

PARTICIPANT RIGHTS

Your participation in this action research project is completely voluntary and you may refuse to participate or leave the interview or focus group at any time. If you decide not to participate in the interview or leave the interview or focus group early, it will not result in any penalty or loss of benefits to which you are otherwise entitled. You will have the right to edit any and all raw data collected. Each of you will also be given free access to individual and focus group interviews in which you have directly participated.

CONFIDENTIALITY

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. To ensure confidentiality to the extent permitted by law, pseudonyms will be used for each participant.

SUBJECT SIGNATURE

Your signature indicates that you voluntarily agree to participate in this action research project, that the project has been explained to you, that you have been given the time to read the document and that your questions have been satisfactorily answered. You will receive a copy of the signed and dated written informed consent prior to your participation in the action research project

Subject's Name (printed) _____

(Subject's Signature) _____ **(Date)**

PARTICIPANT'S STATEMENT

I certify that the participant has been given adequate time to read and learn about the ACTION RESEARCH PROJECT and all of their questions have been answered. It is my opinion that the participant understands the purpose, benefits and the procedures that will

be followed in this ACTION RESEARCH PROJECT and has voluntarily agreed to participate.

If I should have any questions or problems concerning my participation in this study, I may contact the researcher at (856) 986-9990 or Dr. James Coaxum, Department Chair Person Rowan University at (856)-256-4779.

(Signature of Person Obtaining Informed Consent) **(Date)**

Appendix D

Principal Participant Initial Survey Questions

Dear Principal:

Thank you for agreeing to participate in this action research study. Please help us by completing this initial survey. The information obtained will be used to assist in the design of the professional development workshops. All of your answers will remain anonymous. Please do not include your name or any other identifying information on this survey. The survey will take approximately (5) minutes to complete. When you finish the survey, fold this paper in half and return it to the training facilitator. Thank you for your assistance and cooperation in completing the survey.

BACKGROUND DATA: (Please circle one answer for each of the six questions)

1) **Which of the following best describes your racial or ethnic background?**

   a. Asian (b) African-American/Black (c) Caucasian/White (d) Hispanic/Latino (e) Native American (f) 2 or more races – (Please specify: _____

2) **Gender:** (a) Female (b) Male

3) **Experience as a Principal:** (a) 0 – 3 yrs (b) 4-6 yrs (c) 7-10 yrs (d) 11-14 yrs (e) 15 yrs. or more

4) **Highest level of Education completed**: (a) Masters (b) Doctorate

5) **School Configuration:** (a) Elementary (b) Family (K-8) (c) Middle (d) High School

6) **Computer Technology Expertise:** (a) Novice (b) Intermediate (c) Advanced (d) Experienced

Please answer the following questions about your professional development experiences.

Personal Professional Development:	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1.The school district has provided training for principles on the use of computer technology to develop budgets.	5	4	3	2	1
2. The school district has provided training for principals on the use of computer technology to create databases.	5	4	3	2	1
3. The school district has provided professional development experiences for principles and using the Internet for research purposes.	5	4	3	2	1
4. The school district has provided professional development for principals and using software applications such as spreadsheets, presentations, e-mail, and word processing.	5	4	3	2	1
5. I have participated in training designed to develop skills to facilitate teachers integration of computer technology into the curriculum.	5	4	3	2	1
6. I would benefit from professional development experiences that inform me on how to integrate computer technology into the curriculum.	5	4	3	2	1

Appendix E

Focus Group Discussion Protocol (A)

Cycle II

1. Do you have an active technology committee in your school?
2. Does your school have instructional goals related to technology?
3. What current technology skills and competencies have you observed teachers utilizing in the classroom?
4. What do you perceive as your staff's areas of opportunity as related to technology skills?
5. What type of support is required from administrators in order to enhance technology integration in the schools?
6. How much of your budget is allocated for technology staff development?

Appendix F

Professional Development Module Formative Evaluation

Training Module:_____ Date: _____

Dear Principal:

Thank you for attending this training module regarding how to implement technology into the curriculum. Please help us by evaluating your experience. All of your answers will remain anonymous. Please do not include your name or any other identifying information on this survey. The data collected will be used to improve planning and professional development for administrators in the future. The online survey will take approximately (10) minutes to complete. Thank you for your assistance and cooperation in completing the survey.

Please answer the following questions using a Likert scale to indicate your choices for questions 1-6 and then respond to the open-ended questions about your professional development experience.

Professional Development Experiences:	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1) Were the objectives of the module clearly stated?	5	4	3	2	1
2) Did the training module Meet your expectations?	5	4	3	2	1
3) Was the instructor competent, well-prepared, organized and knowledge about the module content?	5	4	3	2	1
4) Did you have the necessary resources to accomplish the tasks required of you?	5	4	3	2	1
5) Did the content of this training module enhance your leadership capacity?	5	4	3	2	1
6) Were the skills provided applicable to your school setting?	5	4	3	2	1

Cycle II

Professional Development Module

Formative Evaluation

Training Module:_____ Date: _____

7. Would you change anything in this training module? What would you change and how would you accomplish this?

_____

_____

8. Comments:

_____

_____

Appendix G

Professional Development Module Summative Evaluation

Training Module Title _____

Date:_____

Dear Principal:

I hope that you have gleaned valuable information as a result of your participation in these series of training modules regarding how to implement technology into the curriculum. Please help us by evaluating your overall experience. All of your answers will remain anonymous. Please do not include your name or any other identifying information on this survey. The data collected will be used to improve planning and professional development for administrators in the future. The online survey will take approximately (15) minutes to complete. Thank you for your assistance and cooperation in completing the survey.

Please answer the following questions using a Likert scale to indicate your choices for questions 1-6 and then respond to the open-ended questions about your overall professional development experience.

CYCLE III

Professional Development Module Summative Evaluation

Professional Development Experiences:	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree	Does Not Apply
1. Were the objectives of these training modules clearly stated	5	4	3	2	1
2. Did the training modules meet your expectations?	5	4	3	2	1
3. Were the instructors competen well-prepared, organized and knowledgeable about the content of the training modules?	5	4	3	2	1
4. Did you have the necessary resources to accomplish the tasks required of you for these training modules?	5	4	3	2	1
5. Did the content of these trainin module enhance your leadership capacity?	5	4	3	2	1
6. Will you apply the instructiona leadership skills presented in these modules within your school setting?	5	4	3	2	1

Cycle III

Professional Development Module Summative Evaluation

7. Reflect upon the learning modules and their impact on your instructional leadership practices.

8. What was the most beneficial training module for you and why?

9. Would you change anything in these training modules? Explain

10. Comments:

_____

Appendix H

Focus Group Discussion Protocol (B)

Cycle III

1. Do you periodically review your school's long-term technology plans with the technology committee?

2. What type of staff development do you perceive would effectively accomplish technology integration into the curriculum?

3. How much technology professional development is provided in your building?

4. How much time are you able to work with your staff on infusing technology into the curriculum?

5. How do you evaluate whether teachers are effectively implementing technology into the curriculum?

6. How do you motivate your faculty towards change?

Appendix I

Principal Interview Questions

Cycle III

1. What process did you use to develop the technology vision for your school?
2. What initial actions do you implement to communicate the purpose and goals of the technology vision?
3. What professional development activities are needed to develop technological skills for you and your staff?
4. Can you explain the relationship between your personal use of technology and your motivation to integrate technology within your school's learning environment?
5. What are the economic and political obstacles which may inhibit the implementation of your school's technology vision?
6. Reflect upon some of the factors that facilitate the implementation of the technology vision within your context

Appendix J

Leadership Practices Inventory Permission Letter

KOUZES POSNER INTERNATIONAL
1548 Camino Monde
San Jose, California 95125
FAX: (408)554-4553
February 16, 2010

Joyous Carey
1656 Kaighn Avenue
Camden, NJ08103
Email: jcarey@camden.kl2.nj.us

Dear Ms. Carey:

Thank you for your request to use the Leadership Practices Inventory (LPI) in your dissertation. We are willing to allow you to *reproduce* the instrument in written form, as outlined in your request, at no charge. If you prefer to use our electronic distribution of the LPI (vs. making copies of the print materials) you will need to separately contact Lisa Shannon (lshannon@wiley.com) directly for instructions and payment. Permission to use either the written or electronic versions requires the following agreement:

(1) That the LPI is used only for research purposes and is not sold or used in conjunction with any compensated management development activities;
(2) That copyright of the LPI, or any derivation of the instrument, is retained by Kouzes Posner International, and that the following copyright statement is included on all copies of the instrument; "Copyright @ 2003 James M. Kouzes and Barry Z. Posner. All rights reserved. Used with permission",
(3) That one (1) electronic copy of your dissertation and one (1) copy of all papers, reports, articles, and the like which make use of the LPI data be sent **promptly** to our attention; and,
(4) That you agree to allow us to include an abstract of your study and any other published papers utilizing the LPI on our various websites.

If the terms outlined above are acceptable, would you indicate so by signing one (1) copy of this letter and returning it to us. Best wishes for every success with your research project.

Cordially,

EllenPeterson
Permissions
Editor
epetersonu.eu

I understand and agree to abide by these conditions:

(Signed) Joyous D. Carey Date: February 17, 2010

Expected Date of Completion is: March 30, 2010

Appendix K

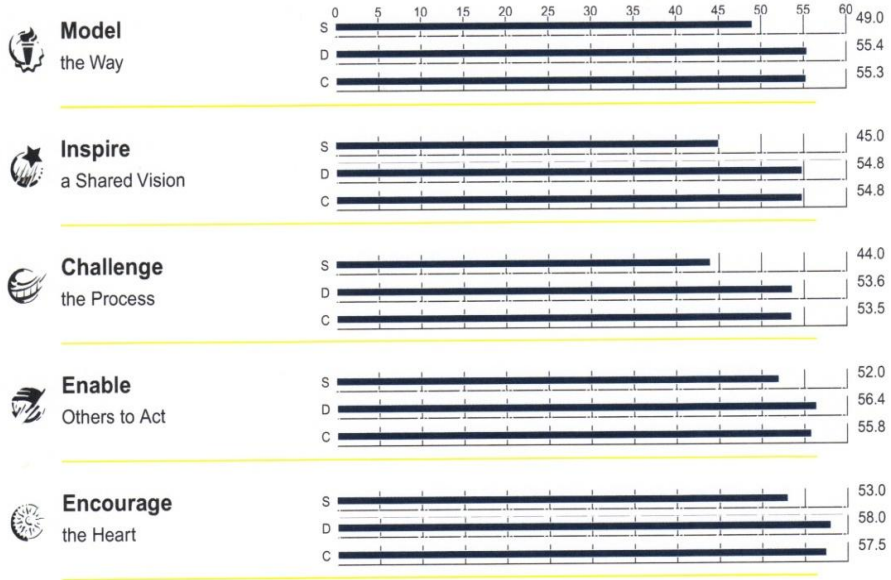
LPI
Leadership Practices Inventory

Profile for Joyous Carey
Assessment
February 19, 2010

The Five Practices Bar Graphs

These bar graphs, one set for each Practice, provide a graphic presentation of the numerical data recorded on The Five Practices Data Summary page. By Practice, it shows the total score for Self and the average total for each category of Observer. Scores can range from 6 to 60.

Self Manager Direct Report Co-Worker Other



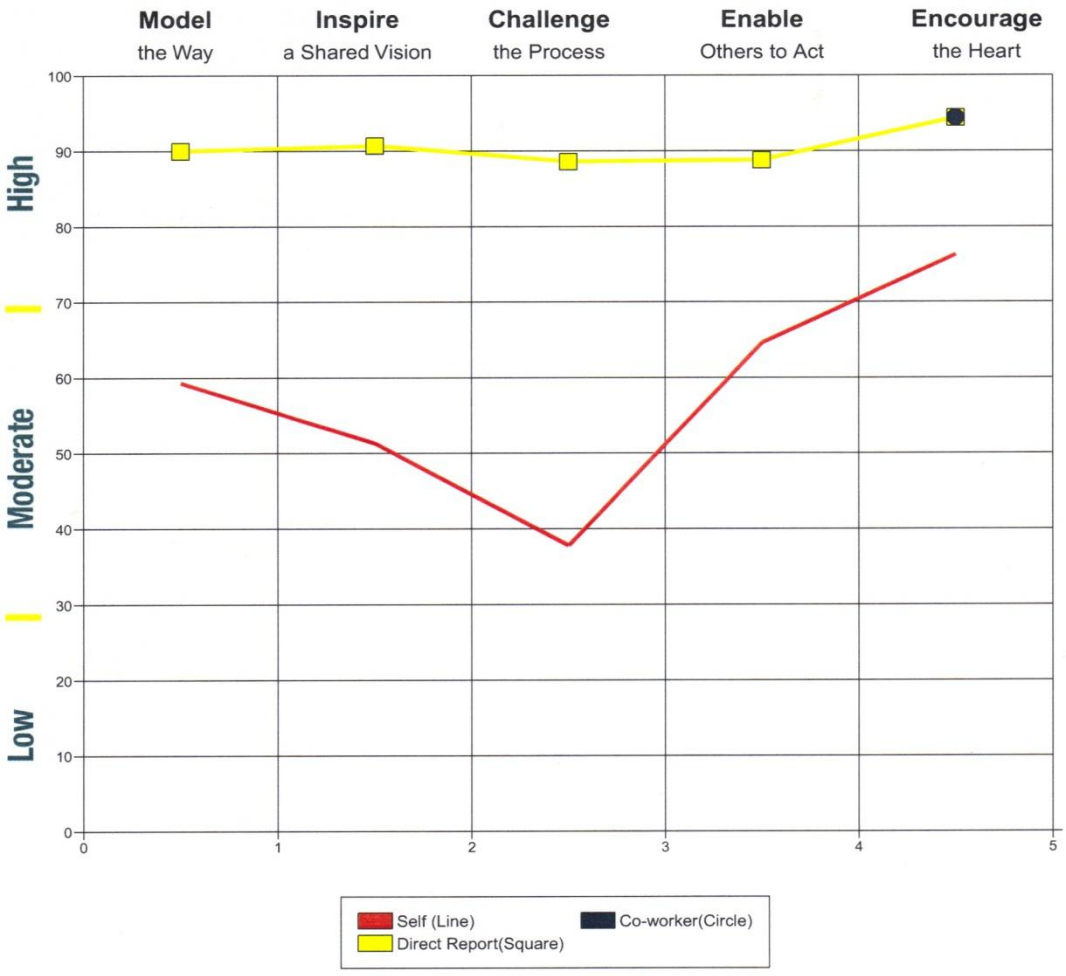
Appendix L

LPI
Leadership Practices Inventory

Profile for Joyous Carey
Assessment
February 19, 2010

Percentile Ranking

This page compares your Self scores and those of your Observers to the scores of several thousand people who have taken this version of the LPI. The horizontal lines at the 30th and 70th percentiles divide the graph into three segments, roughly approximating a normal distribution of scores.



Appendix M

LPI

Leadership Practices Inventory

Profile for Joyous Carey
Assessment
February 19, 2010

The rating scale runs from 1 to 10

1 - Almost Never	6 - Sometimes
2 - Rarely	7 - Fairly Often
3 - Seldom	8 - Usually
4 - Once in a While	9 - Very Frequently
5 - Occasionally	10 - Almost Always

Leadership Behaviors Ranking

This page shows the ranking, from most frequent ("high") to least frequent ("low") of all 30 leadership behaviors based on the average Observers' score. A horizontal line separates the 10 least frequent behaviors from the others. An asterisk (*) next to the Observer score indicates that the Observer score and the Self score differ by more than plus or minus 1.5.

High

	Practice	Self	Observers
25. Finds ways to celebrate accomplishments	Encourage	10	9.9
5. Praises people for a job well done	Encourage	9	9.9
30. Gives team members appreciation and support	Encourage	10	9.8
14. Treats people with dignity and respect	Enable	10	9.8
15. Creatively rewards people for their contributions	Encourage	9	9.7
20. Recognizes people for commitment to shared values	Encourage	8	9.7*
11. Follows through on promises and commitments	Model	10	9.6
26. Is clear about his/her philosophy of leadership	Model	9	9.4
19. Supports decisions other people make	Enable	8	9.4
12. Appeals to others to share dream of the future	Inspire	8	9.4
29. Ensures that people grow in their jobs	Enable	9	9.3
27. Speaks with conviction about meaning of work	Inspire	8	9.3
23. Makes certain that goals, plans, and milestones are set	Challenge	8	9.3
6. Makes certain that people adhere to agreed-on standards	Model	8	9.3
4. Develops cooperative relationships	Enable	8	9.3
1. Sets a personal example of what is expected	Model	8	9.3
18. Asks "What can we learn?"	Challenge	6	9.3*
22. Paints "big picture" of group aspirations	Inspire	8	9.2
21. Builds consensus around organization's values	Model	8	9.2
24. Gives people choice about how to do their work	Enable	9	9.1
13. Searches outside organization for innovative ways to improve	Challenge	8	9.1
9. Actively listens to diverse points of view	Enable	8	9.1
3. Seeks challenging opportunities to test skills	Challenge	7	9.1*
2. Talks about future trends influencing our work	Inspire	7	9.1*
8. Challenges people to try new approaches	Challenge	7	9.0*
17. Shows others how their interests can be realized	Inspire	7	8.9*
10. Expresses confidence in people's abilities	Encourage	7	8.9*
7. Describes a compelling image of the future	Inspire	7	8.8*
16. Asks for feedback on how his/her actions affect people's performance	Model	6	8.4*
28. Experiments and takes risks	Challenge	8	7.7

Low

** Difference between Observer's and Self rating was greater than 1.5*

Appendix N

The ISTE 2009 National Educational Technology Standards (NETS•A) and Performance Indicators for Administrators

1. Vary 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:

a) inspire and facilitate among all stakeholders a shared vision of purposeful change that maximizes use of digital-age resources to meet and
b) exceed learning goals, support effective instructional practice, and maximize performance of district and school leaders
c) engage in an ongoing process to develop, implement, and communicate technology-infused strategic plans aligned with a shared vision
d) advocate on local, state, and national levels for policies, programs, and funding to support implementation of a technology-infused vision and strategic plan

The ISTE 2009 National Educational Technology Standards (NETS•A)
and Performance Indicators for Administrators

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:

a) ensure instructional innovation focused on continuous improvement of digital-age learning
b) model and promote the frequent and effective use of technology for learning
c) provide learner-centered environments equipped with technology and learning resources to meet the individual, diverse needs of all learners
d) ensure effective practice in the study of technology and its infusion across the curriculum
e) promote and participate in local, national, and global learning communities that stimulate innovation, creativity, and digital-age collaboration

The ISTE 2009 National Educational Technology Standards (NETS•A)
and Performance Indicators for Administrators

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:

a. allocate time, resources, and access to ensure ongoing professional growth in technology fluency and integration
b. facilitate and participate in learning communities that stimulate, nurture, and support administrators, faculty, and staff in the study and use of technology
c. promote and model effective communication and collaboration among stakeholders using digital-age tools
d. 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.

The ISTE 2009 National Educational Technology Standards (NETS•A)

and Performance Indicators for Administrators

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

The ISTE 2009 National Educational Technology Standards (NETS•A)
and Performance Indicators for Administrators

d. social interactions related to the use of technology and information

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