ADMINISTRATIVE LEADERSHIP OF EDUCATIONAL

TECHNOLOGY: CASE STUDY OF TECHNOLOGICAL

INNOVATION IN OKLAHOMA SCHOOLS

By

ROCHELLE DIANE CONVERSE

Bachelor of Science
University of Central Oklahoma
Edmond, Oklahoma
1986

Master of Science
University of Oklahoma
Norman, Oklahoma
1990

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Thesis Approved:

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Thesis Adviser

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Dean of the Graduate College

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DEDICATION

This project is dedicated to my family for their patience, love and support

for all of the years that Mom (Nana) was going to school, studying

or working on a project.

D. W. Converse

Blake and Holga Huffman

Crystal Huffman

And

Grandbabies: Jeremiah, Ashley and Jarod

and most importantly, I thank God for all of his great gifts

and the desire to give back to others

that which has been given to each of us.

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CHAPTER I

INTRODUCTION

In the history of our public schools, the thrust of our technology has been relegated to certain subject or content areas. Early technology emphasis included that of wood or metal shops or automotive classes and has since transformed its development into the more commonly known educational technology. The metamorphosis of educational technology has resulted in greatly increased funding and favor in the eyes of policy makers and the general public.

Educational technology, when integrated with public school philosophy and practices, has the potential of effectively combining traditional subject matter in an interdisciplinary approach (Whitakers, 1996). Students need to experience educational technology in various ways, in order that they might be better prepared for the 21st Century (Peterson & Orde, 1995). What, then, do the current trends, applications and promises of educational technology mean for administration of public school policy? How are the knowledge, skills and attitudes, in terms of administration of educational technology, transformed into a vision for a technologically rich environment? What implications are there for effective school administration and the selection of visionary leaders?

The administration of a public school is a multifaceted position. One primary role of the administrator is that of instructional leader. The gathering of information related to the effectiveness of this role, relative to educational technology, is needed.

Statement of the Problem

A study of administrative leadership as it relates to educational technology is significant to better meet the needs of all of the stakeholders in public schools.

According to an ERIC CEM Clearinghouse on Education Management report (1993-1994) there were 79,618 principals. The percentage of principals ages 55 and over was 15.4%. The turnover in the principalship during the last ten years was 42%. The typical number of hours that the principal spends on work-related activities in a given week was reported to be 54. The typical K-8 principal had authority over 26% of the school's budget.

Demands of the principal are many. The primary deficits that principals exhibit in meeting these demands, according to Shields (1999) include the following:

- Poor human relations skills

- Poor interpersonal communications skills

- Lack of vision

- Failure to lead

- Avoidance of conflict

- Lack of knowledge about instruction or curriculum

- A control orientation

- Lack of ethics or character

- Forgetting what it's like to be a teacher

- Inconsistency

- Showing favoritism

- Failure to hold staff accountable

- Failure to follow through

- Snap judgments

- Unduly interrupting instruction

Further, Shields (1999) states that the employment of six strategies for success will support the principalship.

1. One must first evaluate and refine your interpersonal skills.

2. Recognize your view of the world and your surroundings and how these perspectives shed great light on what you bring to the table in reference to your vision for the school.

3. It is important to not let your past successes turn into failures.

4. Faltering leadership is proceeded by organizational indicators and the principal must continually be in a mode of reflection and evaluation.

5. The principal must have a professional growth plan and pursue it aggressively as a lifelong learner rather than becoming stagnated.

6. The principal will make mistakes but must learn from them and then proceed with the school's mission and goals.

In terms of educational technology, the principal must use strong leadership skills. A great investment is made in hardware and software, with little or no thought to the development of the instructional leaders of the schools and their needs. Nationally,

schools spent $6.7 billion on educational technology during the 1998-1999 school year (www.electronic-school.com, June 2000). This was an increase of 1.3 billion over the previous year. Quality Education Data (QED), a Denver-based research firm, projects that the average per student expenditure of $60.56 will drop to $46.98 for the next year's figures.

Purpose and Objectives

This study, a descriptive qualitative inquiry, examined the various roles of the administrative leader, defined as the principal, as seen through the lenses of the instructional leader and teacher, with respect to attitudes, skills and knowledge in two schools in Oklahoma who are currently forging a path of innovation in educational technology implementation. The specific objectives were to:

1. Examine the changing roles of the administrative leader relative to technology integration.

2. Examine different administrative leadership styles used to support educational technology.

3. Examine professional development opportunities used to support the changing roles of the administrative leader relative to in educational technology.

4. Examine attitudes, skills and knowledge that support the role of administrative leadership in implementation of educational technology.

5. Examine the decision-making processes used to promote educational technology.

6.   Examine the personal technological skills of the administrative leadership.

7.   Examine the values and beliefs about teaching and learning.

Research Questions

The administrative leadership skills of the principalship with respect to

educational technology in two urban schools in central Oklahoma were examined in this

case study. The research questions to be answered were as follows:

1.   What are the roles of the principal with respect to administrative

leadership and educational technology in two urban schools, the curricular

focus of which are aimed specifically toward technology?

2.   What professional development opportunities are provided to principals?

How do those professional development opportunities address the needs of

the administrative leaders? How do those professional development

opportunities affect staff and students?

3.   How do the perceptions of the principal of the respective schools differ

regarding professional development? How do the professional

development offered by the two schools differ?

4.   Are principals operating from a specific philosophy of learning theory? If

they are, which of the major learning theories serves as the foundation for

the leader? Is this discernible from interviews or observations? Which

learning theory is more prevalent amongst principals?

5.   And how does this philosophical base impact the role of the instructional

leader?

Limitations

This study was limited in focus with regards to the elementary school administrator or principal's role with a defined emphasis on technological literacy and the changing leadership role. Perceptions of the practitioner were used as well as perceptions of recommended key teachers and technical assistants within the schools of the practitioners. The study was limited to urban school administrators identified as being assigned to technologically equipped magnet and specialty schools in a particular district.

Assumptions

Major assumptions underlying this study include the following:

- Technological literacy is moderate among administrators.

- Little course work is required in certification or master's degree programs of administrators with regard to technology.

- District and state defined roles of the instructional leader as it relates to technology are limited.

- Access to technology plays a critical role in defining the role of the administrative leader.

Definition of Terms

Following are terms and their definitions, listed in alphabetical order, which were used throughout this research paper.

Administrative Leader, Administrator, Principal – Synonymously used terms as indicated in a direct leadership role of school personnel and the physical building and not referring to central office personnel.

Educational Technology, Instructional Technology, Technologies – Educational technology as defined by Ely (1999) refers to the widely used term referring to approaches used to achieve a certain means. The Association for Educational Communications and Technology defines it as Instructional Technology's theory and practice of its designs, development, utilization, management and evaluation of processes and resources for learning (Seels & Richey, 1994). Includes all computers, DVD, CD-ROM, Email, Internet, video and audiotape, fax, telephone, and video conferencing.

Instructional Leader – Term used as defined by the Effective School's Correlates (Lezotte 1995). The function of the leader becomes that of creating shared values in the organization. The role of the principal becomes viewed as being expanded in a democratic manner to empower others. This requires the principal to develop his or her own personal skills of coach, partner, and cheerleader.

Professional Development, Inservice Training, Staff Development – Synonymously used terms in the field referring to specific training in relation to specific goal(s) as indicated by regulation or need for a specific site, district or region. Professional development or staff development is used to provide readiness, planning, training, evaluation and maintenance of the staff members involved in an organization's plans for growth or improvement (McQuarrie, Thompson, & Woods, 1984; 1982). The

readiness phase may use a variety of tools to determine the concerns, questions or areas that an organization will focus on within a period of time.

CHAPTER II

LITERATURE REVIEW

Introduction

This study examined the educational technology trends, applications and promises

that impact the role of the principal and in turn the school community. Further, how the

principal espoused a particular learning theory in turn influenced a particular leadership

style. An examination of the four major philosophical learning theories was also

explored.

Riedl, Smith, Anita, Wakr and Yount (1998) report five elements that support

technological leadership practices. They include: (1) the vision used to support decisions

about the purchase of hardware, software, and the related use of technology; (2) access to

technology in terms of schedules, equipment usage, program definitions, physical plant

layouts, capabilities of the existing technology, and related technical support; (3) time as

it relates to usage by students, teachers, instructional leaders based upon previous learning

opportunities; (4) support from technical sources, professional development

opportunities, and instruction; and (5) assessment of matched goals and objectives to the

technological instructional practices and models. The goal of this study was to identify

and examine the changing role of the administrative leader in the integration of

technology. It is reasoned that a few administrative leaders of technology exist but have

developed on their own with little or no support (Inkster, 1998). Further, little regard is not given to selection of administrative leaders with an emphasis in technological expertise nor is much course work required from students in administration courses for masters or certification programs (Inkster, 1998).

Educational Technology Trends

In 1983, the National Commission on Excellence in Education warned that students were not being prepared for increasing demands and roles in the technological work force. As a result, some forty states began to offer technology courses of a predominately vocational nature, ranging from electives to mandatory introductory courses (Bluestone & Harbrecht, 1987).

Although few people asked whether computers were needed (Ely, 1995), technology's existence and the degree to which it was utilized had become synonymous with higher standards of living in our society (Khalil, 1993). In an earlier survey of experts, the U.S. was viewed as a declining industrial power whose only hope of reversing this negative trend lay in an emphasis of general education and increased engineering and technology curricula (Khalil, 1993). Thus began the impetus to have all classrooms wired by the year 2000 (Heaviside & Farris, 1995).

By 1995, almost every school had computers, 75% of which were networked. Student-to-computer ratios were increased from 1-75 in 1991–1992, to 1-12 in 1995–1996 (Hayes & Bybee, 1995). Computers were relatively inexpensive, widely available and easy to use; but for the first time a specified technology was required, which necessitated a comprehensive instructional plan (Ely, 1997).

Usage of computers in our schools can be viewed through the four rationales outlined by David Hawkridge (1990):

- Social Rationale – all students need to be aware of the role of computers.

- Vocational Rationale – promotes confidence and may create foundations for certain careers.

- Pedagogic Rationale – students learn from computers and the advantages are that no specific limitations are placed on the student's learning.

- Catalytic Rationale – computers facilitate change and are symbols of progress.

Ely (1995) contends that the dominance of the social and vocational rationales reflect our school's view of computers within a materialistic context, while the diminishment of pedagogic and catalytic rationales point to our inability to see their relevancy within the school setting.

Computers, as public schools utilize them today, are predominately for practical applications and as add ons (Ely, 1995). Although computers weren't designed to become a substitute for the classroom teacher, they are closely regarded as such, in that the existing teaching methodologies have simply been transferred to them (Lazlo & Castro, 1995).

Trends identified from Ely's research (1997) from 1988 to 1995 provide insight into our public school's application of educational technology:

- Trend 1 – While most schools have computers, they are usually found in a lab setting and are for the most part obsolete. Computer literacy is the most common usage. America does not lead the industrialized nations in computer knowledge. Inequities in access and availability abound.

- Trend 2 – Networking capabilities have nearly doubled for intermediate grades, with some scant progress in elementary grades.

- Trend 3 – Television access is universal. Of the 75% of schools that have cable access, 58% of the teachers are integrating it into the curriculum, 19% view Channel One and another 3% have satellite hookups.

- Trend 4 – Advocacy groups are increasing. There currently exists an Office of Educational Technology in the U.S. Department of Education whose major concerns are that of infrastructure and financing, professional development, content and software, and access and equity.

- Trend 5 – Educational technology is common place in homes and community settings were it is purported that said purchases were for children's educational purposes, a major shift from entertainment.

- Trend 6 – Educational Technology applications within new delivery systems have increased. Because CD-ROM software resources are relatively inexpensive and easily upgraded they are highly sought after by schools. Distance learning labs are on the increase as money and needs permit, providing for 22% of the intermediate grades acquiring satellite dishes.

- Trend 7 – The role of the instructor is critical to the implementation of educational technology and as such, professional development opportunities must be appropriately created to go beyond technological literacy.

- Trend 8 – Most educational reform plans for public schools include some component of technology, but with varying approaches.

Ely (1997) contends that his research revealed very little in terms of the actual use of computers. He points out that availability does not necessarily equate with effective and appropriate usage. While technologist profess the need to emphasize design and development of instruction for learning advances, school trends indicate that the emphases are being placed in hardware and software.

Educational Technology Applications

Public Schools may or may not demonstrate productivity gains as a result of the implementation of educational technology. Kenneth C. Green and Steven W. Gilbert's 1995 report on Great Expectations: Content, Communications, Productivity, and the Role of Information Technology in Higher Education have implications for elementary schools as well. In Green and Gilbert's (1995) case study of the calculator and the slide rule, they argue that cost analyses, transition issues, learning outcomes and productivity gains were not required when a newer, more effective technology was replacing an older one. Nevertheless, because of initial outlays and operating costs of computers, (hardware, support, upgrades and maintenance) are so great; schools are criticized for not being able to prove productivity gains. They further argue that major change in pedagogy; curriculum and content cannot be explained as a value of individual productivity as the current cost-benefits models mandate.

Implementation of educational technology in the public school may resemble the cycle of corporation and not-for-profit organizations through three stages (Green & Gilbert, 1995):

- Stage 0 – Limited planning, coupled with investigation and experimentation may be initiated by individuals or groups who are self motivated to gain skills and knowledge of the technology because they perceive there to be a value or believe that the technology will allow them to complete tasks quicker.

- Stage 1 – Greater expenditures for hardware and operating expenses are realized with little reductions in other expenses. More begin to explore technology, and with greater confidence, while delays are evident in adoption.

- Stage 2 – After several years, stabilization occurs in expenditures and costs. Practices are vastly different than they once were and could not be reversed to exclude technology.

- Stage 3 – Efficiency and effectiveness create a new organization, and comparisons with older ways of completing tasks or conducting research are not of a concern.

Green and Gilbert (1995) assert that adaptation to change and technological practices are easier for the corporate world as opposed to schools because schools are more inclined to preserve the knowledge and culture of the institution, rather than transition to new technologies and environmental issues. However, the pressure on our

public schools to adapt will increase as a result of competitiveness of teaching, curricular enhancement and as preparation for students in the 21st century demands it.

There are seven ways, in which educational technology can serve as a catalyst for public schools (Johnston & Kosma, 1991):

1. Reception to engagement – The teacher stands in the front of the class and gives knowledge to the students who passively absorb it. Technology allows students to move to construction of knowledge.

2. Classroom to the Real World – Expansion outside of the four walls of the classroom.

3. Text to Multiple Representations – Students are allowed to express themselves in other formats outside of the typical text and speech or to have multiple representations of equivalent text.

4. Coverage to Mastery – Opportunities provide for deeper understanding of content as well as varied experiences through choice activities.

5. Isolation to Interconnection – collaborative learning opportunities are increased as opposed to individual learning.

6. Product to Process – The focus tends to be more of the process in learning than reaching a finished product. Finality of learning is de-emphasized.

7. Mechanics to Understanding – Greater accessibility and equality are achieved when students are allowed, without the limitations of time and resources to manipulate or participate in simulations, which traditionally would not be possible.

However, whether changes in curriculum and instruction occur will depend largely upon the faculty and the vision of the administrative leader.

In an example comparing GM's technological commitment and that of their competitors outside of the U.S., Gilbert and Green (1991) criticized the failure of GM to retain or increase their market value after a massive investment in technology because they assumed that technology in and of itself would resolve all of their problems. Technology did not address or resolve issues of product quality and personnel. The implications for our public schools suggest that commitment to greater investments into technology should not be made for the sake of technology. If we continue to teach as we have always taught, we will continue to get the same results that we have always gotten. Is it any wonder why the public questions technology's connection to school reform? Educational design must change with the integration of educational technology as it relates to all areas. Our tendencies, which are to continue to use new technology in old ways, or what is termed "flat part of the learning curve," (Green & Gilbert, 1995) impede successful integration of educational technology. As public school students' technological capabilities increase, so, too, will the demands of public school educators.

<center>Educational Technology's Promise</center>

What, then, can educational technology promise for public schools? Whitaker (1997) suggests that the needs of public school students will be met as they are actively engaged in exploration of multidisciplinary and interdisciplinary units, which are well suited for technology. Critical learning occurs when students move from computer

literacy objectives to a real world application of the tools and technology (Whitaker, 1997).

Current paradigms of learning theory require educators to sort students by separating laborers from managers (Nelson & Reigeluth, 1997). We know that all students learn at different rates and yet, our public school educators hold students to a specific grade level calendar, rather than allowing students to learn at their own rates in an individualized manner.

Educational technology holds promises for movement from standardized to customized learning (Ely, 1997). Students move to engaging and authentic learning experiences and interactions with the teachers who view their roles transitioning from the "sage on the stage" to the "guide on the side" (Nelson & Reigeluth, 1997). Appropriate application of educational technology requires that the teaching of the core subjects be vastly different than is currently in practice (Schofield, 1997). Educators of public school students must broaden their horizons and begin to see other ways to use the new tools of educational technology.

The principal's view of educational learning theories may impact their view of leadership of educational technology. A behaviorist perspective including that of B.F. Skinner, examines voluntary behavior of new learning skills, (Heinich, et al., 1999). The behaviorist perspective relies primarily upon observations and therefore has limited possibilities in a higher order learning environment of educational technology. The cognitivist perspective includes the work of Jean Piaget and uses schemata, assimilation and accommodation. Schemata are an organization of classification used to identify, process and store information (Heinich, et al., 1999). Assimilation is the changing of the

schemata based upon experiences. Accommodation occurs when the existing schemata are changed or new schemata are created based upon new experiences.

The constructivist perspective extends the cognitivist's perspective (Heinich, et al., 1999). Constructivism centers on meaningful experiences that are created by the individual as he moves from a passive learner to an active problem solver. Authentic experiences or simulations will produce learning that is more effective.

The social organizational effect upon the classroom including the groupings (independent, small, and large) and authority structure impact student's retention of learning. According to Heinich, et al., (1999, p. 315), research by Robert Slavin, Spencer Kagan, and David and Roger Johnson has revealed that not only does cooperative learning yield better acquisition and retention of lesson content, but it also promotes better interpersonal and thinking skills.

How then, will the knowledge, skills and attitude of the administrative leader's role change to adapt to these ideals? Administrative support and the effective use of technology in schools according to Inkster (1998) requires that the principal demonstrate the following characteristics:

1. Be supportive of the technology program.

2. Be involved in the technology program directly and personally.

3. Assume multifaceted roles in support of technology to include leader, manager, politician, model, teacher, facilitator, and encourager.

4. Be a catalyst to encourage potential users and proficient users of technology in a growth plan.

5.   Hold all staff members to high expectations in terms of competency in a mandatory fashion.

6.   Utilize shared decision-making processes in technology development.

7.   Use care in personnel selection with respect to the hiring of technologically proficient applicants.

8.   Personally hold technological life-long learning attitudes and skills for optimum effectiveness.

Educational technology changes the paradigm of school organization and leadership (Maurer & Davidson, 1998) through a revolutionary rather than evolutionary method. This change in school culture will in turn change how things are done in the school in a systemic manner to include a community type of leadership as opposed to an authoritarian or autocratic style.

According to Razik and Swanson (1995) power and authority literature reveals that out of the 6 types of derived power: (1) authority, (2) legitimate, (3) reward, (4) coercive, (5) referent and (6) expert, that, referent power lends itself more towards the collaborative and trust building ventures and that expert power lends itself more to security and knowledge building. Maurer and Davidson (1998) assert that both referent and expert power are needed in the sense of building a community of shared leadership and decision making for a culture conducive to educational technology.

Instructional leadership (Lazotte, 1997) has moved from its first-generation definition of the principal as origin of the mission and vision of the school to a second-generation definition broadening the view of leadership to included a "community of shared values," (p.75) and the principal as a leader of leaders. As instructional technology

fundamentally changes the school and its organization (Maurer & Davidson, p.12) the need is created for a community of leadership. This leadership would be based upon the strengths and expertise of the shared community of leaders.

Conclusion

The role of the administrative leader is vastly different in the 21st Century with the increased emphasis on educational technology. Many demands are now placed upon the interpersonal and technical skills of the administrative leader in the management, facilitation and evaluation of educational technology. Failure to meet the demands can jeopardize the integration of technology into a particular school and directly and negatively impact teacher and student computer literacy. No research was found in the literature concerning the types of professional development opportunities that are available for administrative leaders.

Further, the literature review emphasizes the need for administrative leaders to manage, facilitate, and follow policy or standards, all involving large investments of monies. The public demands increased accountability in terms of test scores and management of monies. And yet, little accountability in terms of evaluation of technology integration is made of the administrative leader. Research in this area is important to provide a framework with which to measure effective administrative leadership of educational technology.

CHAPTER III

METHODOLOGY

Introduction

This chapter will identify the method that was followed by the researcher to complete the objectives of the study. The research design, population, data collection, instrumentation, procedure, and analysis of data are included in this chapter.

Research Design

This exploratory and descriptive qualitative inquiry was designed to describe the knowledge, skills and attitudes that influence and impact the leadership and administration of educational technology in selected urban elementary schools, with particular focus on the administrative leadership at these sites.

This case study was focused on two elementary schools. The first became a magnet school during the 1998-1999 school year. This program was federally funded with magnet monies for three years, beginning in 1998-1999 school year. The curricular focus of the school is technology and communications. The school was built in 1963 and headed by an administrative leader who has worked at the school for six years. The other school began its status as a specialty school beginning in the 1998-1999 school year. The

curricular focus of the specialty school was that of technology and foreign languages and was newly built in 1998.

Each school used an application process to hire teachers and recruit students. These schools served as role models for the second largest school district in the state. Research in the area of effective administration of technology will assist the district in defining the changing role of the principal in this urban school district and to provide much needed support for more readiness, planning, training, implementation, maintenance and evaluation of technology.

Qualitative Research Options

Qualitative case study research was chosen as the methodology since the researcher wanted to produce a postmodern polyvocal text (Glesne, 1999) to help to define the role of the principal in the 21st Century. The sites and interviewees were purposefully selected to generate rich information related to the research questions. Selection of the schools were based upon their having programs that were rich in technology. Each school has specialized funding, infrastructure, professional development opportunities, hardware, software, and personnel to perform and attain the intended mission and goals of their respective programs. The stated missions of the two schools are as follows:

- "Shellway Elementary School will prepare all students with the knowledge and capabilities to become productive members of society in the 21st Century and will work to provide a climate conducive to motivating all

students to participate in activities related to technology for the purpose of

career awareness and literacy."

- "We, the Roslene Threet Elementary School Family, do affirm our mission

  to establish a positive learning environment that encourages all children to

  become life long learners."

Inkster (1998) concluded that further research might be warranted in the

principal's relationship to technology during innovation. Both of the two urban schools

chosen have embarked on a journey of innovation with respect to the federally funded

magnet program and specialty school funded with special bond monies, proposed to

encourage students of diverse races to enroll in these predominately minority populated

neighborhood schools.

The research was transformative in nature. The transformative orientation

(Velazquez & deMarrais, 1998) is intended to produce change and provide for equitable

access, training, and empowerment of administrative leaders of our district's schools.

Theoretical/Conceptual Framework

Using the transformative orientation and exploratory-grounded theory of

qualitative research, the research was framed by the role of the administrative leader as

defined by Inkster (1998) for effective administration of technology programs by

elementary principals.

Following an introductory letter to the principal, the researcher gathered

information related to the two schools in the areas of technology profiles, district profiles

to include socio-economic levels of the students; years of experience of the teachers,

testing data, attendance of staff and students, PTA membership, etc.

A copy of the district's technology plan and the state's technology plan was

reviewed to examine the commonalties of standards. In addition, a copy of the job

description of the principal (building administrator), evaluation instrument, board's goals

related to technology, and district and state certification requirements of principals related

to technology were also reviewed. This information provided a foundation for research in

helping to understand the dominant expectations of the role of the administrative leader

relative to educational technology. Technology profiles were completed for each school

and focused on what was available, what was used, who used it and what type of

information was related to the future technology plans of the school.

A biographical information sheet was completed for each participant interviewed.

This provided information regarding the participant's position, grade level if appropriate,

teaching experiences, technology experience, level of education, gender and age.

Two interviews were held with each principal. The first interview involved

questions related to skills, leadership, how one's performance was impacted by

technology, how the climate of the school was described, and the staff's perception of the

principal's leadership style. The second interview was conducted after the data was

collected in the other areas. This interview was directed toward the principal's support of

technology, how future technology plans were developed, how students were impacted by

the technology, what recommendations the principal would give to other principals in

terms of effective administrative leadership of educational technology, and how a budget

was created and expenditures arrived at for related technology purchases.

Interviews were also conducted with teachers representing both the primary and intermediate grades of the elementary schools. These interviews described the participants' skills, rationales for using technology, how they viewed their role in the technology plan, their support of technology, impact on students' performance, school climate, recommendations for others in their field, and budgetary involvement or understanding of the budgetary process used to support technology. Interviews with technical support personnel described the needs of the school, staff and students. And, how the support personnel have assisted the school in attaining their specific site goals and objectives. Subjects were assigned pseudonyms to ensure anonymity of references made within the context of this study.

Data Analysis

Data consisted of thick descriptions of the settings, observations of the environment, transcribed interviews, coding of the interviews and the essence of the roles of the instructional leadership of educational technology. Personal experiences, beliefs and practices served to facilitate interviews, observations, and questioning techniques.

CHAPTER IV

FINDINGS

Chapter Overview

This chapter portrays the setting of Shellway Elementary School's beginning, its

origin as a magnet school and a description of the stakeholders including personnel, patrons

and central office connections. An analysis of the interviews conducted with the teachers and

technical support was made followed by the interview analysis of the principal.

Shellway Elementary School

Background

Shellway Elementary is located in an urban school district of 40,000 students in

grades K through 12. Shellway Elementary School was built in 1963. It includes 24,067

square feet of physical plant. It is located in the corner of a secluded, wooded area near a

creek. Many brick homes and many huge oak and elm trees surround the school on three

sides. The community is somewhat elderly and the population of the school has

decreased over the past decade.

Shellway Elementary was one of the original seven schools included in litigation

concerning the district's desegregation lawsuit from the 1970s. The lawsuit was brought

about by Dr. A. L. Dowell and the seven schools were referred to as Dowell schools in

the application for the magnet program. The school district was termed unified in 1993

and was no longer required to work under the direction of the courts as it had achieved its

goal of desegregation. However, Shellway Elementary is predominately minority

populated at this date. The school district wrote a magnet grant in 1998 to attract

majority students to the minority-populated schools included in the original Dowell

lawsuit.

Demographics of the school include the following percentages:

- Female 48.7%

- Males 51.3%

- Black 96%

- White 4%

- Hispanic 0%

- American Indian 0%

- Asian 0%

- Attendance Rate for students 97.7%

- Attending on a Intra or Inter School Transfer 66.5%

- Free/Reduced Lunch 100%

- Special Education 11.3%

- Mobility Rate 11.0%

- Gifted Enrollment 6.1%

- Recommended for Retention 2.6%

- In-School suspensions 23

- Out-of School Suspensions 77

- Expulsions 0

The school did not have input into its designation as a magnet school or its chosen theme of mass media and communication until after the decision was made by district officials. The staff and stakeholders did participate in a year long readiness phase to include planning and goal setting. Staff members, including the principal were encouraged to participate in meetings to discuss the goals of the school on Saturdays. The majority of the staff members were in attendance and supported the district's efforts to revitalize its school and community.

The school is located on six fenced acres with lots of trees. The parking lots are too small to accommodate the cars of the staff members and parents. There are long lines of traffic during the hours of arrival and dismissal. Rainy days add another 5 to 10 minutes to parents' waiting time to pick up children. Parents and teachers are often engaged in impromptu conferences, discussing academics and behavior in an effort to work as a team for the purpose of improved student performance.

When entering the large double blue doors, one is greeted by the office personnel at the large reception counter built into the hallway and asked to sign the visitor registration book while receiving a visitor's sticker. The principal's office is located in an enclosed area behind the counter. The school has 230 students, 21 certified staff members and 10 classroom teachers, a part time nurse, part time media specialist, full time computer lab assistant, full time resource teacher, part time special education teacher, part time music and art teachers and related custodial and cafeteria staff members. Minority teachers comprised 38.1% of the staff. The attendance rate of the

staff for the 2000-2001 school year was 92.8%, resulting in a substitute teacher expenditure of $4,941. The number of workers' compensation claims was one. The average teaching experience was 10.7 years. Over 38% of the staff had a Master's Degree or above. The average class size was 19.2 pupils per teacher.

The district maintained additional records related to indicators of success. These indicators included Open House attendance numbers in the Fall semester equaling 380 visitors. Parent-Teacher conference day in the fall resulted in 203 contacts. The PTA membership of the school totaled 53.

Special instructional programs of the school included the magnet program of mass media and broadcast communications technology theme. The school also participated in Great Expectations, a grassroots best practices statewide initiative, espousing 17 characteristics of high expectations, teacher knowledge and skill, and a climate of mutual trust and respect.

The school had a preschool program servicing 4 year-olds in compliance with state mandated birth date admittance requirements. At the time of the study 18 students, one certified early childhood teacher and a certified developmentally accredited assistant shared the classroom and experiences.

Character education provided by the Character First, Kemray organization developed the 18 characteristics of citizenship to include such traits as trustworthiness, attentiveness, loyalty, etc. Additionally, students were involved in Peer Mediation, which provided for the students to be engaged in problem solving issues on and off the playground. The Oklahoma Bar Association, which sponsored and provided the initial

training for Peer Mediation, was further facilitated and coordinated by the school's counselor.

The school qualified for federal funds through the Title I program and its budget for the school year amounted to over $120,000. The school staff, in conjunction with the parents, developed a budget to use the Title I monies to provide tutorial programs after school and to provide early intervention programs such as the extended day kindergarten. The remaining monies were used to purchase related materials and supplies for the above stated programs.

As one entered the building, the large halls led to the open cafetorium and stage area. Classrooms lined both sides of the cafetorium. The ceilings were well lit and the floors were highly glossed. Classrooms had an entry door to the hallway and an exit door to the south entrance and north playground area. Each classroom was equipped with radio and television receiving monitors. Each classroom contained four computers that were networked with the building's fileserver. A variety of software programs were networked throughout the building and were used for communication, file management, and instructional purposes.

Teams of teachers were divided by grade level. There were two kindergarten classes, two first grades, two second grades, two third grades, one fourth grade and one fifth grade. All classrooms were self-contained for the core subjects, but had special teachers for the related arts classes. Students traveled to these classes. Technology classes for TV, radio and print media used a resource teacher and media teacher. Classes were team taught with the teacher and specialist in small groups to allow each student to participate and to have time to more fully practice a new skill.

Interview Process

Prior to the interviews being conducted, the investigator visited the campus to acquaint herself with the school, staff members and physical plant. A letter of introduction was given to the principal, Carol. In addition, an introductory conference was scheduled and was held for the purpose of discussing the study and its merits. Carol was very cooperative and eager to participate. Two interviews were held with the principal. One interview was held with each of the two selected classroom teachers, and one with the technical support assistant or teacher. All interview questions were written and provided to the staff in advance. The interview sessions were audio taped and transcribed.

Staff Interviews

Primary Grade Teacher - "Charlene" –

Readiness, Planning and Training

Roles, Skills and Knowledge – Charlene, a first grade teacher at Shellway Elementary was selected by the principal as a representative of the primary grades who would be knowledgeable about staff members and would also provide information about the school relative to technology utilization and the leadership of the principal. As Charlene entered the principal's office where the interview was to be held, her demeanor appeared to be nonchalant. This was further demonstrated in her limited responses to questions regarding her roles, skills and knowledge of technology. Many times her

responses were not complete sentences. She was not easily interviewed in that she repeated most questions and gave one word or short answers with little expansion upon request.

Charlene described her personal technology skills as evidenced by, "computer efficient (proficiency), digital camera (experience), camcorder (usage)." She stated that she had gained her knowledge of technology "everywhere, college, here (school) and at home."

Role Technology Played with New Applicants – In trying to determine what role, if any, technological expertise played in the selection of new applications, Charlene was questioned about her knowledge of the interviewing or selection process. She was not knowledgeable of the hiring practices or to what degree, if any, technology may have played as potential criteria for employment at this magnet school. She did not speculate about what experiences an applicant should or should not have. It was interesting to note the absence of Charlene's opinion into this area. Perhaps she did not want to make a judgment concerning acceptable criteria for a beginning teacher in terms of technology or, she may have been uncomfortable in giving an opinion regarding technological experience as a consideration of criteria for employment. Her concluding but evasive response may have caused her to reflect upon her own novice status within the staff. Perhaps she may not have been selected as a candidate had she applied. Rather, Charlene speculated when questioned whether she would hire someone on the team that did not have experience in technology, "I don't know, they might. We haven't hired anyone. I really don't know."

When asked whether any new staff member had been hired in the last three years, Charlene contradicted herself and replied, "Just one, maybe two. But I don't know what their technology (experience) is; they work in a different part of the building. And, I have no idea what their technology expertise is. I have no idea."

Magnet Status and Critical Decision-Makers – Critical decision-makers in the readiness and planning stages of the magnet grant as described by the primary grade school teacher, Charlene, included herself and other teachers. Charlene reported,

A committee wrote the . . . (incomplete). I don't know who the critical

decision-makers were. A whole group of people decided what we were

going to do, including myself. We met for a whole year before everything

was finalized.

Charlene had some ownership in the magnet program and took credit for the grant by stating that,

We started meeting on Saturday, all seven of these schools. Certain

people from those schools were meeting on Saturday. We wrote the grant

actually. And it took a year to fine-tune it. But, once it was written and

was out of the teacher's hands it went on to the principal and then above.

The people at the board . . . (incomplete). That's the way I remembered it

anyway.

Charlene's ownership into the process and creation of the grant speaks to her feelings of competency in this area. When Charlene felt competent in her knowledge she was able to expand more upon her responses and ultimately gave more information.

Implementation

Use of Technology – Charlene was able to use only a few hardware items or related software and was not able to expand further regarding her technology experiences upon request. Her inability to expand upon her responses or to even reply in a complete sentence regarding her experiences was cause for concern. It was not known whether she readily volunteered to become a participant in the study or was somehow encouraged to become a participant. At any rate, the selection of Charlene as a representative of a technology user for the purpose of this study suggested that technology was not adequately understood or well utilized at this grade level.

Impact on Students – In determining to what extent technology had had an impact upon learners as viewed by the teacher, Charlene was asked what her views were with respect to technology's impact upon her students. Charlene's response was somewhat vague. She was not able to specifically identify an area of impact or to what degree an impact could be determined. Charlene replied, "It's had a good impact. It's had a good impact so far. It should grow and be better and better as they get older."

She later seemed to contradict or perhaps qualify herself by suggesting that, "In first grade it hasn't had an impact on their achievement." She completed her thoughts in this area by saying, "It has (had an impact) but it is not measurable. You know what I mean?"

Charlene seemed to suggest that she did see some type of impact on her students but was not able to articulate this impact in terms of the researcher's questions as it

relates to achievement. Finally, Charlene stated that, "No, because in first grade we don't have any way to know if it (achievement) was due to the computer technology."

Staff Technology Abilities and Leaders – The community of leadership based upon the strengths and expertise of the staff according to Maurer and Davidson (1998) may fundamentally change the school and its organization. In short, a technology leader may be the principal, teacher, student, parent or community member. A description of the technology leaders at Shellway Elementary School as reported by Charlene included Pam, (although she was not mentioned by name) the computer lab resource teacher, Francine, a second grade teacher and Peggy, a kindergarten teacher. Charlene first mentioned the computer lab resource teacher but qualified her next selection by naming Francine, saying, "She's a leader in my opinion. She knows a lot about computers." Second, she named Peggy, saying, "She knows just as much about computer stuff."

Charlene believed that Francine and Peggy were leaders because they were knowledgeable about computers. Charlene didn't mention whether these knowledgeable staff members were either helpful to her or other staff members or to what extent if any, they were used as a resource by others on the staff. Also, absent from this identification of technology leaders was the inclusion of the principal, parents or students. Charlene identified those individuals who were most knowledgeable and may have omitted others because they were novices. Most notably was the omission of the principal, the instructional leader. When asked again, if the leaders were the teachers, Charlene replied, "Yes, I would say so." Further, the staff's abilities were described by Charlene as,

"Varied. Very high to very low. But more on the upper end. Every year it gets better and better."

Again, Charlene does not specify who the staff members were and most notably does not include herself or her own skills.

Enabled School to Use Technology – Shellway Elementary School was able to use technology, according to Charlene, due to the school receiving magnet grant monies from the federal government. The subject saw no relationship between the role of the administrator, leaders in the building, or the need to integrate technology into the core curriculum. Further, Charlene was not able to conceive of any possible correlation between teamwork, application of professional development, and time on task as a framework for creating an atmosphere for the technology program to progress to the nature or degree that it has thus far.

Maintenance and Evaluation

Support of Technology: Community, District, Principal – Charlene saw no direct community support and sarcastically noted this by remarking, " What community? This one here? Not that I know of. Not that I can tell." Charlene described the district's support of technology as,

> Barely. They could do better. Every school should have what we have
>
> here. Every school should have Internet in the classroom. I think. But
>
> every school should have a new computer and monitor in the classroom.

This question was intended to speak to the level of support that the district had or had not provided in terms of the magnet implementation. However, Charlene gave her responses in light of the district's support of technology throughout the school district in general. Her beliefs about the quality of technology support were viewed in the sense of quantity of inventories. The more equipment you have the better off you are. Again, this spoke to Charlene's novice view and understanding of technological applications. However, credit must be given to Charlene where credit was due for taking a "first things first" attitude; first acquire the inventory and then focus on quality of applications.

Charlene believed that the principal provided support by, "getting us adequate training" and that, "she got us what we needed and wanted for our rooms." Further, "she made sure that every child had an opportunity to experience those things (technologies)."

Charlene's views about equity were reflected in her comments that all staff members received the equipment and materials that were requested, that adequate training was provided and that all students had equal opportunities with respect to technology. She credits her principal for providing the leadership to see that these tasks were completed. She does not specify how these tasks were accomplished or to what part others on the staff, the community or central office may have played in the areas of training, equipment procurement, and provisions for opportunity.

Impact On Role - Teacher – The role of the teacher from "sage on the stage" to "guide on the side" (Nelson & Reigeluth, 1997) requires movement from standardized to customized learning (Ely, 1997). Charlene began to make note of her transitioning by stating that technology had had a "real big" impact on her role as a classroom teacher.

She believed that, "It had made things a lot better." And while she was not able to

definitively articulate herself, she believed that, "It's (technology's) motivated students."

Her views about standardized instructional practices were transforming because, "We

don't have to do everything with pencil and paper now." Further, she reasoned that, "We

don't have to have a book for everything. We can find whatever we want." Charlene's

views provide a starting point from which to transition beyond the "flat part of the

learning curve," (Green and Gilbert, 1995) as a preventative measure against hindering or

obstructing successful integration of educational technology within her classroom setting.

Lessons Learned and Related Problems – In response to questions related to

potential lessons learned and what she may have to offer others through her experiences,

Charlene commented,

Let's see, what have I learned in developing a magnet school? It's a lot of

work. They (staff) need to stay positive and focused and true to their

theme. And, they need to follow the guidelines. And we've done that.

That's because of the principal that we have. Making sure that all teachers

that want to be in the magnet program are in the program. Everyone has to

support it. Everyone has to support it or it won't work.

At this point Charlene credits her principal's leadership in ensuring that the

federal guidelines were strictly followed. She remarked that the staff has a responsibility

and commitment to stay the course and see the program through to fruition. Charlene

reflected upon the amount of energy, time and talents that it took to get to this juncture.

Additionally, the attainment of a common goal, the magnet grant, required a common initiative and desire.

The extent to which technology problems existed at Shellway Elementary School according to Charlene were, "None, really" Predominately, frustration with the computers being "down" was viewed as a problem. However, she stated that, "Our biggest problem is keeping batteries. You know, just keeping batteries for our digital camera and things."

Budget for Technology – Charlene commented that she had no information related to budgetary matters. Reliance upon the federal grant gave little recourse in attempting to become self-sufficient. A definite downside to this type of funding may be the resulting cessation of monies. The subject or any comment on the ultimate impact the loss of those federal monies might have on the students and community gave no insight into the possibility of the continuance of the program.

Primary Grade Teacher - "Francine" –
Readiness, Planning and Training

Roles, Skills and Knowledge – Francine, a second grade teacher was very cooperative and articulate in her responses to questions. Her computer skills were gained through the state funded technology training at the district office. She was extremely knowledgeable about computer usage and shared a variety of ways in which the school integrated technology into the core curriculum. She described her personal technology skills as, "I'm proficient in Microsoft, Internet, Accelerated Reader and Compass Software."

She gained her knowledge of technology through OK Techmasters training Level

II in the Spring of 1999. She further described her school's technology usage as,

"Well, we use computers in the classroom. We have AR (Accelerated

Reader) and do testing for all students using STAR (Student Testing

Accelerated Reader). We also utilize e-mail and have e-pals in Missouri

and Kansas City. Additionally, we use computers for research. We read

newspapers on line and publish poetry."

Role Technology Played with New Applicants – The role that technology played

in the hiring of faculty was not greatly understood by Francine. She believed that the

school's staff was interested in hiring new faculty members who were willing to work

with others. She did not appear to be informed whether prior experience in technology

was a determining factor in the faculty selection process. Francine did not share whether

her technological experiences were a determining factor in her being selected for this

position at Shellway Elementary School. Nor did she comment on her own personal

attitude about the school's mission and goals.

Francine seemed to enjoy her position and portrayed a genuine interest in the

communications and technology aspects of her work. Francine may have been aware of

"reluctant" teacher learners but was not willing to speak to this. She did say, "everyone

was trying by going through the training." This does not give insight into the

effectiveness of the technology focus or individual growth or gains for the primary

stakeholders.

Magnet Status and Critical Decision-Makers – When questioned about the critical decision-makers, Francine shared her opinion that,

> "Our staff didn't have a part in the critical decision-making processes. The resource personnel (central office) and the principal chose the theme. Then, the staff planned the units (utilizing mass media and broadcast communications and related materials to support lessons), decided what materials would be taught and what training would be needed. I'm not sure how the theme was chosen."

The site-based decisions, with regards to training, were influenced by an outline of suggested training by the vendors of the hardware equipment that was purchased. The district conducted software training.

Implementation

Use of Technology – The integration of technology as stated by Francine included testing and testing preparation, utilization of e-mail, correspondence with e-pals, conducting classroom research related to specific subjects or topics, publishing student created poetry and accessing newspapers on-line. She seemed to be very adept in her approaches and strategies. Her greatest reservations for the use of technology centered on, "blocking sites that have materials that is not appropriate for students." This statement gave insight into Francine's level of technology usage and integration into the classroom. She was able to conclude that technology leaders (teachers) shared both a privilege and responsibility in teaching children and that it required a certain amount of technology task maturity to predict possible hindrances and obstacles that may hamper students from appropriately utilizing web-based educational materials.

Impact on Students – Francine described the impact that technology had upon her students as helping those who were "reluctant learners, to become apparent." In this statement, she credits technology with providing an avenue in which learners could practice new knowledge and skills in a manner other than the standardized practice (Maurer & Davidson 1998).

Francine further reports that, "Students want to learn to type and become proficient in their skills." Francine was not able to give insight into the actual methodologies she employed to assist students in becoming proficient in the core areas of reading, mathematics, social studies and science. Whether Francine used the computers as a substitute for the teacher and simply transferred her current teaching methodologies to them (Lazlo & Castro, 1995) is unclear. Discussion about effective and appropriate use of technology (Ely, 1997) was absent from this interview except for the mention of reservations about inappropriate web sites and how these sites could be blocked. Francine seemed to be aware of some of the pros and cons of technology.

Staff Technology Abilities and Leaders – Francine's assessment about the technological abilities and skills of the staff members included statements that "everyone was trying," "that they had gone through a lot of extensive training," that "everyone used technology differently" and she had hoped that, as a whole, the staff would have further "embraced the importance of technology." What Francine does not speak to is the effective and appropriate use of technology, namely the results of the mission and goals of the magnet program. Her belief that she had hoped that the staff would have further "embraced the importance of technology" perhaps speaks to another group of potential

"reluctant learners," apart from her students, who were adapting to the transition from standardized to customized instruction.

Francine described the technology leaders in the school as, "Our media resource team is one. Ms. Hill is extremely helpful. She helps prepare the students and teachers in using the digital camera. She helps with the children in reading. Like Accelerated Readers. The leaders help other teachers such as (with) typing skills and Power Point."

Leaders were identified as specialized teachers. Francine does not refer to herself as a technology leader although Charlene had previously recognized her as such. The principal is also omitted from this category as a technology leader, as well as other parents, students or community members.

Enabled School to Use Technology – The school was able to use technology, based upon the view of the subject, due to the school receiving magnet grant monies from the federal government and the inventory of the state of the art equipment that it was subsequently able to purchase.

Francine was not able to make reference to research based initiatives that both supported and endorsed the integration of technology into the core curricular areas as a impetus for the pursuit of a technology emphasis for this site. Furthermore, Francine did not appear to observe a positive correlation between teamwork, application of professional development, and time-on-task as an indication that technology worked at this site based upon mutually agreed upon goals.

Maintenance and Evaluation

Support of Technology: Community, District, Principal – Community support

described by Francine was viewed as parents of students within the community

purchasing computers for their children for home use, accessing the online newsletters,

and increased hits on the web site containing teacher tips for improved performance.

District support, as viewed by Francine, was the offering of opportunities for training

after work, during planning periods and at no cost to the staff. She reported that, "I took

training over the Spring Break period." No information was provided to determine if this

training was suggested, highly recommended, or made mandatory for various staff

members. Francine's uses of her own time seemed admirable but more information was

needed to determine her level of commitment. No mention was made of other staff

members being in attendance with Francine at this particular training session.

Francine's description of the types of support provided included that of the

principal supporting staff training, "The principal posted opportunities for summer

training and brought people into the building to plan units."

The principal supported professional development related to technology by,

"Constantly sharing information, not by looking over someone's shoulder, and by

providing lab assistance to assist others."

No mention was made concerning the principal's participation in the professional

development opportunities with the staff members or actually conducting professional

development for the staff members relative to technology.

Also, absent from Francine's descriptions were the types of support that may or may not have occurred within the context of the classroom. This limited view of support from the principal could, perhaps, give credence to Francine's concerns that the staff had not "further embraced the importance of technology," and, subsequently, illuminate an impression that this lack of cohesiveness was, in part, due to the limited vision and experience of the principal or central office.

Impact On Role – Francine described the impact technology had had on her role as a teacher by saying, " I'm excited about teaching and having the opportunity to share my knowledge with other teachers, students and parents. She described her students as being excited about learning. Francine was keenly aware that her students changed in the cognitive and affective domains concerning their use and feelings of success when using technology in the core areas. Although she was not able to document the impact that technology had had on her role as the teacher, she had, in fact, changed how she was teaching and was able and willing to take a leadership role to share this knowledge with others at various levels.

Lessons Learned and Related Problems – Instructional technology problems were described as those possessed by the teaching staff, ("We aren't as far along as possible"), rather than those associated with the instructional technology staff at the district level or hardware issues at the building site. Francine stated that, "We need to decide which skills each (teacher) has as they move along and then build upon them." She saw an apparent need to apply standards for technology acquisition and instructional delivery for program effectiveness.

In describing what she had learned in the magnet school program that may help others in this process, Francine remarked that, "I've learned that you have to have a willingness to want to learn, that you do not have time to be reluctant and that extra time will definitely be needed."

Francine had observed at this point that even though plans may have been outlined where one was suppose to be at a given point in time, unexpected interfering variables may alter the ultimate delivery of such services, processes or programs. Reluctant learners, hidden agendas, or unspoken intents of staff members were factors that clearly affected the goals of the program. Rather than to blame or seek excuses, Francine chose to focus on extra time that would definitely be needed for planning, practicing, sharing and for on-going training.

Budget for Technology – When questioned about the school's budget for technology, who developed the budget and how the plan was monitored and evaluated, Francine concluded that,

"We do not have a budget so to speak, besides the magnet money. After

this year, we will not have magnet money. Our resource teacher

monitored us and provided materials for ideas, allowed us to visit

locations and, of course, there were federal monitors. All paper files on

our progress are kept in the lab."

She knew of no budgetary plans for the continued support of technology. She was not aware of the composition of the budget. She stated that a resource teacher monitored

us, provided materials for ideas, and allowed us to have input into the purchase of materials.

The continued support and effective use of technology in schools requires that the principal demonstrate shared decision-making processes in technology development (Inkster, 1998) and utilize a community type of leadership as opposed to an authoritarian or autocratic style (Mauerer & Davidson, 1998). The staff's limited knowledge of the budgetary process raised the question, as to the degree to which shared decision-making processes were utilized, which stakeholders were involved, and what standards were applied to assure that the results were favorable.

Technical Support Staff - "Pam"

Role, Skills and Knowledge of Technology – An interview with the site's technical support staff member, Pam, was also conducted. Questions were phrased to inquire about the support of the certified and non-certified staff members with respect to operations of the technology program at this site, to determine what types of training the staff member had had and what role her position played in terms of leadership of educational technology. The subject, Pam, had worked for the district for one school year. Her experiences with technology were primarily learned from her previous position at Southwestern Bell Telephone, from which she had retired.

Pam described herself as the computer lab assistant. She stated that she was new to the district and after retirement wanted to help students to make better grades. She applied and was hired at Shellway Elementary. Her skills were described as,

"I like the Internet. You can find teaching tools that are needed and can get rid of paper and pencil so much. I enjoy working with the children and am not concerned with the money. I've seen scores improve and improvements with the students."

Her limited responses might have been indicative of her limited knowledge of skills and how her role was supposed to work within the context of the magnet program. She explained that she taught students about the Internet and e-mail. She also helped locate educational sites for students and teachers.

Pam was not very familiar with her role in terms of how it might differ between magnet and specialty schools within the district. She replied, "I don't really have any experience there in which to frame that question because this is my first job in the district."

She did mention that she was taking part in district classes for professional development but would have to do so on her own time and would not receive pay for her time invested.

Support of Technology – Pam's support of technology was described in terms of skills taught to students or assistance to both students and teachers. She remarked that she taught students about the Internet and e-mail. She also helped locate educational sites for students and teachers. When asked how she supported technology at this school her responses regarding the description of her skills and ability to share her the knowledge seemed to minimize the support role that the computer lab assistant might have had. The computer lab assistant's responses may have been due to her relatively new position, and

as yet, not clearly defined position or a limited view of her responsibility within such a role.

Professional Development – Pam expressed feelings of resentment for stipends that were paid for certified training and the inequities she believed existed for classified staff members who were not paid stipends for training. Her resentment over what seemed to be inequitable support of professional development for certified and non-certified personnel may have been cause for concern.

It was not known or discernible from this set of interview questions how the relationship between certified and non-certified staff members may have impacted staff or students in terms of the magnet program. Furthermore, Pam did not give evidence in her responses that she worked from a set of standards for performance for either the students or staff members.

Technology Leaders in the School – When asked who the technology leaders were at the school she stated, "That would be Francine and Marcia." Pam did not volunteer information about what criteria or characteristics she believed that the technology leaders in the school should have. No mention was made of their knowledge level or their ability to share that knowledge with others. It was noted that Pam did not include herself as a one of the leaders of technology even though her position as the computer lab assistant might have caused an outside observer to believe that she was a leader in some sense in order to perform her function.

In all, Pam spoke very little about leadership. She was able to name two staff members who were knowledgeable about technology. But, she did not give insight as to

why she believed that they were leaders. She was certain that every teacher needed more training. She saw little in terms of the relationship between her role as the technical support staff member and developing leadership between the ranks of the teachers and the principal.

Methods for Continued Effectiveness of Technology Leaders – Upon further questioning regarding how the technology leaders could be more effective as leaders, Pam remarked, "Every teacher needs more courses. They'll be left behind if we are not all involved."

She was cognizant of the urgency that staff members would be subjected to if progress in technology was not "embraced" and felt that to become more effective leaders that every teacher needed more courses. She expounded that if they were not all involved that they would be left behind. This transition from identifying only a limited number of teachers as the current leaders, to the inclusion of all teachers, as future leaders, was interesting. Pam might have been saying that she realized that all staff members were potential leaders and if they did not prepare themselves for that leadership opportunity that they would be left behind, not only as a leader but as a professional educator.

Her personal experiences and attitudes about her position and technology were not necessarily a match for employment or the needs of the magnet program's outcomes at this site but may have suited a retired worker whose income was not as dependent upon better fringes benefits. Again, what impact this had on the children or her effectiveness was not clearly understood.

Principal - "Carol" – Interviews One and Two

Readiness, Planning and Training

Roles, Skills and Knowledge – Two interviews were held with the principal, Carol. Carol had been the principal of this school for eight years. She had been an educator for 26 years and held a Masters Degree in Administration. She placed herself in the 51/60-age range.

The first interview dealt with her personal technology skills, the use of technology in the school with respect to the potential benefits of the program, reservations about technology, implementation plans, technology leaders and, lastly, the role of the administrative leader and technology's impact on the administrator's profession.

Carol was cooperative and easily engaged in conversation. She was eager to provide information about her school. Carol selected the requested research study participants and organized staff interview times with the corresponding relief to watch classes so that all subjects could participate.

The first interview lasted approximately 45 minutes. Carol described her technology skills as, "Very limited. I didn't have any (skills) when we started off the program. And I used a computer. I do all my letters and e-mail on the computer. But, I don't have the knowledge."

While Carol, knew how to perform some operations with a computer, she did not believe that this knowledge was adequate. She stated, " I will have the knowledge after I take the course this summer."

This statement revealed a limited knowledge of the scope and depth of computer literacy but does expose a desire to continue with the learning process by participating in a technology workshop this summer. Carol attributed her acquisition of knowledge and skills in technology by learning, "just by trial and error."

Further, Carol felt that she could pursue professional development courses through the district or through vocational offerings.

Role Technology Played with New Applicants – Carol described the current staff by saying, ". . . that 50 to 75% of them are feeling very comfortable (with technology). When we started out all of them (staff members) were afraid of the equipment."

In light of this information and when questioned as to the status of new faculty members within the magnet school setting, no mention was made of the technology skills that may or may not have been required of these new staff members. Carol reported that only about 8% of the staff were new. She did not indicate a clear and defined focus towards the contributions of the faculty members with respect to technology integration and to what degree their experiences and expertise would factor into the interview process and ultimate selection as an employee of the school and district. It is doubtful that the principal would be able to sustain the magnet program and create an environment for continued pursuit of its primary goals and objectives without an intentional plan for personnel selection and retention.

Magnet Status and Critical Decision-Makers – According to Carol's staff, the critical decision-makers of the magnet grant were the staff members of central office (external resources) and members of the faculty of the school. While the grant had

already been written, themes created and assigned to the specific schools, each staff had input into the fine-tuning of the outlay of the plan's implementation. Carol used a committee to accomplish the goals of the magnet grant.

This committee was comprised of the principal, two resources teachers, one for speech and one for TV- Radio and a computer assistant. Carol noted, "Those people are the ones responsible for leading us in terms of media." No mention was made of other stakeholders involved in the process of decision-making. Of particular note is the absence of community leaders and parents.

Implementation

Use of Technology – Carol believed that computers provided the basis upon which all staff worked with students and with each other. She shared that the school had an up to date computer lab and that there were computers in every classroom. The school also boasted the capability of having a functioning broadcasting radio and television studio for student and staff usage. Technology was integrated into the morning announcements by means of student broadcasts sharing the current, local and national events as well as the weather forecast. All of the equipment had come from the magnet grant. Limitations of technology at this site included the knowledge to be able to use all of it and that more training was needed.

Carol reasoned that her school was able to use technology because they were the recipients of the magnet grant. She described benefits to students as,

"It allows them a way to express themselves in ways that are different than

a traditional way. Our kids are tuned into the Gameboys and all the things

that attract their attention as it is and because we are a school that could possibly be at risk, we need the extra motivation and hands on type of experiences in the classroom. And, our kids really, really wanted that much better than the traditional way of learning."

She did not express any reservations about the use of technology. Carol's apparent lack of reservations concerning technology may be attributed to her own limited experiences or her desire to not share any views that may be construed as negative or give a diminished impression of technology's usage, for the benefit of the researcher. Shellway's use of technology was different from other schools, specifically specialty schools, because they had more of it meaning, that they had access to greater sums of money to purchase technology hardware and software.

Impact on Students – The second interview also sought to delve further into the impact that technology had upon the students. Carol said that the primary uses of technology were for educational purposes and that students were beginning to translate that concept. The researcher connected this to an earlier statement that Carol had made in reference to students having access to Gamesboys and that perhaps technology had been viewed for entertainment purposes by the students until they had had other experiences upon which to build in terms of technology application.

Carol believed that, "Students like going to computers, love doing something different and love the sense of accomplishment they feel when they complete a task or project."

Specifically, Carol believed these accomplishments contributed to the building of the students' self esteem.

The primary purpose of the grant as described by Carol was to enhance students' speaking and communication abilities. However, Carol did not offer explicit documentation towards the attainment of these goals or purposes, other than to say that students were beginning to be more comfortable with the technology, that they were able to speak in front of audiences and that the teachers used technology in the media rooms and for use with plays. Carol added that the staff allowed for all of the opportunities that they could.

Staff Technology Abilities and Leaders – The staff's abilities, as described by Carol, included 50% to 75% feeling comfortable with technology, this was an improvement over the initial feelings of fear about the equipment. Carol further reported that there were problems. The staff was able to use Internet and the TV. With the use of the assistants and the resource teacher, the staff was able to use the radio and television broadcasting equipment. She stated that teachers were not completely comfortable yet with everything and that some were more advanced than others. Specifically 30% of the staff were advanced practitioners.

Enabled School to Use Technology – The school's ability to use technology and their implementation of technology was different than other schools according to Carol in that,

" Well, we probably at this point have more of it (technology). So (we) are

involved with it already whether it is computers or with our media lab.

And I don't think other schools have that yet. Maybe one or two others. *"*

Carol's comments and views did not target as a strength the staff's ability to come

together to achieve a goal and how this might accommodate the school's initiative in

utilizing technology to achieve its goals of communications and media broadcasting.

Rather, she focused on the quantity of the equipment as opposed to the quality of the

instruction.

<u>Maintenance and Evaluation</u>

<u>Support of Technology Community, District and Principal</u> – The second interview

probed for specific ways in which the community, the district and the administrative

leader impacted educational technology. Earlier statements by Carol noticeably omitted

the role that the community had played in terms of supporting technology. No mention

was made of the community being surveyed about their willingness to become a magnet

school with an emphasis in communication or mass media. District support of

technology was earlier viewed as providing a magnet grant and initial support to start the

program. Carol stated that her support of technology was primarily through her attitude.

She conveyed to teachers that technology was important, particularly for their success as

adults in the classroom. More importantly, the school had been chosen as the mass media

and broadcast communication magnet site and that the expectation for the staff was that

of integrating technology. She felt that her role as the administrative leader was that of

setting the expectation, providing training and the technology, and to make sure that it all worked well together.

Impact on Role – Carol described the role of the administrative leader and the impact on the profession as allowing her to expand the ways she did things. She felt that it allowed her better and different ways to communicate; specifically, uses of the Internet and e-mail were mentioned. Carol felt that the magnet school designation was great for the students. She felt that her role was to make sure that things worked as well as they had, that she related to the staff, that she cared about the theme of the school, and that she understood that changes could be frightening but that they were going to handle it.

It is interesting to note that after three years only a small percentage of staff members from Shellway Elementary School were very comfortable with technology. The data reflected the need for on-going extensive training. It caused the researcher to wonder if it would have made more sense to identify the strengths of a school before pursuing a grant if the goal was to have a sound program at the termination of the grant.

Use of technology was generally specified in terms of the staffs' and principal's knowledge and comprehension levels rather than the application, synthesis and evaluation. Through the interview little mention was made of any reservations about the technology. Absent from the discussion was the realization that there may be a down side to technology. Rather, Carol's comments centered on communication possibilities utilizing technology. Carol appeared more comfortable with her knowledge of technology and therefore felt more secure in citing this as a usage. She was in the beginning stages of utilization and would require much more application before she was

ready to begin synthesizing ways to integrate technology and ultimately evaluating its impact upon students. This might explain why little mention was made of the benefits (or lack thereof) that one might expect based upon the impact of technology on students' performance, other than to say that, "the students liked the hands on experiences" and that they were "motivated to express themselves" in different ways than the traditional methods.

Carol expressed her role as the administrative leader in terms of the affective domain. She felt that the program would be great for the students. This may have given insight into her support of the grant application in the beginning stages.

Although Carol and her staff were inexperienced in technology, they became risk-takers in the pursuit of such a program. The principal's vision of transforming Shellway Elementary into a magnet school sought to provide for students the opportunity to become proficient in technology. Further, Carol was empathetic in that she stated that changes could be frightening to staff members.

Even though she did not specifically state it, the researcher concluded that Carol was cognizant of her own fears in pursuit of this vision and, as she stated, wanted to make sure that everything worked as well as it should have at this point. However, Carol did not specify what she meant by this statement.

Carol exempted herself at this point as a leader in technology. She saw her role as that of the facilitator of the program of technology by means of the grant application and that she gave support to the participants, be they students, staff or patrons. She saw as one advantage to her school that Shellway Elementary School had a better inventory and therefore the access to gain more experience when compared with other schools.

"When queried about her educational learning theory views, Carol replied,

My philosophy is more like the constructivist perspective in that I believe

that a successful learning experience is centered around the meaningful

experiences children have as they move from being passive learners to

active problem solvers, regardless of whether or not the experience was

created by the individual or some outside stimuli."

This view of social learning theory suggests that Carol has a clear and defined

focus but may not see a connection as it relates to technology integration at this point.

This, too, may change as her technological experiences increase and as she becomes more

proficient as an instructional leader of technology.

Lessons Learned and Related Problems – Future technology plans at Shellway

Elementary School as expressed by Carol, were indefinite but would remain along the

lines of the magnet program even though the staff wasn't aware of the possibility of the

program's continuance. Carol was not familiar with a plan to continue the magnet school

program after the grant funds were depleted. Apparently, a plan was not provided for in

the grant or Carol was not aware of it. Essentially, their plans were to carry on with what

was already in place. In terms of new equipment, Carol was not sure about the possibility

of that happening, except to say that they might pursue fund-raisers or connect with

business partners to provide for these materials.

The uncertainty of Shellway Elementary School's magnet plan could be

detrimental to its continued emphasis of mass media and broadcast communication

technologies. The principal concluded by saying that the school did not have any

immediate plans, indicating that the principal no longer had a vision for the continuation or building of the program. The researcher surmised that the principal would rely upon her experiences and successes, but that no plans had been made past the summer to provide on-going training and professional development.

Recommendations made by Carol for other principals in this same venture included that the school must decide what goals they wanted to accomplish. Further, the total school must participate in the establishment of these goals; there must be ample time for planning to effectively use technology, and that they must plan how to integrate technology into the core curriculum. It must be noted that absent from this plan was an indication that standards for effective integration and methods for evaluating the effectiveness in terms of student's achievement results would be listed as a recommendation for other principals.

Additionally, she believed that the process of the program implementation had brought the staff closer together. She believed that the impact had been positive and that it had changed the way they looked at the curriculum because it caused them to examine it from the viewpoint of technology integration.

Specifically, the staff had had 40 hours of media literacy training and they had also had training in how to use the equipment. Therefore, the staff was geared towards a common goal and that the students had benefitted by having a sense of confidence in communicating abilities.

Budget for Technology – Carol expressed concern regarding future budgetary plans for the school. "Well, up until this year we've been given a budget. We spent or bought what we needed to enhance or further implement the program." Previously a committee helped to determine what materials would be purchased. When asked if a committee would still perform these functions Carol reported,

"Yeah. That's just it. I'm not sure how we will do that in the future to be honest. Probably will be by committee since we're going back to site based management. And whatever funds there are available to us will be decided by that committee is the best that I can say right now."

She further stated,

"Well, because we were a magnet school and we probably won't be next year. Or we're not sure what we're going to be... (incomplete). I think that our plans will be to carry on with what we've already done. We have so far in place our resource people. Those people will be responsible for team teaching efforts that we have already implemented here."

Issues surrounding personnel allocations have either not been addressed by the principal or central office at the completion of the grant or may have been purposely omitted to avoid public disapproval. As far as the encumbrance of funds for new, outdated, broken or stolen equipment, Carol shared,

"In terms of getting new equipment I'm not sure how that is going to work. Other than the fact that we might have some fund-raisers or we might connect (with) some business partners that might allow us to upgrade and complete what we've started. "

Essentially, Carol wondered and conveyed an outlook of uncertainty by declaring, "So, we don't have any immediate plans. We're not sure yet where we are going with regard to our theme."

Carol's unfamiliarity or concern with a plan to continue the magnet school program after the grant funds were depleted questions the purpose of the grant. It does not seem possible that the federal auditors would allow a plan to be funded without knowing what the district's plans would be for the continuance of the program at the completion of the grant. At any rate, Carol was not aware of any contingency plan. In the absence of a contingency plan the stability and sustainability of the program was anybody's guess.

<div align="center">Roslene Threet Elementary School</div>

Background

Roslene Threet Elementary School is located in an urban school district of 40,000 students in grades K through 12. Roslene Threet Elementary School was built as a specialty school for instruction in computers and foreign language in 1997 using district approved bond monies. It included 40,476 square feet of physical plant. It is located on a corner lot with the parking lot, school and playground at different elevations. Standing at the highest point one can see the whole campus at a glance. The neighborhood consists of many frame houses with some brick homes. There are a few small businesses located at the corner intersections.

Demographics of the school include the following percentages:

- Female 49.2%

- Male 50.8%

- Black 94%

- White 1%

- Hispanic 2%

- American Indian 3%

- Asian 0%

- Attendance Rate for students 96.3%

- Attending on a Intra or Inter School Transfer 70.7%

- Free/Reduced Lunch 79.9%

- Special Education 12.3%

- Mobility Rate 10.3%

- Gifted Enrollment 6.4%

- Recommended for Retention 2.2%

- Out-of-School Suspensions 82

- Expulsions 0

The school was especially built and designed to support the students and

curriculum of computers and foreign language. The staff was newly hired from within

and outside of the district. The principal was selected during the 1996-1997 school year

and worked at his former site while planning for the new proposed site. He did this for

approximately five months during the school year and continued his efforts after the end

of his contractual period. He was able to hire staff and make the transition into his new

school during the summer prior to Roslene Threet Elementary School opening in the fall

of 1997.

The school was located on 11 acres, which were partially fenced and landscaped. Visitors parked mainly in the south parking lot area and staff used the east parking lot. Ample parking was available for employees, visitors, and parents. A covered driveway provided for easy access to the building.

Potted plants and benches lined the entryway. A sign on the door greeted visitors and requested that they come to the office to register. A large ceramic, mosaic emblem representing Roslene Threet Elementary School hung proudly in the main entryway. The office and receptionist area was located to the west.

The office was well furnished and was decorated with pictures of students of all races engaged in play or learning activities. The office was often busy with students, teachers, and patrons including, on one occasion, the representative board member for whom the school was named and a local television reporter who volunteered at the school but who was presently engaged in a story.

The school has 358 students, 25 certified staff members, 19 classroom teachers, a part time nurse, part time media specialist, full-time computer lab teacher, one adjunct computer assistant, one part time special education teacher, one part time music teacher, one full-time foreign language teacher and related custodial and cafeteria staff members. Minority teachers comprise 48% of the staff. The attendance rate of the staff for the 2000-2001 school year was 92.8% resulting in a substitute teacher expenditure of $10,670. There were no worker's compensation claims during the school year. The average teaching experience was 12.7 years. Over 44% of the staff had a Master's Degree or above. The average class size was 17.9 pupils per teacher.

The district also maintained additional records they believed to be related to indicators of success. These indicators included open house attendance numbers in the fall equaling 704 visitors, parent-teacher conference day in the Fall resulting in 285 contacts, and the school's PTA membership totaling 71.

Special instructional programs of the school included the specialty school emphasis on computers and foreign language. This school also participated in Great Expectations, a grassroots best practices statewide initiative espousing 17 characteristics of high expectations, teacher knowledge and skill, and a climate of mutual trust and respect.

The school also has a prekindergarten program with two sections, one in the morning and one in the afternoon, a certified early childhood teacher and a certified developmentally accredited assistant.

This school also participated in Peer Mediation, which was sponsored by the Oklahoma Bar Association and was further facilitated by the school's counselor. After-school tutorial programs were provided for through the school's Title I program, which was created and monitored by the principal, staff and parents. Title I monies also provided for extended day kindergarten, which served as an early intervention program.

Upon entering the building, you were aware of the modern and highly functional aesthetics of the school. Trophy cases were located on the East Side of the entryway. Trophies for sports and academics equally shared the space. The hallways were large enough for passing and to accommodate the normal traffic of a school. The walls were dotted with bulletin board proclaiming students of the month, up-coming events,

standards being taught and community resources. The hallways were well lighted and the floors were clean and clear.

Every classroom had an entry into the hallway, but only a few had an additional access door to the outside directly from the classroom. Each classroom was equipped with computers with the number of computers varying at each grade level. Intermediate grades had three to five computers as compared with two to three at the primary grades. All computers were connected to the main fileserver of the school. A multitude of educational software was networked and was available for check out in the media center.

Teachers were grouped by grade level. There was only one prekindergarten teacher, three kindergarten teachers, three first grade teachers, three second grade teachers, three third grade teachers, three fourth grade teachers and three fifth grade teachers. All classrooms were self-contained for the core subjects with the exception of the related arts where students traveled to designated classrooms for Spanish, visual art, physical education, vocal music and beginning orchestra.

Interview Process

Prior to the interviews being conducted the researcher visited the site and spoke to the principal, Jerry. A letter of introduction was accompanied by copies of the questions that were asked of each participant. Jerry was obviously busy, but was very cooperative and readily participated. Two interviews were held with Jerry. One interview was held with each of the two selected classroom teachers, and one interview was held with the technical support assistant or teacher. The interviews were audio taped and transcribed. All participants had copies of the questions prior to the interview process.

Staff Interviews

<u>Computer Lab Teacher - "Ashley"</u>

<u>Readiness, Planning and Training</u>

<u>Roles, Skills and Knowledge</u> – Ashley, the computer lab teacher was selected by the principal to participate in the interview as representative and knowledgeable staff member who could in turn give relative information about the leadership qualities of educational technology. Ashley was extremely knowledgeable and articulate about technology and its uses at the school. She described herself as, "I teach computers full time. And serve as a resource teacher in that role."

She described her personal technology skills as stating,

"I have been involved with computers in the classroom and in the computer lab for approximately nine years. And, I have taken 11 hours of graduate credit computer instruction in computer skills plus many, many . . . every single thing the district has every offered as far as computers."

Ashley had completed the district's trainer of trainer course in computers as well as the standard or job related professional trainer course. She summed up her response by stating, "So, I am also actively involved in training other teachers in using computers."

Ashley's knowledge of computers was developed through trial and error, classes and workshops she had taken, as well as completion of the district's trainer of trainers certification program three years earlier. She stated that she would probably go to the Internet for on-line courses for additional training opportunities.

Ashley's extensive use of computers on a daily basis helped to keep her abreast of the latest hardware and software for educational purposes. She was keenly aware of the importance and need to keep up with new technologies related to her job.

Her purpose at Roslene Threet Elementary School was to integrate technology across the curriculum and to expose all students to the Internet and word processing skills.

Roles Technology Played with New Applicants – When the subject was asked whether technology had played a role in the application or interview process Ashley stated that she believed that it had. She believed that technology played a role in the application process and that a potential candidate was expected to demonstrate an interest in technology, be interested in using technology in their teaching, and have a willingness to learn more about technology. She explained her responses by stating that an applicant did not have to be an expert, but must be willing to integrate technology and buy into the program. Ashley reiterated by stating, "I mean it only makes sense. If you are interested in teaching in a computer school you better be interested in learning about computers."

Specialty Status - Critical Decision-Makers – The origin of the Roslene Threet's specialty school status and the role that specific members of the school played in decision making was not readily known by the subject. Ashley surmised that the school board made the decision.

"Our school was set up as a specialty school when this school was built with computer technology and Spanish being our specialty. ...when this

school was started, it was started as a computer - Spanish specialty school

and if you wanted to teach here you bought into that."

Ashley was not aware of the process that was used to develop the theme of the

school. Her apparent lack of knowledge with respect to the origin of the school was not

critically important to her. This may have possibly been due to the school's identity

having already been established and was currently a non-issue for student, teachers and

the community as they were in full support of the school's mission and goals.

Implementation

Use of Technology – Use of technology by the teachers varied. Ashley stated that

she would incorporate the school's specialty, computers, differently at different grade

levels. Primarily, she would teach all students kindergarten through grade 5 Internet

skills. Grades 3 through 5 would learn word processing. Her goal was to integrate

technology into the curriculum.

"It is one of our specialties or one of our emphasis'. Our school is very

involved in trying to integrate technology, especially the computer, into all

subjects. Especially with our reading instruction. We also heavily teach

the Internet and work processing skills to all of our students."

Ashley's apparent focus on the clearly defined roles and goals of the school allowed her

to speak with confidence and authority when discussing how technology was used.

While, she didn't specifically speak to the results of this emphasis at this point, reference

was made to student achievement in a later question.

Impact on Students – The impact on students, as regarded by Ashley, was that it has,

"given them another avenue for learning, a different way to learn or

learning style or whatever would be the technical name for it. It has also

made learning fun. I don't have any students who do not want to come to

the computer lab. So it makes my job easier."

While she believed that computers were fun and that they accommodated each student's learning style, Ashley noted that,

"In terms of their achievement I have seen especially over the four years,

because I have had the same students over and over again, I have seen a

drastic increase in their achievement scores as (it) related to the using [sic]

of computers to increase reading achievement. Especially reading

achievement. We've done that more than we have done any other

(thing)."

On the other hand, Ashley did not perceive or hold any reservations in her general application of technology to the entire student body. She stated that computers had changed her way of teaching in the classroom. She reflected more upon how her own teaching paradigm had changed rather than potentially detrimental influences that might impact students. Her response may have been in part to her enthusiasm about her subject and her unwillingness to share with the researcher any negative aspects of technology. In other words, she may have been protective of her area of expertise as she certainly must have been aware of web filtering and site blocking performed through the district's information technology department.

<u>Staff Technology Abilities and Leaders</u> – The subject described the technological

abilities of the staff as,

"Various levels. I would say that we don't have anyone here that is at a

beginning level anymore. Because we have all had a lot of training. But

some of them would range from the teacher who would just know how to

use word processing and basic Internet all the way to the teacher who has

been to OK Techmasters. We have very... our school, the summer before

we started, OSU-OKC presented a workshop to all of our entire staff so at

that point, anyone who was not already computer literate, became

computer literate real fast."

Sustainability required continuous professional development, which was available

at the school. Primarily, Ashley scheduled professional development based upon the

needs of the staff. Clearly this customized approach for training was better suited to such

a diverse staff and made better use of the limited time that teachers and other staff

members had for planning. The subject described a technology plan that included goals,

ideas, projects and professional development.

Ashley further described technology leaders as staff members who had different

levels of instruction. They were staff members who were looking for workshops, were

supportive in nature, were interested in technology and were part of the computer

committee. She explained that each grade level had a representative teacher on the

computer committee who was involved and working directly with technology. The

principal was described as a leader in terms of his ideas and goals about technology.

Ashley was able to recall an example of Jerry's support by stating, "If I'd say I want to have a workshop and I want all the teachers to come, then he would say, 'Paula, go for it.'" Ashley stated that, "He's just always there to support me."

Enabled School to Use Technology – Although Roslene Threet Speciality School was created for the purpose of integrating computers and foreign language into the core curriculum, the subject was questioned about what enabled the school to use technology. Access played a major role. Since the school was a specialty school from the beginning and was created to house technology, the access was easier than it may have been at another site. Ashley believed that access made all of the difference and reported,

"That fact that from the very beginning we had access to the Internet, that definitely helped. We've got two computers in every classroom. And, 25 computers in the lab and 6 in the library. So, the fact that was housed from the very beginning with computers, that made the difference. [sic] "

Although access does not necessarily equate with effective usage (Ely, 1997), Ashley appeared to be confident in her response that the availability of computers translated into student productivity. Her views about the usage of computers may be expressed beyond the limiting social and vocational rationales, utilizing computers for awareness of technology, promotion of confidence and as a foundation for certain careers (Hawridge, 1990). Rather, Ashley's attitude and actions were progressing towards a more pedagogic rationale that looked at the advantages of not placing specific limitations on the student's learning (Hawridge, 1990).

Maintenance and Evaluation

<u>Support of Technology: Community, District, Principal</u> – The support demonstrated by the community was primarily that of acknowledging and encouraging the school's mission and goals relative to educational technology. Parents came to special events such as Technology Night, where students and parents equally participated in projects and activities. Parents were interested in their children attending this school as indicated by the high percentage of students attending on a transfer (over 70%), and wanting them to learn about computers.

The support of the district was provided through the strong emphasis placed upon technology, as summarized by Ashley. This emphasis developed from the 1993 bond issues that built Roslene Threet Elementary School and provided computers labs at this school in site and every the district. The original technology plan provided for all certified teachers, media specialist, K-12 teachers (regardless of subject area), and building administrators to receive computer training. Training was to include non-certified instructional assistants and all media center assistants.

Each building was asked to identify a Systems Operator (SYSOP) and one back up assistant. They were charged with the full professional development of the building. While the plan was limited in scope in terms of a sustainable result-oriented program; it was further limited by the lack of monitoring and evaluation. The total number of staff members and principals trained was not maintained. Common estimates by the technology trainer stated that fewer than 40% of the district's teachers had introductory training and fewer than 10% participated in advanced training. Fewer than 5% of principals participated in technology training, both introductory and advanced.

Included in Ashley's description of the apparent lack of district support included

past practices evidenced by the Board of Education Goals for 1993-1998, which did not

address technology. Teachers and principals were not evaluated based upon their

technology skills and the integration into the curriculum. Ashley stated that she had

witnessed the district change over the last six years and that more emphasis was now

placed upon school districts as the state had created goals for technology and the schools

were required to comply with this directive.

Ashley gave high marks to the principal, Jerry for strongly supporting technology.

"He encourages everyone to be constantly taking technology courses. He

doesn't tell, I guess as the principal he could force people to take

technology, but really, he encourages everyone to take technology. He

makes it voluntary. Even when we have computer workshops here at the

school, that I teach, it is a voluntary thing. It's like if you want to do this

you can do it. But from that standpoint it has worked out very well

because I don't . . . now people have responded anyway, although they

weren't forced to do it."

The principal encouraged them to try new things. When Ashley had an idea, Jerry

told her to "try this with the kids and see if it works."

Letting them know when workshops were available and how to earn professional

development points, mandated by the district, towards technology evidenced the

principal's support of professional development as observed by Ashley. Further, Jerry

encouraged the staff. He did this by not telling or forcing staff members to participate in

particular activities. Professional development was voluntary and the staff responded to this type of leadership.

Impact on Role – Ashley however, believed that technology had changed her way of teaching. She had learned, with experience, how to make computers work to teach skills. She further believed that it was one of the best ways to teach. Ashley added that kids were motivated to learn in this way and that a change of pace was well received. Computers were another avenue for learning and allowed her to become a facilitator of that learning. She commented that "kids learned just as much without you in front." She concluded by saying that planning provided for the most effective learning.

Ashley reminisced about her teaching career and the influence that technology had played on her teaching strategies:

"I know teachers say I don't have time for computers in my classroom

because I need to teach. What they don't realize is that the kids are

learning and you really become a facilitator of learning. And I had been a

teacher for twenty years you know. I've been a teacher forever. Because I

was not a teacher in their twenties who had grown up with technology.

I'm an older teacher who knows all the old ways of doing it. And I

learned quickly that you can become a facilitator of learning and your kids

can learn just as much without you being the one that's totally standing in

front of them all day."

Ashley was able to articulate her own evolution of teaching philosophy as she moved from a standardized to a more customized learning approach with technology (Ely, 1997).

Lessons Learned and Related Problems – When questioned about what the subject had learned that may have helped others in this same area, Ashley provided experiences that she had learned without really connecting them to other's needs. She stated that she had really learned most of this as she went. No one came to her and told her what to teach and how to teach it. She actually developed it with the help of teachers. She stated that she was surprised to see the state's standards when they were developed because it had affirmed her own work in that the standards were similar to Roslene Threet's site goals for technology. Her efforts of trial and error had been most productive.

Related problems identified by Ashley were primarily centered on getting equipment repaired and having to wait when the system crashed. Sometimes it was 2 or 3 days before a technician could come out. Ashley stated that she had learned to correct many things and was the primary source for the school for these types of efforts. She expressed frustration over the amount of time it took to get the help desk on the telephone.

Budget for Technology – Determining whether there was a budget for technology proved to be a bone of contention for Ashley. She was frustrated that there was not a budget for technology. Or at least not a specific amount. This was the problem, she believed with specialty schools, in that they were designated as such and then left without

renewed resources. She stated that, "we are suppose to be specialists but we don't have any dollars for it."

The school had had to use Title I monies and monies from their general fund or activity fund to purchase even the necessities for student and office supplies. This had been a problem in the past as the school's population changed, as had the numbers of students on free and reduced lunches. This decreased the number of dollars spent on disadvantaged students.

Ashley was very complimentary of the district's assignment of an adjunct teacher for both semesters. This allocation of 90 hours per semester provided for flexible scheduling and created an environment to promote research and special projects. Ashley doubted that the adjunct position would be funded next year.

Intermediate Grade Teacher - "Jarod"

Readiness, Planning and Training

Roles, Skills and Knowledge – Jarod, a fourth grade teacher, was selected by the principal to participate as a voluntary subject for the purpose of being interviewed as a representative and knowledgeable staff member who could in turn give relative information about the leadership qualities of educational technology. Jarod described himself as a combination 4th and 5th grade teacher who taught math, science, and social studies. He also worked with computers at the school and gained his personal technology skills through college and high school. Additional training, as reported by the subject, could also be obtained through online instruction or college classes.

"My first experience was really learning about technology was Rover

College in Rover, Kansas, [sic]. I received other experiences through the

school district's workshops. I have a friend who is a computer technician

who I can go to and also I would take classes. Right now I am taking

classes at Langston University."

Jarod was very knowledgeable about the availability of resources and was able to

network with others to assist himself in the various areas of his role and assignment.

Roles Technology Played with New Applicants – While Jarod was relatively new

to the Roslene Threet Elementary School, he stated that he believed technology had

played a role in his being selected as an applicant and that he had been asked about his

technology training during the interview process: "Yes it does, well he asked me about

what technology training I had had before hiring me."

Failing to inquire about potential candidates' proficiency in areas that they would

be required to teach would be in direct conflict with the stated goals and mission of the

school. Jarod seemed to realize that his technology skills were valued and appreciated at

this school. Because Jarod had been questioned about his technology skills he further

speculated that other staff members or newly hired teachers would be expected to address

similar questions concerning their technological experiences prior to being considered for

employment by the principal.

Specialty Status - Critical Decision-Makers – Jarod was not fully knowledgeable

about the history of the school, having only worked at the school for the past three years.

He knew that the school was designated as a specialty school, "We are a specialty school specializing in foreign language and technology."

But he was not aware of how that decision was arrived at or by whom. Jarod's comments seemed vague in that he was not able to recall any of the historical information of the school including how the theme of the school was chosen. Perhaps the principal and faculty members do not revisit this topic as it has little bearing on the day to day operations.

<u>Implementation</u>

<u>Use of Technology</u> – The use of technology by Jarod was described as: "We use the computer to do research, the students do research, on different subjects. They have also had experience on the Internet or Web and going to different web sites. And, also we use it for testing. Test preparation." Jarod's use of technology was somewhat limited perhaps in part due to his relatively short career as a professional educator. Jarod was again unspecific about his teaching methodologies and as such, it was not determinable whether he was progressing towards a specific rationale for technology integration.

<u>Impact on Students</u> – Jarod believed that computers opened many doors for students. Further, he felt it was a way of keeping students' interests. In many ways, students received instant feedback. He saw improvements in reading and math. Specifically, he shared that students who had had problems in math were provided with step by step processes. These steps allowed students to self-correct, based on the

immediate feedback. In many ways, he thought that this furthered higher level thinking. Interestingly, immediate feedback was also one of his reservations. He stated that students were accustomed to instant gratification and liked to be rewarded right away with the right answer. Jarod saw this as a drawback because he also wanted students to figure out things for themselves. This critical analysis gave insight into Jarod's transition as an educator. Jarod not only wanted his student to use the computer for inquiry and remediation; he wanted his students to be self-regulating and task mature.

Staff Technology Abilities and Leaders – Jarod described the technological abilities of the staff in the following manner:

"I think everyone has some ability to work on computers. We all have some form of training. There are workshops that are given out of the district and also workshops and things that are done here at school by Ashley."

It was interesting to note that Jarod was careful not to point out or identify weaknesses or strengths of the staff with respect to technology. Jarod may be isolated in his classroom or at his grade level and has little knowledge or reference for the other staff member's technology skills. Jarod further described technology leaders as the computer lab teacher, Ashley, and the principal, Jerry. Jarod believed that the principal "pushed us to use technology."

Enabled Schools to Use Technology – The ability of the students, teachers and other staff to utilize technology, as surmised by Jarod, was that technology was "a big thing around here" meaning that the school's culture promoted technology and that the

staff was eager to become more proficient with it. Jarod seemed to fail to observe a relationship among the various factors that contribute to a successful program such as the overall vision, mission goals, objectives, and measurable results for effective implementation. This was, perhaps, due to his relatively new career status.

Maintenance and Evaluation

Support of Technology: Community, District, Principal – Parents were beginning to understand the importance of computers Jarod believed.

"I think that they're slowly, slowly, wanting to support it strongly. We have a lot of people in this community who can't afford computers right now, but they understand the importance of them in the future."

Jarod stated that although computers were expensive many of the families had begun to purchase them. This was viewed as indicative of further community support and provided an extension of the program within the home.

"District support was described by Jarod in a definitive manner:

Well they support it strongly. As a matter of fact it's a program now that's going on where if you go through training that every teacher after so many hours of training that they will receive a power book, laptop computer [sic]."

Jarod seemed to equate access to technology with the tacit support of technology from the district. However, this view does not correspond with Ely (1997) where he maintains that access to technology by either students or staff does not equate to effective

utilization and results-oriented measures regarding technological abilities, instructional

delivery and its impact upon the technology users.

The support of the principal was further described as:

"He strongly supports it. He encourages us all to go to workshops and

gives us different information as far as classes going on, memos that are

handed out through the district about technology programs and things of

that nature."

Jarod was oblivious to support measures that may have been demonstrated within the

context of his classroom. His expectations of his principal's support were limited at best.

Impact on Role – The impact that technology had had upon the roles of the

intermediate grade level teacher and the computer lab teacher was somewhat similar.

Jarod believed that every school in the U.S. was strongly looking at technology. He had

expanded his skills. He now believed that he had new and different ways of using

technology. Jarod's relatively new experiences at teaching were not contingent upon

older more traditional ways of instructing students. Rather, he had always used

technology in some form or fashion as mentioned earlier in his interview where he stated

that he acquired his skills in high school and college. Technology was not Jarod's greatest

concern at this point in his career as he was still learning his craft.

Lessons Learned and Related Problems – Jarod responded to the lessons that may

he may have learned in accordance with his personal learning experiences. He stated that

he had learned to surf the web, find certain information, and use computers for testing

and related data information. His responses may have been in part due to his limited

teaching experience or the opportunities to work collaboratively with a staff of a school. In this respect he was operating from his own paradigm or that of his classroom and was not in tune with how his experiences might benefit other teachers or schools.

Problems associated with technology as framed by Jarod's experiences within the school centered on inconveniences and limited access to operable equipment. Jarod stated that, "When the system crashes sometimes for some unknown reasons, but they always get it back up. Sometimes we have to wait 2 or 3 days."

He was not able to view the question in terms of other factors that may impact the effectiveness of a program such as the specialty school focus. A more experienced faculty member may have expounded upon the time that it took to become proficient with particular software or the limited instructional time that was provided for students to complete a specific project.

Budget for Technology – Frequently, new staff members become overwhelmed and engrossed in their craft. They may become isolated in their teaching environments and, in so doing, fail to become informed about the workings of the school decision-making processes. This may be the case with Jarod. He understood that a committee worked on the budget but was not aware of the specifics. He commented that a professor from Langston helped on occasion. Other than this limited information, Jarod was scarcely knowledgeable about the budget for technology at the school.

Technical Support Staff - "Crystal"

Role, Skills and Knowledge of Technology – The interview with technical support staff member was conducted after the teachers' interviews. Crystal was a certified former teacher who worked at the central office. She was defined as a teacher on special assignment. She provided training and basic technical support. Questions were phrased to inquire about the support of her role within the building, to determine what types of training the staff members had had and to what extent the position played in terms of leadership of educational technology.

The subject had worked in the district for eight years; two as a technical support staff member and six as a computer assistant in an elementary school. Her experience with technology was primarily learned from her experiences in the computer lab and from trial and error at home. She described herself as a hands-on-learner who used "tutorials and things like that." Her experiences as a computer lab manager helped her greatly. Crystal proudly stated that now she was able to reformat a hard drive and restore a complete system. She also explained that she wrote curriculums as needed, which directly pertained to technology. Primarily she was a resource person who conducted training onsite. She also provided training at the central office. Crystal stated that she was more of a mentor to Ashley at Roslene Threet Elementary School. Crystal stated that her role at the specialty school was based upon the needs of the staff. She was available upon request for advanced training or limited technical assistance. Generally, she saw that the specialty school had more funding than other schools and therefore could hire a computer lab teacher like Ashley to be onsite.

Support of Technology – Crystal explained that she provided support in various ways including providing input on the purchase of software and hardware as needed. Many times, she had been called to provide assistance with respect to the specifications of the system needs of the school. She also performed software troubleshooting and could do a lot of this through telephone calls and some visits to the site.

Professional Development – Crystal remarked that she would go on-line to take professional development courses. She had used Learn2.com to take some classes. Also, the district sponsored a train-the-trainer program for adult learning styles. OK Techmasters provided her with Level II and Level III training. She has since begun training teachers and principals for OK Techmasters. In the past, she had taken classes at the vocational school, too.

Technology Leaders in the School – Crystal quickly identified Ashley and Jerry as the two main technology leaders. She explained that they made the higher level decisions but consulted with the teachers before making the decisions. She felt that Roslene Threet Elementary School did a great job of communicating amongst the staff. Crystal had been involved in the "Technology Night" and spent three months in the preparation of it with Ashley and Jerry and scores of teachers and parents. Crystal realized that efforts made in the small meetings were taken to the larger staff, improved upon, and then brought back to the smaller meeting again until they were polished. This led her to believe that "everybody had a pretty good leadership role" when it came to

technology. All staff members have a web page now, and Crystal believed that the staff was proud of their role as the technology specialty school.

Methods for Continued Effectiveness of Technology Leaders – Although Crystal repeated that Roslene Threet Elementary School had done a good job up until now, she believed that better equipment would promote the entire staff's effectiveness.She remarked that almost all staff members had participated in Level II OK Techmasters and were integrating technology in the classroom at various levels, but that outdated equipment had slowed the process and that funding for improvement was not available. Technical issues inhibited the use of technology and Crystal suggested that it took longer to call a problem in and wait for a response by the help desk then it took to correct the problem. Her solution to this dilemma was to write in a logbook the error messages and problems that arose. After it was corrected, you simply indicated the solution in the logbook. She stated that many problems were duplicated and the lab manager or systems operator could actually learn from the problems.

It was interesting to note that little mention was made from the technical support teacher regarding the focus on student achievement. Perhaps this was not a goal of the school or the teacher. Neither was there mention of explicit goals or needs; rather contact was based upon a call by call basis.

Crystal saw the multifaceted roles of the technology leaders but did not give much insight into her connection with this leadership either because she did not see one or simply failed to mention it. Although Crystal saw everyone improving, she was not able to share goals and objectives from previous years. Specifically, the results of those goals

were not measurable and therefore, accountability could not be determined. What impact this had upon student performance was not clear. If technical problems inhibited the effective growth of the staff's leadership abilities and negatively impacted time on task for students. what was that impact and how was it remedied?

Principal - "Jerry" – Interview One and Two

Readiness. Planning and Training

Roles. Skills and Knowledge – Two interviews were held with principal, Jerry. He had been a principal at Roslene Threet Elementary School for four years and had worked in the school district for 24 years. He held a master's degree in administration. Jerry placed himself in the 51/60-age range.

The first interview dealt with his personal skills, the use of technology in the school, and the limitations he viewed as a detriment to his leadership abilities. The interviews lasted approximately one hour. Jerry was ready and prepared for the interview. He stated that he had limited knowledge and that he would consider himself a beginner in terms of knowledge and application. Jerry acquired his knowledge of computers through observations in the computer lab and at district inservices. His primary use of technology was word processing and e-mail and that he had had a crash course in e-mail. He commented that future professional development courses would be taken at the district level in the area of application. His primary concerns about limitations were related to time.

Role Technology Played with New Applicants – Although Jerry did not specifically address new applicants, he appeared to have an interest in new staff members being involved in technology and having some experiences. This is referred to through statements made with interviews with Ashley and Jarod. Jerry made mention of his staff's diverse abilities in his description of their abilities: "Everything from novice to expert. I have the total range in there. Which makes scheduling professional development in the building a little difficult."

He continued to remark about those differences in technological abilities and referred to how the computer lab teacher, Ashley, addressed them:

"Because I know Mrs.(Ashley) Myers tries to meet the needs of all of the staff members, but they are so diverse she might have to do a, for instance, a Keyboarding I or Keyboarding II or an Internet I and an Internet II to try to catch the skills of everybody."

Jerry seemed to rely upon Ashley's expertise and abilities to drive professional development needs in the building. Absent from this discussion was Jerry's vision for technological prerequisites of the staff, what criteria were used to hire the current staff members, what criteria would be used to hire new staff members, and how these issues might impact the effectiveness of the specialty school program at this particular site. Jerry had an awareness of the diverse needs of his faculty and the methods used to prepare professional development for such a diverse staff, but he steered clear of what responsibility he surely had to have had in creating the current conditions of diverse technology experiences or how he might address them.

Specialty School Status and Critical Decision-Makers – Jerry had been a part of the decision-making process since the specialty school had been proposed which was prior to the bond issue providing the necessary funding of the program. He worked collaboratively with the school board member for whom the school had been named and other central office personnel to map out a plan for successful implementation of all school functions to include the specialty school theme of computer technology and foreign language. The principal's position, for which Jerry had been hired, was decided upon during the previous school year.

Jerry was able to close out the school year and related responsibilities to his previous school while making the transition to his new position. It was during this time frame that he was able to hire staff members and order requested equipment, furniture and materials. Although Jerry was not able to elaborate about various critical decision-makers, it appeared that he had had an integral part in the identity of the school. He appeared proud of these accomplishments and stated, "Every principal ought to open a new school once in their career."

Implementation

Use of Technology – The use of technology at Roslene Threet Elementary School was viewed as the "going thing" and "current trend." Jerry believed that the failure of the school to keep up with it would result in the students being left behind in pursuit of academic excellence. Jerry did not have any reservations about the use of technology.

Again, this view may be in part to the lack of experience and knowledge about technology. Or, that he wanted the researcher to believe that he fully supported technology and that expressing any reservations about technology may be regarded as a negative stance for the specialty school.

It was obvious that after four years, Jerry had not adequately kept abreast of technology trends and applications as it applied to his role and responsibilities as the instructional leader. Rather, he depended upon Ashley and perhaps other key technology users to take on this role. Without the benefit of standards to benchmark the principal's personal computer skills and those of his staff or students, it is not possible to determine to what extent if any effective and efficient technology integration may have been hampered.

Impact on Students – The impact on students as described by Jerry was that the students enjoyed using technology. He seemed to be most proud of this observation. Technology, he reasoned, motivated the students to learn. They wanted to learn more. Students enjoyed a degree of self-satisfaction with their successes. Jerry believed that technology benefitted Roslene Threet's students by increasing the level of complexity of technology integration as evidenced by the following statement,

"I think so. I know when we do science fairs the teachers require that the students do a phase of the project with technology and I've noticed that what that does is increase the knowledge level and the skill level. And, they are required to look up certain things, print them out and include them as a part of their science fair project."

Empirical evidence of this observation was not shared. Had there been empirical evidence to support this premise, Jerry likely would have been inclined to have shared it or reported same. It appeared that absent from citing such empirical evidence, Jerry had concluded that activities related to technology must therefore equate to increased student knowledge.

Staff Technical Abilities and Leaders – The staff of Roslene Threet Elementary School was described as traditional. Staff members ranged from the novice to the expert in terms of technological ability, which made it difficult for professional development planning with such diverse needs. Jerry stated that the staff was reluctant to accept new ideas, and that it was like pulling teeth sometimes. He commented that the staff had to be made to do things but that they really liked them afterwards and saw the benefits to the students. These comments were interesting in that the other staff members did not perceive the principal as being forceful in nature. Rather, he may have relied upon a certain amount of finesse to obtain the staff's cooperation in participating in professional development or particular technology projects.

Leaders were defined as the computer lab teacher and other adept teachers. Interestingly enough, Jerry omitted himself as a leader at this point. He apparently did not view his contributions and efforts in facilitating, motivating and managing technology as leadership qualities.

<u>Enabled School to Use Technology</u> – The reason that Roslene Threet Elementary School was able to use technology as determined by the principal, Jerry, was that the school was identified as a specialty school from its very beginnings. Without the special bond issue funding, the school would not have been built, staffed or equipped for technology.

<u>Maintenance and Evaluation</u>

<u>Support of Technology by Community, District, and Principal</u> – The second interview took approximately 30 minutes. The description of community support was omitted from this interview accidentally as the question was not asked. However, some evidence of community involvement was apparent in supporting materials that Jerry had shared with the researcher. These materials included newsletters and website information that included articles and pictures related to "Technology Night." This activity was well attended and the principal was quoted as saying the evening was a "huge success."

District support as described by Jerry was follows:

"Well, I think the district number one ought to keep up with the latest

computers and provide the buildings with that. And beyond that I think

that they need to make sure that we have a technical staff that can repair

what we have. Without us sitting for two weeks without computers or the

use of computers, the lab being down. Or provide us monies within our

local budgets that we can go out and hire the people to do it. I would hope

that they would have technicians, enough technicians that we could keep

us up and running."

Jerry described his support of technology by providing the "necessary stuff" and

"needs" of the building. He used activity fund monies and Title I monies to provide for

the materials. He steadfastly searched for funding and grant opportunities to provide

more computers for student and faculty use. Jerry was in the process of pursuing

additional training to upgrade his knowledge and use of technology during the summer.

Perhaps, he was also cognizant of his role as the instructional leader and intended to

participate in his professional development along with his staff. This inclusive

professional development could further serve as an indicator of future need assessments

and focus for the ensuing year.

Impact on Role – Jerry viewed the impact upon the profession as "everything

going technology now." He stated that this sped up processes and the dissemination of

information. More specifically, that all operations were becoming technology-based and

that technology was the key to his job. He further believed that technology would be a

good administrative/management system and would ultimately speed up requisitions and

vendors. His reservations with technology were predominately with his previously

mentioned "lack of skills."

When questioned about his views of educational learning theories and how this

may impact his role as the instructional leader of technology, Jerry stated,

"I have not really adopted a specific philosophy. I guess I would say that I

vary between (the) various philosophies depending on what is happening

at the time. In the course of any given day I probably use a little of all of

the philosophies."

Jerry's statements, when paired with his own early implementation of technology,

supported a more social and vocational rationale (Hawkridge, 1990) as well as an

adoption of usage between:

Stage 1 - whereby resources that were purchased are beginning to be utilized with

greater confidence and;

Stage 2 - stabilization in expenditures occurs and practices of the school utilizing

technology would not be excluded.

Moreover, while Jerry purports to move between the various learning theories

throughout a given day, he did not freely express specific details or examples from which

to base his conclusions. The researcher concluded from this observation either of two

things: Jerry really operated from multiple perspectives; or Jerry had a limited knowledge

of the learning theories from a conceptual standpoint and was not comfortable in

requesting additional information or elaborating further upon the question.

Lessons Learned and Related Problems – The future plans of Roslene Threet

School, as envisioned by Jerry, were to work through the staff and committee to research

the "haves, needs, and plan how to get there." Jerry commented that the computer lab

teacher, Ashley, would spearhead the committee.

Jerry took pleasure in repeating that you should "get the best you can, the most you can, as soon as you can," when asked if he had any recommendations for other principals about technology. By this, he meant that principals should exercise all manner of expediency in acquiring the best quality and quantity of computer hardware and software.

He also made a recommendation for quadrant technical support to alleviate the problems associated with the delays through the help desk. In this manner, the district schools would be divided into five to seven quadrants and possibly help calls or repair services would be addressed in each quadrant in a more timely manner. He added that he was all for technology and planned to become more adept at using it because he was going to have to in order to keep up with his profession.

Budget for Technology – In determining how the budget was created and expenditures arrived at for related technology purchases, Jerry exclaimed,

"What budget? Basically, we create the budget on the budgeted amount of

money from the district. And then I look at any other monies coming in

and earmark some of it for updating and increasing our technology within

the building. I attempt to also try to get adopters and partners as much as I

can to assist us with technology. Whether that means computers, software

or whatever. Not a whole lot comes from the district."

Jerry thought that the district should provide more money and support in the area of the budget. While he was not specific about monetary amounts or the types and degree of support, he was certain that a definite plan was needed to ensure that schools had updated

and operable equipment. No longer was it acceptable or possible to open specialty schools with technology-rich environments without a contingency plan to provide for the program's operating costs in the future.

Jerry's understanding of this exercise was a result of his frustrations within his own limited budget and his futile attempts to bring his school's equipment up to current specifications at a seemingly endless rate.

CHAPTER V

FRAMEWORK

Chapter Overview

This chapter begins with an overview of Inkster (1998) work and the eight

characteristic of administrative leadership of educational technology. Commonalties for

principals, teachers and technical assistants will be drawn across each of the phases:

Readiness, Planning and Training; Implementation; and Maintenance and Evaluation.

Chapter V concludes with recommendations for critical decision-makers and conclusions

of the researcher.

Inkster (1998) concluded that further research might be warranted in the

principal's relationship to technology during an innovation. Both Shellway Elementary

and Roslene Threet Elementary schools were embarking on a journey of innovation in the

magnet school and specialty school arenas of an urban school district. The research was

transformative in nature and was conducted to assist school districts in changing their

paradigms to provide equitable access, training, and empowerment of the administrative

leaders in the district's schools.

Inkster (1998) defined effective administration of technology programs by

elementary principals within the framework of the following characteristics:

1.   Be supportive of the technology program;

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2.   Be involved in the technology program directly and personally;

3.   Assume multifaceted roles in support of technology to include leader,

      manager, politician, model, teacher, facilitator, and encourager;

4.   Be a catalyst to encourage potential users and proficient users of

      technology in a growth plan;

5.   Hold all staff members to high expectations in terms of competency in a

      mandatory fashion;

6.   Utilize shared decision-making processes in technology development;

7.   Use care in personnel selection with respect to the hiring of

      technologically proficient applicants;

8.   Personally hold technological life-long learning attitudes and skills for

      optimum effectiveness.

Interviews were conducted with selected teachers and technical assistants or lab

teachers selected by the principal. Both principals were interviewed twice. These

interviews were held pre and post to other staff members' interviews. Each of the

interviews probed for answers to the specific questions and were defined in terms of three

distinct timed phases:

1.   Readiness, Planning and Training

      •   Roles, Skills and Knowledge

      •   Role Technology Played with New Applicants

      •   Specialty or Magnet Status and Critical Decision-Makers

2.   Implementation

      •   Use of Technology

- Impact on Students

- Staff Technical Abilities and leaders

- Enabled School to Use Technology

3.   Maintenance and Evaluation

- Support of Technology - Community, District, Principal

- Impact on Role

- Lesson Learned and Related Problems

- Budget for Technology

Both principals committed to the research process in hopes of gaining knowledge about their respective schools and to ultimately improve their leadership abilities, if possible. The researcher's ultimate goal was to gain insight into the characteristics and logistics of effective administrative leadership of educational technology.

Different Teacher Views Across all Phases "Charlene,"

"Francine," "Jarod," and "Ashley"

<u>Readiness, Planning and Training</u>

<u>Roles, Skills and Knowledge</u> – The views of the various teachers at both Shellway Elementary and Roslene Threet Elementary Schools might have been influenced by their teaching experience levels, their past and current positions, and life experiences as well as their biases, expectations, and knowledge with respect to educational technology. Charlene had taught primary grades approximately eight years. She had limited knowledge and experiences with technology. She was not able to see much of an impact

on her students. She commented that she was not able to say to what extent technology had played a role in her students' achievement.

Charlene's view of her role as a teacher was in transition and she had a vision of what technology could do for her students although her abilities and knowledge were not advanced, as yet. She maintained that in order for a magnet school to be successful, all stakeholders must remain positive and be true to their theme.

Francine's view of her role differed. While she had only taught second grade for three years at Shellway Elementary School, she was very knowledgeable about technology usage for both her students and herself. She, too, had a vision for educational technology and it included seeing learners move from a "reluctant" to "apparent" learners, while Charlene focused more on the transition from resources of paper and pencil to technology. While both may serve the students well, Francine's vision focused more on the results that a student might evidence from utilization on a curricular or learning theory level, rather than the instructional materials that the student might more effectively utilize. Her statements bordered on a more constructivist perspective suggesting that the learners moved from being passive learners to being active problem solvers (Heinich et al., 1999, p. 17). Charlene's focus on usage of materials more closely aligned with a limited stage (Stage 0) of implementation where it was believed that technology would allow for completion of tasks in a quicker fashion (Green & Gilbert, 1995).

Ashley conceptualized what her role, responsibilities, and relationships toward others were supposed to be like and operated from that paradigm. Her focus upon her connections with the staff and students rather than upon having to learn new technologies

was evident in the confidence she exhibited. She had expectations of herself and her students and focused on the opportunities that existed for program development and integration rather than perceived obstacles.

The focus of Jarod's comments differed from other teachers in that he primarily voiced his needs or those of his students as opposed to the needs of the staff. His narrower focus may have been due to his interests, new role, and perceived connection to the success of the whole.

Each teacher viewed themselves as being in differing stages of development with respect to their roles, knowledge, and skills. These views influenced their ability to work with others and to function as a cohesive team. The implications for the instructional leader are that knowledge of these differences are evidence that frequent staff assessment and continual guidance toward the school's common goals may be required to keep all stakeholders moving in the right direction. It further provides for adjustments or emphasis for professional development, teamwork, and related evaluative measure. Failure to acknowledge, communicate, and act on differing views and concerns of staff members towards their roles, knowledge, and skills may create confusion and erosion of program goals.

Role Technology Played with New Applicants – The teachers differed in their knowledge and appreciation for the hiring of new staff members. Charlene and Francine stated that they were not knowledgeable about the hiring practices. However, Charlene was not able to expound upon her response when pressed for additional information.

Francine was able to elaborate somewhat by stating that the staff was interested in hiring new staff members who were willing to work with others.

Jarod believed that his experiences with technology were a determining factor in his subsequent employment at the magnet school. Ashley also believed that technology played a determining factor and identified what attributes a potential candidate would be expected to have interest in and be able to demonstrate. Ashley believed that the technology abilities of potential applicants were important and identified the three criteria for employment as an interest in computers, interest in using technology in their teaching, and a willingness to learn more about technology.

The subjects' differing views suggesting that there may or may not have been qualifications for new or potential applicants gave insight into the untapped potential impact or opportunity that existed when a new applicant was being considered for employment. The responses of the various staff members appeared to be contradictory to the goals of technology integration for a comprehensive program at the school. The staff members were not in agreement about the impact that could be realized if every staff member was fully proficient in technology integration. Expectations of the staff seemed not to be the same as the principal's stated high expectations regarding employment of faculty.

These differing opinions and views may indicate the need for frequent revisiting of the schools' missions and goals to assess and further communicate the importance of each staff member's contributions. Implications for adjustments and professional development may be warranted after such analysis.

Magnet or Specialty Status and Critical Decision-Makers – Francine was unclear of the original grant preparations except to say that the staff had had a part in the curriculum and unit development. Charlene, too, was unclear about whom the critical decision-makers were and what decisions they made. She apparently did not regard her efforts in curricular and unit development as part of the critical decision making process. She recognized that staff members had played a part in the process of creating curriculum and unit development but to what degree or extent was not clearly understood. She was pleased to have been involved in some aspects of the beginning stages of the grant.

While the process of program and facility creation may have been different at the specialty school Ashley suggested in her responses that it was not critical to have all staff members knowledgeable of the goals of the school and mission from its point of origin. Jarod knew very little about the school's origins, how much growth may have occurred, and where it was in terms of its history or timeline of program quality and maintenance.

The implications for the instructional leader may suggest that frequent feedback and monitoring of progress with respect to the overall accomplishments of the school may be beneficial. Further, how that information may be communicated to all stakeholders may have bearing upon the adjustments needed to achieve the school's mission and goals. Failure to act upon or to seek feedback, communicate progress and make required adjustments may further erode program effectiveness and ultimately negatively impact students and staff.

Implementation

Use of Technology – Each participant, from both magnet and specialty schools,

regarded the use of technology at their site through a different "lens". The least

experienced teacher expressed his views most specifically in terms of his own students, in

light of what and how technology was actually utilized. This included test preparation,

research, and web searches. Ashley recalled the process in which the staff had formulated

and applied specific standards for individualized instruction. This instruction was

purported to focus on student achievement and results. The specific standards and results

were not shared, but rather self-reported.

The magnet school, as reported by Francine, used technology for test preparation,

publishing, accessing of printed text, and email purposes. Charlene's limited use of

technology seemed to stem from her need for relevance of technology integration and

personal comfort level rather than standards for technology usage for all staff members

and students.

Each participant responded to the question based upon their experiences with the

technology and their personal beliefs or biases. The instructional leader's role at this

juncture may necessitate an examination of the common goals. Utilization of technology

at the school, as reported by the subjects, seemed to be based upon their perceived needs.

Rather, all staff members should be able to pinpoint where they are in their program's

implementation, maintenance, and evaluation with progression towards a common

standard as an indication of that success.

Impact on Students – The subjects' responses indicated that the value they placed on benefits for students with respect to technology were from diversely different understandings and beliefs. Charlene gave mixed responses and seemed to be unsure of what impact, if any, technology had had upon her students. She apparently had little concrete evidence of performance growth and made little reference to progression of skills for her students. Francine, on the other hand, believed that technology had empowered her students. She was progressing from a standardized instructional approach to a more individualized method.

Ashley and Jarod differed as well in terms of the perceived impact that technology had upon their students. Ashley recognized that technology allowed her to address different learning styles and that there seemed to be a positive correlation in achievement. Jarod saw technology as a stimulus to provoking increasing interest in learning and immediate feedback. He also noted problems associated with immediate gratification of this feedback to his students.

Staff Technology Abilities and Leaders – Abilities and leaders at the school as perceived by the participants were varied. Jarod remarked that everyone had some ability and training but was careful not to evaluate the abilities of the staff specifically. He identified leaders within the staff as technology teachers and the principal based upon their position rather than attributing their leadership to specific characteristics or instances. Ashley saw the best in everyone and recognized improvement as a whole. She applied this notion further by indicating that a leader in her view was any staff member

who demonstrated the initiative to go to workshops, was supportive, and was interested in technology. She also identified as leaders members of the computer committee.

Francine and Charlene's expectations of the ability levels of the staff differed. Charlene merely stated that the ability levels were "varied" and ranged from "very high to very low." Francine recognized all of the time and energies that had been put into training and also realized that the staff implemented technology differently. She wished that technology had been "embraced further" suggesting that there was some resistance. The description of leaders by Charlene and Francine were primarily specialized teachers. Francine attributed the leadership to the position and role, while Charlene's characteristics of leadership were related to knowledge and skill. The principal was identified by the Francine as a leader and was not mentioned by Charlene.

Enabled School to Use Technology – The views of the various teachers differed with respect to their personal rationales for which their schools were able to use technology be it based upon inventory or designation as a site for a particular program. Further questioning probed to determine what extent teachers considered their principal's role as a potential catalyst for technology. The catalyst's role being that of encouraging potential users and proficient users of technology in a growth plan thereby, further enabling the school to use technology (Inkster 1998).

Rather, each teacher viewed this enabling process within a different context. For example, Charlene reported that the school was able to use technology based on the school being a recipient of a federal magnet grant. She had no insight as to her role or that of the staff in the use of technology at her site. Francine based her opinion on the

quantity and availability of inventory. Ashley reasoned that access enabled the school to use technology. And Jarod's responses were more aligned with the culture of the school, in that it promoted technology. In addition, he believed that the staff was eager to become more proficient in using technology.

Each response of the subjects, however, was an indication of where the subjects' focus' lie in terms of their needs and related responsibilities to the program. If those needs were increased inventories then the participants would value purchases of the same. If those needs were for quality program integration then the participants would or should be able to recognize the value and contributions of each of the staff members. However, the needs should directly correlate with the goals of the school. In this respect, the goals would become the driving force rather than random needs at any given time.

<u>Maintenance and Evaluation</u>

Support of Technology: Community, District, Principal – Responses of the subjects varied with respect to the types of support one might gain from the community, district and principal. Charlene's snappy comeback, "What community? This one here? Not that I know of. Not that I can tell," implied that she had strong feelings for her perceived lack of community support. Jarod believed that the community was learning to support technology by recognizing the value of technology while at the same time not being able to afford technology. Ashley believed the community was very supportive and recalled activities or events that parents attended with their children. Francine observed that parents were purchasing computers and were using the school's web site for information relative to school events, activities, or tips for improved performance.

District support was described as the availability of training by Francine. Ashley strongly reasoned that the district support of technology was absent because it did not provide for timely repairs or a have an operable plan to update equipment. Charlene provided a more district wide view as opposed to her specific site and reasoned that inventory was an indicator of district support. Jarod also believed access was an indicator of support on a district level.

The support of the principal was viewed in terms of the role as an encourager and supporter suggested by Jarod. Ashley believed that the principal encouraged and provided information relative to training and also empowered her in trying new things as she planned sessions for professional development. Francine described principal support as sharing of information, not exerting pressure, "not by looking over someone's shoulder," and provided technical lab assistance to assist others. Charlene reasoned that principal support was indicative of "getting us adequate training," "getting us what we needed and wanted," and that "every child had an opportunity to experience those things." Absent of standards for community, district and principal support the staff reported differing values, characteristics and outcomes.

Impact on Role – The impact upon their roles as teachers for the various subjects was expressed in different respects. Jarod, the least experienced teacher, had always used computer technology in his learning experiences at both high school and college. He had not experienced differences in his teaching career as he applied computer technology. He was excited to have different resources for instructional purposes as a result of computer technology but he did not view this as a distinctly different pedagogy.

Francine expressed her conceptions for computer technology by the possible future opportunities that might exist to share her knowledge with teachers, parents and students. This view of her role, and the impact that technology might have within her circle of influence, portrayed a more global perspective of technology utilization and collaboration.

Charlene's views emphasized more of a single dimensional view in that she considered the impact on her role as a move from standardized to a more customized instruction for students. Ashley realized her evolution as a teacher, how computer technology had grown, and how she had grown with it. Ashley regarded herself as a facilitator of learning as well as a lifelong learner.

Each teacher interviewed noted that their role had been transformed but qualified the degree to which a change may have occurred due to differing experiences and perspectives of their roles. These changes ranged from slight differences to complete changes in one's repertoire of instructional delivery practices. Some teachers reported that the change was directed primarily toward how things were done in the classroom, for example less emphasis on paper and pencil tasks. While others reported that the differences could be seen in terms of the results that students demonstrated in the affective or cognitive domains.

The differences with which the participants recalled their own learning experiences and related problems in the magnet and specialty school might be classified as evaluative responses. However, these evaluative statements referenced different areas of the programs' processes. Francine noted that a needs assessment and growth plan was required at this date to determine where the staff would go from this point in time.

Charlene's evaluative statements referred to a commitment on the part of the teachers in terms of wanting to be involved in the magnet program.

Ashley's evaluative statement concluded that integration and application standards were the result of much effort and collaboration amongst the teachers. While, Jarod understood that he had been enabled to use various resources and believed that this was worth sharing with others who might be embarking upon technology innovation. All of the evaluative statements centered on differing concerns and potential platforms for future growth in the areas of technology integration.

The scope of the problems noted by each of the teachers were again expressed in terms of concerns and the subsequent priority that each believed should be placed upon their concerns. Francine was concerned about the status of program implementation at each grade level and for each teacher. Charlene stated that the lack of batteries were the priority. While Ashley believed that operable equipment was the priority. And finally, timely response to requests for technical assistance so that computers could be more fully utilized seemed to be the priority for Jarod.

Each opinion, while valid, gave insight regarding the level of adoption and integration of the computer technology program as well. Related equipment such as batteries seemed to be a relatively small factor, which was surely not as costly and potentially more easily resolved. The formulation and application of an assessment instrument, as suggested by Francine, for the purposes of determining the needs of each staff member's professional development would be a more complex but valuable exercise. What plans the staff may have had for completing this task or what directive the principal may have had in the final analysis was not clearly understood. However, it

appeared that Francine seemed to have an understanding beyond the scope of her own

needs and had considered how to resolve this concern.

Jarod simply needed a better system to address equipment repairs in a timely

fashion. He, too, was concerned that the computers were not available for days at a time

and that a back up system was not a viable option. He seemed to comprehend the

magnitude of the problem but did not have any solutions at the present time.

Lessons Learned and Related Problems – The potential lessons learned from the

subjects' experiences that might be shared with others as expressed by Francine included

that of assessing the skills of teachers. She seemed to suggest that teachers needed

feedback, encouragement, and subgoals as an incentive to proficiency. Her concerns lie

with the staff not progressing as far as possible. Perhaps Charlene's concerns were

related to Francine's as she suggested that it was essential that "every teacher in the

program wants to be in the program." Problems stated by Charlene were primarily with

the supply and demand of batteries, a seemingly more easily rectifiable problem as

opposed to the learned lesson she noted of wavering teacher commitment to a school's

stated philosophy, mission, and goals.

Ashley believed that the inclusion of standards in technology would service others

well in their pursuit of a similar program. Although Ashley had not fully developed the

criteria for subskills within the standards and had not transferred the idea toward

standards for teacher proficiency and integration, she was beginning to see the value of a

common vision, knowledge, and language. She was also concerned about repairs as you

could not implement or evaluate standards whether they were performance standards or achievement standards if you did not have operable equipment.

And finally, Jarod indicated that he realized limited lessons learned primarily based on his novice teacher experiences. He did want others to realize the potential for vast teaching resources and exploration on the web. His concerns also were related to limited access for students based on inoperable equipment.

Budget for Technology – What implications there may be for instructional leaders to fully disclose budgetary practices for their specific programs were not readily known. Either the subjects were not aware of the budgetary practices as suggested by Jarod or Charlene, or they were aware that the budget was limited or severely restricted for future expenditures, as was the case with Francine and Ashley. The aspect of ownership and shared decision-making was clouded by this information in that the staff's understanding of how equipment was procured, maintained, and replaced was not apparent. Without additional funding from the district, schools have limited funds. The extent to which those funds are earmarked for technology seemed largely dependent upon the school's technology needs as perceived by the principal. These decisions are made at the site level, more specifically at the principal's discretion in line with district policies and procedures. While this places the principal in a difficult decision-making situation relative to other school needs, it is incumbent upon him/her to vigorously pursue funding from the district sufficient to meet the stated goals of the district for the school.

The uncertainty of future funding with which the magnet school had to operate must have been stressful for the staff. What specific impact this budgetary process had

upon the staff is unclear but can be imagined when such vast investments in time, collective intelligences, and energies are expended upon a project whose sustainable outcome is unknown.

Different Technical Assistant Views Across all Phases

"Pam" and "Crystal"

Role and Knowledge of Technology

The views of the technical assistants at both Shellway Elementary and Roslene Threet were diverse in that each employee had vastly different experience and expectation contexts from which to view their respective roles. Pam had retired and was embarking on yet another journey in her work experience. Susan had recently become a certified teacher and had bypassed the classroom experience to become a district technical support trainer. So, naturally their views about their roles, expectations, and knowledge of their jobs were very different. Pam seemed to be interested in "working with kids" and wasn't "worried about the money" while Crystal's focus seemed to be more about what type of resource she might have been to the school staff in terms of training, curriculum integration or limited technical support.

Support of Technology

Crystal's support of technology included her ability to provide resources in terms of performing limited technical support as well as experience in technology integration. Pam's support of technology was that of more of a helper to students and clerical

assistant to staff members. With an undefined role and corresponding standard by which to apply their support of technology it became difficult to assess what support was really needed and what support was actually given at each site. The definition of support was different. Crystal believed it to be giving feedback on the purchase of software and hardware, being available for technical assistance, and troubleshooting while Pam believed it to be wanting to help students to make better grades, teaching of the Internet and e-mail, and also helping students and teachers locate educational sites. Support became a relative term based upon experiences and expectations with little or no connection to student performance.

Professional Development

The professional development needs of each of the technical assistants were varied. Crystal had used various systems of "trial and error" as well as taking courses at the district level. She had completed a trainer-of-trainers program for specific software integration. However, Pam gave little indication of her professional development training except to express it in terms of her experiences. She could teach Internet skills so one might infer that she had had some type of training, either independent or within a group, to have knowledge of this skill on the computer.

Pam's support of technology at Shellway Elementary seemed to be more of a class room assistant in the lab rather than an experienced resource as one might expect of a computer lab assistant. Her ability to actually support technology while not documented by staff except by their omission of her as an identifiable technology leader, was not clearly understood. Crystal had been involved in some major activities at

Roslene Threet Elementary School, such as "Technology Night," but believed herself to have been more of a mentor to Ashley, the computer lab teacher. Ashley was also omitted as a technology leader.

What implications there may be for the instructional leader in terms of using limited resources for personnel may include getting the most qualified individual possible to support the program. Absent of this one might reason that the resources might have been better utilized elsewhere. Questions that might prove to be more helpful in determining this measure include whether the benefits of expenditures for having a computer lab assistant or technical assistant justified the results. Again, the standards for which support of the program would be measured were not identifiable from this interview or other documentation from the schools.

Technology Leaders in the School

While neither of the technical assistants from Shellway and Roslene Threet Elementary were cited as a technology leader by other staff members or by themselves, they were able to identify other staff members. Only Crystal identified the principal, Jerry, as a leader by stating that he shared in making higher level decisions after consulting with his teachers. Crystal further concluded, "everybody had a pretty good leadership role" utilizing shared decision-making practices. While Pam did not identify her principal as leader, she noted that two other staff members were leaders but did not give insight as to why they were identifiable.

Methods for Continued Effectiveness of Technology Leaders

Various methods cited for the continued effectiveness of technology leaders at each of the school were indicated. Crystal believed that while Roslene Threet Elementary school had done a good job up until now, she believed that better equipment would provide the basis upon which the school could be more effective. Pam believed that staff professional development was the basis for which effectiveness could be measured. Both subjects appeared to have some basis for their thoughts and reasoning. Shellway Elementary's access to larger quantities of new equipment had been funded through the magnet grant. While, Roslene Threet Elementary's equipment had been provided for through a bond issue in 1993. Therefore, differences for the equipment inventories of each school was notable as new versions of software or hardware were constantly coming onto the market.

Shellway's emphasis in terms of professional development denoted a chasm of sorts with respect to abilities, common language, and knowledge base. The opportunity for collaboration between the two schools seems apparent at this juncture, as each school seemed to struggle through with their purposes, void of constructive feedback and a benchmark to gauge their progress toward their goals.

Different Principal Views Across all Phases

"Carol" and "Jerry"

<u>Readiness, Planning and Training</u>

<u>Roles, Skills and Knowledge</u> – Principals stated that their skills in technology were limited. Carol believed that she did not have adequate knowledge or skills, but was willing to pursue additional training. Jerry also had limited knowledge and skills and was planning to take courses this summer to improve his skills. He had had more experience at this juncture than Carol with respect to the integration of technology into a school's curriculum and application of technology in day-to-day operations of school functions. It was interesting to note that each principal had been chosen to lead technology at their specific sites through the central office with little regard to their actual technology experiences. How this decision was arrived at was not known. However, implications for future critical decision-makers with respect to assignment of principals to sites where technology leadership is required may suggest that the substitution of other leadership skills is not a viable option.

<u>Role Technology Played with New Applicants</u> – Carol began her responses to this question by citing the percentage of staff members who were becoming comfortable with technology. She noted that in the beginning all of the staff members were afraid of the equipment. She made no mention of the technology skills that may have been or should have been a prerequisite for employment at this magnet school.

Jerry seemed to rely upon the abilities of his computer teacher with respect to technology and drew no conclusions about his role or responsibility in determining what

criteria new staff members may need in the way of prerequisite skills. And yet, Jerry reported that it was difficult to provide professional development opportunities for his staff members when their needs were so diverse. He was not able to see a correlation to the diversity in experiences, application of technology integration and the needs of the school especially in light of new applicants or teachers on the staff. One might have expected that there would have been a conscious effort to hire staff members who were experienced in technology integration. There may have been many reasons that this did not occur. There may have been a lack of understanding by the principal of the importance such requisite skills or even, perhaps, a shortage of teaching staff with technology experience; but that information was inconclusive in this study.

Magnet or Specialty Status and Critical Decision-Makers – The roles that the various critical decision-makers had at the specialty school and magnet school were identified as both collaborative and integral regal. Jerry believed that he had collaborated with the central office personnel, a school board member, and school staff members regarding the focus and theme of the specialty school. Carol noted that while the theme of the school had actually been chosen by a grant writer, the staff had worked with central office personnel to develop particular lessons. Each principal was proud of this shared decision-making but did not make mention of other valuable stakeholders such as community leaders or parents in the process. What value this might have had in overall potential success for each school may never be realized.

Implementation

Use of Technology – Each site utilized technology in a different manner. Carol specifically mentioned the magnet school theme as an impetus for computer technology usage. Technology had been integrated throughout the school day to include daily announcements via the monitor. The school as a whole was able to use technology because they had received a magnet grant. Carol did not specify what access to technology the school had had previously or to what extent it had been integrated into the curriculum and daily school functions. She further reasoned that technology was used to create motivation for potentially "at risk" students rather than a traditional methodology.

Jerry's responses identified technology as the "going thing" and "current trend." He believed that the inability of the school to keep up with technology would results in their ultimate failure to achieve academic excellence, but specific examples were not shared. No mention was made by Jerry about his rationale for technology usage for students other than it was the "going thing." He obviously wanted to be involved in the "current trend" but was not able to articulate a direct correlation between technology and improved student performance at this point in the interview. He later concluded that students were able to express themselves in different ways as they approached assignments with the use of technology. Also absent from each principal's response was the use of technology by other staff members, including themselves.

Impact on Students – Students, as described by Jerry, enjoyed using technology. He believed that technology motivated students to learn. Carol also reasoned that students were motivated to learn using non-traditional methods of instruction.

Documented evidence of the impact on students was not apparent from either the interview or supporting school profile information. And, while the emphasis of this study was to examine the role of the principal's leadership on educational technology, it is not known how the leadership of the principal impacted students other than the self-reports made by the principal. Without empirical evidence or some type of qualitative evidence, the extent to which this self-reported impact may be viewed as either positive or negative or, indeed, if it exists at all, cannot be determined.

Staff Technology Abilities and Leaders – Jerry previously described his staff members as traditional. Their ability levels ranged from novice to expert. And, while the staff was reluctant to do new things, they eventually saw the benefits of integrating technology into their instruction. The principal's responses were not inclusive of specific examples or leaders. He did not identify himself as a leader.

Carol's description of her staff's abilities focused on their feelings of comfort with technology. Neither principal described a specific plan or standard for technology proficiency or application. In the absence of this standard, it would be impossible to gauge what progress was being made towards the goals of the schools. And, while Jerry alluded to a range of abilities from novice to expert, Carol sought to define a percentage (50% to 75%) of staff members who felt comfortable with technology. Both comfort levels and abilities may be important but provided no definitive indication of technology integration.

Enabled School to Use Technology – The means by which Shellway Elementary was able to utilize technology, compared with other schools in the district, was described

by Carol in the following manner: "Well, we probably at this point have more of it (technology) . . . So (we) are involved with it already whether it is computers or with our media lab." Jerry reasoned that the school was able to use technology because the school was designated as a specialty school through a specially approved bond issue in 1993. The school was built, staffed, and equipped according to the collaborative efforts of the principal, school board member, central office personnel, and faculty members.

Differences in funding as reported by the principals, enabled each school to use technology. Shellway Elementary School was funded at the federal level, whereas, the Roslene Threet Elementary School had funding from the local level. Each principal reported that the funding, inventory, and access to equipment provided for the necessary prerequisites to further technology integration at their sites.

Ely contends that most educational reform plans for public schools will include some component of technology but the approaches will vary (Ely, 1997, Trend 8). In this study, both schools utilized technology in differing approaches to motivate students or challenge students in order to achieve some type of results but the results were not clearly identifiable by the researcher. Both schools appeared to be somewhere between Stage 1 and Stage 2 for implementation measures but provided no evidence of progress towards a common goal. (Stage 1: being defined as a point where they were beginning to explore technology with greater confidence, while delays were evident in adoption and Stage 2: where stabilization occurs and practices begin to become vastly different than they once were and could not be reversed to exclude technology (Green & Gilbert, 1995).) Neither principal identified as a component of being enabled to use technology at their specific

schools those skills that may have been applied through leadership abilities of their staffs nor themselves.

Maintenance and Evaluation

Support of Technology: Community, District, Principal – Carol notably omitted community support during her interview. Supporting documentation indicated that the community attended activities at the school and that volunteers were available as needed or requested. How these specifically related to technology integration was unknown. Carol's indication that the district supported technology was evidenced by the central office having written a federal grant to include Shellway Elementary School. Carol reported that her support of technology was evidenced, "primarily through my attitude." She conveyed to teachers that technology was particularly important for their success as adults in the classroom. Further, she held the expectation that the staff would be responsible for integrating technology into the curriculum.

Documentation regarding community support revealed that parents attended events at Roslene Threet Elementary School that included technology. "Technology Night" had been published in the school's web page and that documentation indicated that the event had been well attended. Parents had been engaged with their children in various activities integrating technology. Jerry believed that the event was a "huge success."

However, Jerry viewed support by the district as contentious. He offered many suggestions for the district regarding ways in which the needs of the school may have been addressed for future reference. He concluded by saying that either that the district

should find a way to support the school at the district level or provide the necessary funding at the school level to make it happen. The support of the principal was described by Jerry as his having provided the "necessary stuff" and "needs" of the building. Jerry surmised that his ability to facilitate the needs of the students and staff was indicative of his support. Primarily, his facilitation involved the use of building-level funding opportunities to purchase additional hardware and software.

While funding and responsiveness dominated the interviews of the participants, both principals viewed their support in differing manners. Carol saw her support in terms of the affective attitude. Jerry believed that his actions were indicative of his support. Both viewed the district in differing manners, as well. Jerry believed that the district did not do enough to keep computers accessible either by repairs or by having a plan to replace old outdated equipment. Carol believed that the district supported technology because they wrote a grant that included her school. Without a definitive description and support plan from the district it was unknown what support was supposed to have been available. The district's technology plan provided little or no indication of what might occur past the initial implementation phases other than to say that all staff members were to be trained.

Impact on Role – The impact on the principal's role was described in different respects. Jerry believed that technology sped up the processing and dissemination of information. He further believed that all operations would become technology oriented. His concerns were primarily with his perceived lack of skills. Carol believed that technology allowed her to expand in terms of the ways she operated. Additionally, she

was able to communicate better and in different ways. She saw herself as more of a facilitator of technology. Both Jerry and Carol saw their roles changing but with differing emphases. Jerry believed his emphasis to be more towards productivity, while Carol believed her emphasis to be from a communication standpoint.

Philosophies with respect to learning theories also differed between the subjects. Carol stated that she operated from a more constructivist perspective because she believed that successful learning experiences were created from the individual or outside stimuli as the child moved from passive to active learning. Jerry concluded that he operated from or moved between the different learning theory perspectives in a given day depending upon the circumstances and events.

These philosophies may have given insight into the manner in which technology integration was delivered and supported by the instructional leaders. Neither gave specific examples of their learning theories. Absent of that, it was difficult to conclude if there was a complete understanding of the question or learning theories.

Lessons Learned and Related Problems – The lessons learned and related problems were strikingly different from each principal. Carol communicated what she had learned by recommending to other principals that schools as a whole must decide what goals they wanted to accomplish. In this venture, the entire school must have ownership by participating in the establishment of these goals. The school must deliberately provide ample time for planning for the effective use and integration of technology.

Jerry emphatically replied that the school should put forth every effort to get the best inventory of equipment as soon as it possibly could. His focus was more of an access approach rather than a process approach. These responses were aligned with each principal's major concern during the time that this study was conducted. Shellway Elementary was viewed as having adequate equipment but was still working on the processes to utilize their equipment more fully. Roslene Threet Elementary believed that it had already addressed technology integration but was now concerned with obtaining more current versions of hardware and software.

Associated problems were also dissimilar. Carol was uncertain as to what initiatives or support she or her school would be involved in for the future, while Jerry was concerned about a system to address repairs and purchases of new equipment. Both principals operated in a void of information and yet were expected to be the leaders in their schools. Implications for central office personnel may suggest that plans for specialty and magnet schools include specific plans for the sustainability of said programs.

Budget for Technology – Budgets for technology were varied at each of the sites according to the subjects' responses. Carol stated that the magnet grant would not be renewed and she was not aware of any continuing support that the district might provide. She concluded that she might be able to have some fund-raisers to gain more funding. Jerry had not had substantial district funding for a number of years and now relied upon his Title I, general fund, and activity fund monies to purchase equipment and supplies.

Jerry's experiences had shown him that there were ways to support the program but that they were not truly adequate to realistically update the equipment and address student needs. While Carol had not progressed to this point as yet, she was beginning to realize that she needed some type of contingency plan to continue her program's emphasis.

Implications for school districts, principals, central office personnel, and board members include the need to provide necessary funding beyond the specialty and magnet school development and implementation. To omit this measure would negate the time, energies, and monies already invested as well as to negatively impact student's ability to pursue and advance their technology skills.

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Commonalties Across Teachers, Technical

Assistants and Principals

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Readiness, Planning and Training

Roles, Skills and Knowledge – Teachers, technical assistants and principals each viewed their roles, skills and knowledge within the scope of their experiences and biases. And although those experiences and biases may have been different, there were many similarities expressed by the various groups.

They saw themselves as teachers, facilitators, learners, models, and managers. Many of these roles were associated with the principal's leadership as indicated in the framework of this study (Inkster, 1998).

Skill levels varied between and among the groups. Some skill levels were basic and some were more advanced. Each group believed that they had more to learn in terms of skill levels. Therefore, they were also life-long learners (Inkster, 1998).

Knowledge levels were learned through "trial and error" while on the job and through professional development opportunities both at the district and state level and through high school and college experiences.

Role Technology Played with New Applicants – Each of the groups realized the importance of the various staff members to the whole but were not comfortable in addressing the strengths or weaknesses of a particular staff member. No plan for prerequisite criteria for employment existed at the two sites, nor were the staff members cognizant of the need for there to have been a minimum criteria for future hiring practices. This spoke volumes about the reluctance that the teaching profession has to peer review practices.

Magnet or Special Status and Critical Decision-Makers – Critical decision-makers identified by each of the groups included central office personnel and staff members at the designated schools. There seemed to be some information shared or remembered by the various groups with respect to their school's original designation as a magnet or specialty school. However, that information was not regularly shared or stored for future reference. It became the responsibility of original staff members or the principal to tell the story and of where the school had been and where it was going.

The status of both of the schools as identified by the teachers, technical assistants, or principals were uncertain. This uncertainty created undue stress and may be deflecting the direction toward which the schools need to progress.

Implementation

Use of Technology – Technology use in the classroom, as reported by teachers, technical assistants, and principals, included Internet access, research, and accessing other educational sites. Teachers used the technology differently at different grade levels depending upon their own experience level. Each site operated without specific standards for technology utilization except for the state's priority academics skills. Even so, these skills appeared not to have been taught in any manner by which data could be collected to determine success rates for integration or application of technology skills.

Impact on Students – Student's impact was not readily known by teachers, technical assistants and principals. Self-report was the only measure of student impact. Each group believed that there was an impact but reasoned that it existed based upon their experiences and beliefs about technology as it applied to their role. Teachers reasoned that technology had had an impact but that it could not be measured. Technical assistants reasoned that student progress was made but were not able to identify how this occurred. Principals observed a difference in student's abilities to communicate and the level at which students performed tasks but were unable to cite specific data to corroborate this belief. Regardless of the group, there existed some belief that students were impacted. The extent of that impact remained unknown to the researcher.

<u>Staff Technology Abilities and Leaders</u> – Each group was able to identify technology abilities and technology leaders. Teachers, technical assistants, and principals wanted to give credit to the enormous amounts of time that had been devoted to professional development both within the school day and outside of the school day. Each group was knowledgeable of where they might obtain further training and indicated a willingness to take advantage of future professional development opportunities. More credit was given to the process of participating in professional development than the anticipated results that should have been indicated in student and teacher performance as measured to a particular standard.

Leaders were identified across the all groups. Leader teachers were identified by other teachers, technical assistants, and principals based on knowledge and skills. Again, no specific criteria or standards for leadership were identified.

<u>Enabled School to Use Technology</u> – The reason that each of the schools were able to use technology as reported by the teachers, technical assistants and principals was more aligned with funding and inventory rather than focusing on mission, goals, and related teamwork. The absence of the groups' abilities to recognize the importance of professional development related to each site's specific mission, goals, and related objectives may suggest that the value of their efforts was not truly recognized or understood by either group. This may have been due to the lack of supporting data or the inability of the school to gauge its progress relative to its point of origin.

Maintenance and Evaluation

Support of Technology: Community, District, Principal – The results were mixed in terms of community, district and principal support amongst the groups, which seemed to be the only commonality exhibited by this sample. Technical assistants were not questioned about the support of the community, district, and principal.

Teachers indicated mixed reviews for community, district, and principal support. Charlene was not able to detect any community support while Francine, Ashley and Jarod believed that the community was supportive because they visited the web sites of the schools, attended events, and were beginning to purchase computers as their finances allowed them. Principals noted community support through supporting documentation that indicated community involvement in various projects or events or as indicated by web site hits.

Francine believed that the district was supportive of technology because they offered training during various times of the day and year. Jarod believed that district support was strongly indicated by the offering of laptop computers to all district staff members who completed OK Techmaster Level II training. Charlene did not share this view. She believed that the district did not support technology because access to the same quantity of inventories was absent from other sites. Ashley indicated that the district supported technology by developing the school based upon bond issue funding. But, she also believed that that support had been eroded by the absence of technology expressed in the board's goals from 1993 to 1998 as well as the fact that teachers and principals were not evaluated based upon their technology skills and the subsequent

integration of technology into the curriculum. District support differed between the principals, ranging from envisioning a magnet school and the subsequent grant application to the lack of planning for future needs and sustainability.

And principals identified their support in terms of their attitudes and facilitation. All teachers identified principals' support such as encouragement and providing information (Ashley, Jarod and Francine) or providing access to adequate training (Charlene).

Impact on Role – The transition from how they had been taught to teach and how they currently taught was expressed by Charlene, Ashley, and Francine. They saw that technology changed how they taught (move from pencil and paper) to a more customized learning including research. Jarod's relatively new teaching career did not provide a reference for denoting as much of a change. Principals Jerry and Carol, saw their roles changing in terms of how they operated and how they communicated.

Technical assistants were not questioned about the change in their roles, however, Crystal's role had changed from computer lab assistant to certified teacher trainer of technology. Pam was a retiree who had been hired as a computer assistant. Their apparent skills or experiences provided for their current employment opportunities.

Lessons Learned and Related Problems – Responses to lessons learned based upon recommendations to others as they ventured into these innovative specialty and magnet schools included statements from Ashley, Charlene and Francine suggesting that staffs re-examine their specific mission and goals as well as the individual staff member's commitments to these purposes. Carol's statements were similar, suggesting that the

school and its leaders critically develop and review their agreed upon goals. While Jerry remarked that his recommendation was to get the best inventory as soon as possible, Jarod's interests lie in his own technology abilities and what he had learned rather than what he may have learned as a part of a staff or may have shared with others.

Problems identified by all teacher and principal groups centered on the need for a continuing emphasis, funding, and repair or replacement of equipment and services. Technical assistants were not questioned in this regard.

Budget for Technology – The various groups agreed that the budget for technology was inadequate. There was a common misunderstanding of the entire budgetary process and how that could have been managed at each site. Both principals concluded that funding was inadequate at the district level. Teachers were generally knowledgeable of the beginning acquisition of materials as a result of the bond issue or grant but had little or no knowledge of their program's continuance or sustainability for the future. Technical assistants were not questioned in this area.

Conclusions

The purpose of this case study was to examine the administrative leadership skills of the principalship with respect to educational technology in two urban schools. The guiding questions included:

1. What are the roles of the principal with respect to administrative leadership and educational technology in two urban schools, the curricular focus of which are aimed specifically toward technology?

2. What professional development opportunities are provided to those

principals? How do those professional development opportunities address

the needs of the administrative leaders? How do those professional

development opportunities affect staff and students?

3. How did the professional development offered by the two schools differ?

How did the perceptions of the principals of the respective schools differ

regarding professional development?

4. Are principals operating from a specific philosophy or learning theory? If

they are, which of the major learning theories serves as the foundation for

the leader? Is this discernible from interviews or observations? Which

learning theory was more prevalent amongst principals? And how did

this philosophical base impact the role of the instructional leader?

Research was lacking in this area of the literature review and, further, it appeared

that many administrators' needs were not being met with respect to professional

development. Since educational technology may still be relatively new and novel in

many ways, many districts are risking precious resources and time without taking

advantage of the experiences of others that may have been the risk takers or may have

applied researched-based practices in their program initialization processes.

In response to the four guiding research questions the following conclusions were

made:

The roles of the principal with respect to administrative leadership and education

technology in the two urban schools were closely related to the broad characteristics

defined by Inkster (1998): (1) Support of technology program, (2) Involvement in the

technology program directly and personally, (3) Multifaceted roles of support: leader, manager, politician, model, teacher, facilitator, and encourager, (4) Catalyst to encourage all degrees of users, (5) High expectations of competencies, (6) Utilization of shared decision-making processes with respect to technology development, (7) Intentional selection of personnel to compliment the technology focus, and (8) Personal life-long learning attitudes and skills for technology. The role that was emphasized in this study, in addition to those identified by Inkster (1998), was that of evaluator. Although each principal was not able to clearly identify the need for the role of evaluator or to base proficiencies of their leadership in that regard in terms of a standard, obvious deficiencies existed in effective and efficient utilization of resources and attainment of stated goals in both the specialty and magnet programs.

Professional development opportunities provided for the principals differed in that the magnet school proposal and implementation provided for the principal to be included in all aspects of training with the regular certified staff. However, Carol was not proficient in all areas of technology. The specialty school did not outline specific inservice series or certification levels for either the principal or certified staff. Rather, the computer lab teacher was in charge of providing professional development as she or the principal deemed necessary based upon the needs of individuals or groups of staff members. There was little indication that professional development of principals was directed toward their role as instructional leaders of educational technology. The ultimate impact of the apparent lack of professional development was not readily apparent, but it appears that without baseline data and ongoing empirical or qualitative evidence of professional development, serious deficiencies existed.

Professional development opportunities offered by the two schools differed in terms of funding, types of development, implementation and outcomes. Although the magnet program included funding for ongoing professional development, the specialty school participated in site- based professional development opportunities as well as utilizing online resources, classes at the university level and district led inservices. A definitive plan was not evident at the specialty school. Neither principal took the lead role in developing or implementing professional development. Rather, the magnet school developed a plan for professional development as determined by the hardware and software vendors. The specialty school conducted professional development as needed for special projects or programs. Principals' expectations and outcomes for direct impact on improved student performance were not readily apparent.

While Carol prescribed to a specific learning theory, of the constructivist perspective, Jerry neither prescribed to a particular theory or cited evidence that he actually knew which learning theories he operated from, given a particular situation or circumstance. Principal learning theories were not readily apparent from interviews or observations. It was not determinable which learning theory was more prevalent among the principals. Furthermore, the impact (or the lack thereof) that learning theory had on the principals in their roles of instructional leader was vague and suggested deficiencies or discrepancies in research-based school improvement model initiatives.

Both Shellway Elementary and Roslene Threet Elementary utilized vast sums of money to provide students with programs that were geared toward student success. Many years after their implementation, the district appeared to have little positive empirical evidence or measure of its goal. Far more alarming may be the fact that the

district may not be in a position to use its past experiences for reference in future technology investments. Data from the magnet program had not been shared with stakeholders for critical analysis. And, unfortunately, the specialty school did not collect baseline data for comparison analysis throughout the years. The only data that appeared to have been collected included school performance indicators that would not necessarily reflect utilization or integration of technology to any extent.

Shellway Elementary School was headed by a *visionary* leader who also took appropriate risks. She grew to be *supportive* of technology in her involvement in the magnet grant over a span of three years. While she was not an experienced leader in technology, she gave it her all. She was *directly involved* in every facet of the program planning, implementation, and training except for the initial grant writing and designation of the school as a mass media and broadcast communications site.

Carol was a *leader* in that she steered the staff, students, and community in the right direction in terms of program support and delivery. She was also a *manager* in the day-to-day operations of the technology with respect to the maintenance of the physical plant and equipment suited for technology. She was the *politician* in the sense that she looked for additional funding and sought out business partnerships. Her method of *modeling* was evident in her participation in training. She did not ask of others more than she was able to give, herself. Her staff respected her for this. Carol was the preverbal *teacher* with regards to her wanting to help with the students. She could be seen interacting with the students and monitoring their progress. She also *encouraged* her staff and students and believed that they could achieve their goals.

Carol's giving attitude and nature served her well as the *facilitator*. She knew what the needs of the staff were and provided for them. She also knew when things needed to be accomplished in a certain manner and facilitated such changes as deemed necessary.

As a *catalyst*, Carol was not as aggressive as she might have been. However, her staff was operating a fully functional radio and television-broadcasting studio each day. While she did not specify or have evidence of a particular technology standard to which she held her staff, she maintained that all staff members were held to *high expectations*. Her task was made more difficult in that the *personnel selection* had already been established prior to the magnet program and that their technology skills were barely discernible.

The Shellway Elementary School staff participated in *shared decision-making* processes with the use of the faculty advisory committee of the school. This committee, mandated by the negotiated bargaining union, met at least once per month. Carol's staff met regularly during faculty meetings to discuss the needs of the school. The advanced teachers were relied upon in many instances to make decisions about the hardware and software. The staff trusted them to make these decisions and had empowered them to do so with the support of the principal.

Selection of personnel was not a viable option for Shellway Elementary School's principal. Only one staff member had been hired during the three years of the magnet program. Carol did not give specific information relative to the questions asked of the new staff member, nor could her staff recount how the interview process was followed. And finally, the principal was prepared to participate in professional development during

the summer. She was cognizant of technology in her role as the principal. Carol did not mention immediate plans but saw the need to continue her skills in a way that would provide benefits to herself, her staff, and to her students and community. Her attitude conveyed a personal desire to be a *technological life-long learning.*

Roslene Threet Elementary School's principal was *supportive* as well, of the staff's involvement in educational technology. He took pride in the school's designation as a specialty school. Jerry participated in professional development both with the staff and at the district level. He proved to be a *leader, manager, politician, model, teacher, facilitator and encourager* in his tackling of the daily chores of his role as principal and as he led his staff, students, and community into a successful transition over four years. While Jerry appeared to be mild, his intentions were firm and his staff excelled to meet his *high expectations* of them. This was evidenced by the number of staff members who had completed the Level II OK Techmasters training provided by the state and held at district locations.

The use of *shared decision-making* was also evidenced by the use of the technology committee. The committee worked with the staff in developing projects and programs. Further, the programs and projects required the committee to work collaboratively with the community.

Jerry's care in the selection of *technologically proficient staff* members was also evident. He obviously had knowledge of what skills were needed in his specialty school staff although he was not proficient in all areas of technology.

As a *catalyst,* Jerry took on the added responsibilities of managing and closing out one school in pursuit of building a specialty school from the bottom up. He participated

in all aspects of the school's creation to include planning, building, transitioning, and implementation. His ability to develop and share his vision with others provided the impetus for the initial success of the school in attracting students from across the city.

And finally, Jerry knew that his role as the principal had changed dramatically over his career. He viewed technology as the wave of the future. He was making preparations to continue his professional development in order to more effectively carry out his duties and role as the instructional leader. In other words, he demonstrated an attitude of *technological life-long learning*.

Educational technology changes the paradigm of the school organization and leadership (Maurer, Davidson 1998) through a revolutionary method. This was evident in Shellway and Roslene Threet Elementary Schools. Considering the novice degree of experience that most staff members had in terms of computer literacy, each school had grown enormously in terms of technological advancement, primarily due to access of equipment and training, and the emphasis on professional development.

The school and community were impacted by involving all stakeholders as leaders in the school. Teachers were also regarded as leaders, not only in their classrooms but as a community of leading learners. The referent and expert powers (Raxik & Swanson, 1995) of the community of leaders provided some basis for security and knowledge to sustain the growth of the staff, students, principal, and community. The principals in this study were secure enough in themselves as leaders to share their leadership with those who were entrusted to educate minds young and old. The community of shared values (Lazotte, 1997) broadened the base of leadership to include the strength of all of its members. The principals' roles became one of the leader of leaders.

Inkster's eight characteristics of educational leadership of technology (1998)

exhibited by the principals included:

1. Support of the technology program

2. Involvement in the technology program directly and personally

3. Multifaceted roles of support: leader, manager, politician, model, teacher, facilitator, and encourager

4. Catalyst to encourage all degrees of users

5. High expectations of competencies

6. Utilization of shared decision-making processes with respect to technology development

7. Intentional selection of personnel to compliment the technology focus

8. Personal life-long learning attitudes and skills for technology

While each of the principals in the study exhibited these characteristics in varying

degrees it was not readily apparent what result their leadership had in terms of their

specific goals. And, while the characteristics gave a generally broad view of the

knowledge, skills, and attitudes of the administrative leader's role, the success to which

they might be applied was not apparent. The inclusion of specific standards for each of

the areas and a corresponding rubric would have better facilitated professional

development of technology through the phases of readiness, planning, training,

implementation, maintenance, (McQuarrie, Thompson, & Wood, 1982; 1984) and

evaluation. Clearly identifiable standards could possibly speak to the proficiency of

students, teachers, principals and support personnel with the application of a rubric or

some other method to quantify or gauge the effectiveness of the ensuing results thereof with respect to technology integration at the various levels.

More recently, the "Leave No Child Behind" (2002) legislation provides that it will no longer be acceptable to hide behind a multitude of activities, lack of research and undocumented evidence of a program's success or results. Rather, the invisible must be made visible (Schmoker, 1999) and the results will speak volumes concerning the necessary requirements of leadership for all of our students in the 21st Century.

Specifically, the eight characteristics identified by Inkster are broad and general guidelines which provide limited assistance to practioners or researchers. For example, characteristic 5: high expectations of competencies, should specify in detail what those expectations are and the extent to which staff members must demonstrate or exhibit high expectations. Certification in a particular area of technology or proficiency of application would suffice when compared to industry standards by which one could measure progress toward a common goal.

Recommendations

This case study added to the literature of characteristics for effective leadership of educational technology. While the multifaceted roles of principal as leader, manager, politician, model, teacher, facilitator, and encourager (Inkster, 1998) were cited, the researcher concluded the inclusion of the role of evaluator was required to ensure that the measures of success were results-oriented. While Inkster ignored the role of evaluator, it is this role that makes clearer the other roles and the need for operational definitions of each term. Furthermore, the need existed for clearly identifiable standards of proficiency

as well as a means for evaluating the effectiveness of the administrative leader's role with respect to their knowledge, skills, and attitudes toward technological life-long learning. Only after the effectiveness of the administrative leader's role in educational technology has been determined will it be possible to further gauge its impact on student performance.

The implications this study may have for other board members, community members, school districts, and educators at both common and higher education levels include the aspects of readiness, planning, training, implementation, and maintenance (RPTIM model - 38 practices focusing on what happens prior to, during, and after professional development McQuarrie, Thompson, & Woods, 1982;1984). This study adds the inclusion of evaluation as it applies to educational technology. With this inclusion of evaluation, measurement of proficiency or certification in the areas of educational technology leadership against a standard becomes necessary to gauge the full impact on improved student performance. Utilizing our resources to their fullest extent for the purpose of improving student performance should be one of education's highest priorities. Decision-making processes that exclude research, monitoring, and evaluation have costs that exceed our limited resources and may hinder further progress of educational technology in the 21st Century.

Chapter Summary

The role of the administrative school leader is vastly different in the 21st Century with the increased emphasis on educational technology. The role has emerged to become one of a leader of leaders. The principal must coordinate roles of *leader, manager,*

politician, encourager, model, teacher, facilitator, and evaluator. Practical application of research practices will be essential to the growing investments into educational technology. Districts should no longer write grants without taking into consideration the strengths of the school community and administrative leader. Districts can no longer afford to ignore the professional development needs of their leaders, be they principals, teachers, assistants or central office personnel. Failure to provide professional development may jeopardize the integration of technology into the system and ultimately may negatively impact student performance.

Further research into the most effective means of providing professional development may be warranted. Recommendations include that direct and deliberate thought be given into the hiring of all faculty members in not only specialty or magnet schools, but to all schools as they enhance their missions to promote and integrate technology into the curriculum. Specifically, that standards be adopted for technology proficiency as a regular part of the annual evaluative process and most certainly in the hiring of new staff members at all levels. It is recommended that the standards of the International Society for Technology in Education for both teachers and principals be fully adopted (2002).

The manner in which a district may pool its resources and work with partnerships in the business community may well serve the needs of both groups and save on expenses. Additionally, research into the tried and true application of research practices of the initial readiness, planning, implementation, training, maintenance (McQuarrie,

Thompson, & Wood, 1982; 1984) and evaluation of the characteristics recommended by Inkster (1998) would be valuable to other districts and may prevent errors and costly mistakes.

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APPENDIXES

APPENDIX A

FIRST PRINCIPAL INTERVIEW

1.   What are your personal skills in computer and technology related areas?

2.   How did you acquire your knowledge about computer and technology?

3.   What professional development opportunities would you pursue if you were to try to upgrade your skills in computer and technology related areas?

4.   How do you primarily use technology?

5.   What limitation do you have in your use of technology?

6.   Why does your school use technology?

7.   Does technology benefit your students? Why or why not?

8.   Do you have any reservations about the utilization of technology in your school?

9.   How is this school's implementation of technology different than other schools?

10.   Who are the technology leaders in this school and what are their roles?

11.   How would you describe your staff?

12.   What are the technological abilities of your staff?

13.   What impact has technology had on your profession?

14.   If I asked your staff about your role as the administrative leader, how would they describe you?

APPENDIX B

SECOND PRINCIPAL INTERVIEW

1. How do you support technology?

2. How are future technology plans devised?

3. What impact does technology have upon the students?

4. What recommendation do you have for other principals in terms of effective administrative leadership of educational technology?

5. How is your budget created and expenditures arrived at for related technology purchases?

6. Do you operate from a specific philosophy of learning theory and does this philosophical base impact your role as the instructional leader of educational technology?

APPENDIX C

STAFF INTERVIEW

1.   Describe your role as a staff member at this school?

2.   Describe your personal technology skills.

3.   Where did you gain your knowledge of technology?

4.   Where would you go for training in a specific area of technology?

5.   Tell me about your school's use of technology.

6.   What impact has technology had on your students? Achievement?

7.   What reservations might you have on using technology with your students?

8.   Describe the technology leaders in your school?

9.   Describe your school staff's abilities in technology.

10.   How does your principal support technology?

11.   How does the district support technology?

12.   How does the community support technology?

13.   Tell me about your school designation as a magnet school.

      Who were the critical decision-makers? How was your theme chosen?

      What have your learned that may help others in this area?

      What technology related problems exist?

14.   How does the principal support professional development related to technology?

15.   What role does technological expertise have when interviewing prospective applicants?

16.   What has enabled your school to use technology?

17.   What impact has technology had on your role as the teacher?

18.   Does your school have a budget for technology? Who develops this plan? How is the
      plan monitored and evaluated?

APPENDIX D

TECHNICAL SUPPORT INTERVIEW

1. Describe your role in the district?

2. How do you support technology at this school?

3. How is your role similar or different between magnet or specialty school as opposed to regular school?

4. Where do you go for professional development?

5. Where did you obtain your knowledge of technology?

6. Who are the technology leaders in the school?

7. How can they be more effective as leaders of technology?

APPENDIX E

PARTICIPANT CONSENT FORM

Conducted By Rochelle D. Converse   Oklahoma State University

I understand that participation in the interviews is voluntary, and that there is not a penalty for refusal to participate; and that I am free to withdraw my consent and participation in this project at any time.

I understand that the interviews will be conducted according to commonly accepted research procedures and that information taken from the interviews or supporting documentation will be recorded in such a manner that subjects cannot be identified directly or through identifiers linked to the subject.

I understand that the interview will not cover topics that could reasonable place the subject at risk of criminal or civil liability or be damaging to the subject's financial standing or employability or deal with sensitive aspects of the subject's own behavior such as illegal conduct, drug use, or sexual behavior.

I may contact Rochelle Converse at telephone number (405)751-3663 in case of any problems. I may also contact IRB Executive Secretary Sharon Bacher, University Research Services, 203 Whitehurst, Oklahoma State University, Stillwater, OK 74078; (405) 744-5700.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: _____ Time: _____(a.m./p.m.)

Signed: _____(Signature of Subject)

_____

Person authorized to sign for subject, if required

I certify that I have personally explained all elements of this form to the subject or his/her representative before requesting the subject or his/her representative to sign it.

Signed: _____

Project Director

APPENDIX F

LETTER TO PRINCIPAL

Dear Principal,

I am interested in conducting research at your school related to the role of the administrative leader's impact on educational technology. I am particularly interested in your school as you complete your third year as a magnet/specialty school specifically geared towards technology.

I believe that participation in this research will be beneficial to you, your school, and district in expanding the field of study in this area and helping to provide insight into the ways in which we can work more collaboratively to support educational technology. As part of my requirements for work toward my EdD degree in Educational Studies at Oklahoma State University, I would like to conduct a qualitative research project at your site. I hope you will agree to your school's involvement in this leadership model project.

I would like to spend some time visiting your school this spring observing your technology programs. I would also like to interview you and two teachers you might select for approximately thirty minutes each, scheduled at your convenience. In addition, I would like to examine documents pertaining to your magnet/specialty program with respect to technology.

As the investigator, I will use the data collected in the preparation of a research report to be submitted for scholarly publication. The interviews will be tape-recorded and transcribed, but the data will be destroyed no longer than one year from the date of collection, or the amount of time it takes to complete the research project, whichever is shorter.

If you choose to participate in the study, please sign the attached consent form, keep one for yourself, and return the other with your school's profile. If you have any questions, please call me at 751-3663 or email me at rdconverse@okcps.k12.ok.us.

I greatly appreciate your time and assistance, and look forward to working with you.

Respectfully,

Rochelle D. Converse

APPENDIX G

BIOGRAPHICAL INFORMATION OF PARTICIPANTS

1.   Name _____

2.   Position _____

3.   Years of Experience in current position _____

4.   Total years of experience in profession _____

5.   Degree

     __ BA/BS   __BA/BS+ __MA/MS __MA/MS+ __Ed.D/Ph.D

     __ Other

6.   Age

     __ 20-30 __ 31/40 __ 41/50 __51/60 __60+

7.   Gender __ Male __Female

8.   Experience with computers

     __ none __ little __ some __1-2yrs __ 3-4yrs __5/6 yrs

     __ specify other _____

APPENDIX H

TECHNOLOGY PROFILE

1.   Grades in your school _____

2.   Number of students _____

3.   Number of staff members _____

4.   Title I? _____

5.   Urban or Rural? _____

6.   Name of Technology coordinator?

7.   Are your school's computers accessible by all classrooms?

8.   How do students access computers?

9.   Are your school's computers distributed or are they in a lab?

10. Do teacher have access to computers for record keeping purposes? Are there

     separate computers for teacher? And if so where are they located?

11. What types of computers do you have?

12. What other types of technology do you have?

     Digital cameras, scanners, etc.

13. What types of software do you have?

14. How does the office use technology in its daily operations?

15. How does the media center use technology in its daily operations?

16. Does your school have a technology budget?

     How is the budget created, monitored and evaluated?

17. Does your school have a technology plan?

     Who created the plan, how is it monitored and who is responsible for the

     evaluation?

APPENDIX I

TI, T2, T3 TEMPLATES

APPENDIX J

TI, T2, T3 SHELLWAY

	T1	T2	T3
Teachers			
Technical Assistants			
Principal			

Background: Shellway Elementary School

Staff Interviews

1. Teachers: Charlene, Francine T1, T2, and T3
2. Technical Support Staff: Pam   T1, T2, and T3
3. Principal - Carol #1 and #2 T1, T2, and T3

T1: Readiness:	Roles, Skills and Knowledge
	Roles Technology Played with new Applicants
	Specialty Status - Critical Decision-Makers
T2: Implementation:	Use of Technology
	Impact on Students
	Staff Technology Abilities and Leaders
	Enabled School to Use Technology
T3: Maintenance and Evaluation:	
	Support of Technology: Community, District, Principal
	Impact on Role
	Lessons Learned and Related Problems
	Budget for Technology

APPENDIX K

T1, T2, T3 ROSELENE THREET

| | T1 | T2 | T3 |

Teachers

Technical Assistants

Principal

Background: Roslene Threet Elementary School

Staff Interviews

1. Teachers: Ashley, Jarod T1, T2, and T3
2. Technical Support Staff: Susan T1, T2, and T3
3. Principal - Jerry #1 and #2 T1, T2, and T3

T1: Readiness: Roles, Skills and Knowledge
                           Roles Technology Played with new Applicants
                           Specialty Status - Critical Decision-Makers
T2: Implementation: Use of Technology
                           Impact on Students
                           Staff Technology Abilities and Leaders
                           Enabled School to Use Technology
T3: Maintenance and Evaluation:
                           Support of Technology: Community, District,
                              Principal
                           Impact on Role
                           Lessons Learned and Related Problems
                           Budget for Technology

APPENDIX L

T1, T2, T3 TEACHER DIFFERENCES

T1   T2   T3

Differences

Teachers:
Differences -
Charlene,
Francine,
Jarod and
Ashley

Technical
Assistants

Principal

Different Teacher Views Across All Phases

Charlene, Francine, Jarod and Ashley
1. T1
2. T2
3. T3

T1: Readiness: Roles, Skills and Knowledge
                        Roles Technology Played with new Applicants
                        Specialty Status - Critical Decision-Makers
T2: Implementation: Use of Technology
                        Impact on Students
                        Staff Technology Abilities and Leaders
                        Enabled School to Use Technology
T3: Maintenance and Evaluation:
                        Support of Technology: Community, District,
                           Principal
                        Impact on Role
                        Lessons Learned and Related Problems
                        Budget for Technology

APPENDIX M

T1, T2, T3 TECHNICAL ASSISTANTS DIFFERENCES

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	T1	T2	T3

Teachers:
Differences
Charlene,
Francine,
Jarod and
Ashley

Differences

Technical
Assistants:
Differences
Pam
Crystal

Differences

Principal

Different Technical Assistant Views Across All Phases

Pam and Crystal

Role and Knowledge of Technology
Support of Technology
Professional Development
Technology Leaders in the School
Methods for Continued Effectiveness of Technology Leaders

APPENDIX N

T1, T2, T3 PRINCIPAL DIFFERENCES

T1   T2   T3

Teachers:
Differences
Charlene,
Francine,
Jarod and
Ashley

Differences

Technical
Assistants:
Differences
Pam
Crystal

Differences

Principals:
Differences
Carol
Jerry

Differences

Different Principal Views Across All Phases

Carol and Jerry   Interviews #1 and #2
1. T1
2. T2
3. T3

T1: Readiness:	Roles, Skills and Knowledge
	Roles Technology Played with new Applicants
	Specialty Status - Critical Decision-Makers
T2: Implementation:	Use of Technology
	Impact on Students
	Staff Technology Abilities and Leaders
	Enabled School to Use Technology
T3: Maintenance and Evaluation:	
	Support of Technology: Community, District, Principal
	Impact on Role
	Lessons Learned and Related Problems
	Budget for Technology

APPENDIX O

T1, T2, T3 COMMONALTIES ACROSS TEACHERS,

TECHNICAL ASSISTANTS AND PRINCIPALS

T1 T2 T3

Teachers:
Differences
Charlene,
Francine,
Jarod and
Ashley

Differences

Technical
Assistants:
Differences
Pam
Crystal

Differences

Principals:
Differences
Carol
Jerry

Differences

Commonalties

Commonalties Across Teachers, Technical Assistants and Principals

1. T1
2. T2
3. T3

T1: Readiness:	Roles, Skills and Knowledge
	Roles Technology Played with new Applicants
	Specialty Status - Critical Decision-Makers
T2: Implementation:	Use of Technology
	Impact on Students
	Staff Technology Abilities and Leaders
	Enabled School to Use Technology
T3: Maintenance and Evaluation:	
	Support of Technology: Community, District, Principal
	Impact on Role
	Lessons Learned and Related Problems
	Budget for Technology

APPENDIX P

INSTITUTIONAL REVIEW BOARD

APPROVAL FORM

Oklahoma State University
Institutional Review Board

Protocol Expires: 5/16/02

Date: Thursday, May 17, 2001   IRB Application No   ED01125

Proposal Title: ADMINISTRATIVE LEADERSHIP OF EDUCATIONAL TECHNOLOGY: A CASE STUDY
OF TECHNOLOGICAL INNOVATION IN OKLAHOMA SCHOOLS

Principal
Investigator(s):

Rochelle Converse   Bruce Petty
2312 Silver Field Lane   261 Willard
Edmond, OK 73003   Stillwater, OK 74078

Reviewed and
Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the
expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals
who may be asked to participate in this study will be respected, and that the research will be conducted in a
manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol
   must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year.
   This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are
   unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB
procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to
the IRB, in 203 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,

Carol Olson, Chair
Institutional Review Board

VITA $\mathcal{L}$

ROCHELLE DIANE CONVERSE

Candidate for the Degree of

Doctor of Education

Thesis: ADMINISTRATIVE LEADERSHIP OF EDUCATIONAL TECHNOLOGY: A CASE STUDY OF TECHNOLOGICAL INNOVATION IN OKLAHOMA SCHOOLS

Major Field: Curriculum and Instruction

Biographical:

Personal Data: Born in Great Lakes, Illinois, January 13, 1958.

Education: Received Bachelor of Science degree in Elementary Education from the University of Central Oklahoma, Edmond, Oklahoma 1986; received Master of Education degree in Elementary Administration from the University of Oklahoma, Norman, Oklahoma; completed requirements for the degree of Doctor of Education, Oklahoma State University in May, 2002.

Professional Experience: Employed as elementary teacher in Oklahoma City Public Schools, 1986 through 1990; Administrative Intern and Saturday School Coordinator, Oklahoma City Public Schools, 1990; Summer School Principal in Oklahoma City Public Schools, 1990; Assistant Principal at Fifth Year Center in Oklahoma City Public Schools, 1990-1991; Elementary Principal in Oklahoma City Public Schools from 1991-2001; Area III Administrator in Oklahoma City Public Schools 2001 to present.

Professional Memberships: National Association of Elementary Principals, Oklahoma Association of Elementary Principals, Oklahoma City Principals Association, American Federation of School Administrators, Association of Supervision and Curriculum Development; Kappa Delta Pi, International Honor Society in Education, Delta Kappa Gamma, International Honor Society for Women in Education.